Ciena

Bid Contact **Allen Smallwood**
jriley@ciena.com
Ph 404-433-0775

Address **5445 DTC Parkway**
suite 900
Greenwood Vllage, CO 80111

Bid Notes **Ciena is submitting our response to the WSCA-NASPO Master Agreement for Data Communications Products & Services, as well as an additional nine referenced Appendices (A - I).**

Item #	Line Item	Notes	Unit Price	Qty/Unit	Total Price	Attch.	Docs
JP14001--01-01	JP14001 - Data Communications Products & Services	**Supplier Product Code:**	**First Offer -**	1 / contract		**Y**	**Y**

Supplier Total **$0.00**

Ciena

Item: **JP14001 - Data Communications Products & Services**

Attachments
WSCA Cover Letter.docx
DG1400 - Data Com RFP FINAL Document - Ciena Response.doc
Utah TCs for WSCA Participating Addendum_DTS Related Contracts.docx
WSCA-NASPO TCs - 2013 March.doc
Attachment C - Cost Schedule.doc
A - Heavy Reading Metro P-OTS 2.0 Survey Snapshot[1].pdf
B - DellOro-Optical-Packet-Platform-Excerpt-1Q13.pdf
C - Ciena Standard Hardware Repair Services SOW.pdf
D - Standard Software Warranty_SOW.pdf
E - Standard Technical Support SOW.pdf
F - Ciena_Annual Report 2012.pdf
G - Ciena COMM Dunn Bradstreet Report.pdf
H - Ciena Specialst Brochure[1].pdf
I - Master Sales and License Agreement.doc
Authorized Signature.pdf

7035 Ridge Road
Hanover, MD 20176

www.ciena.com

August 29, 2013

WSCA
Attn: Jennifer Porter
State of Utah Division of Purchasing and General Services
State Office Building, Capitol Hill
Room 3150
Salt Lake City, UT 84114-1061

Jennifer,

Ciena is pleased to respond to the WSCA-NASPO Master Agreement for Data Communications Products & Services RFP, JP14001. Ciena values the opportunity to engage with WSCA and participating entities. Our goal is to deliver Ciena's industry leading solutions to meet your architectural requirements in a way that's customized to your immediate and long-term strategic initiatives.

Best-of-Class WDM and Carrier Ethernet 2.0 combine to position Ciena as the Global leader in Packet-Optical Transport Systems. Specifically, Heavy Reading and Dell'Oro have recognized Ciena's leadership in the following key areas:

- #1 Packet-Optical Transport Systems (P-OTS)
- #1 Long-Haul + Metro WDM
- #1 Ethernet Fiber Access
- #1 Optical Mesh

As such, Ciena is responding to the following Data Communications Services outlined in this RFP:

- 5.2.4: Optical Networking
- 5.2.8: Switches

Within Ciena's P-OTS portfolio, we specialize in legacy to next-gen service migration; low latency; encryption; video; OAM&P; equipment and network resiliency; and optical reach and performance. We are confident in our ability to provide WSCA and it's constituents a combination of industry leading technology, tailor architected networks, and a full suite of service and NOC options.

We welcome the opportunity to discuss Ciena's portfolio and it's applicability to the WSCA community.

Thank you for the opportunity!

Sincerely,
Jim Riley

Jim Riley
Ciena Sales

ciena

The State of Utah Division of Purchasing and General Services

In conjunction with

WSCA–NASPO
COOPERATIVE PURCHASING ORGANIZATION, LLC

Request for Proposals

JP14001

WSCA-NASPO Master Agreement for DATA COMMUNICATIONS PRODUCTS & SERVICES

July 1, 2013

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REQUEST FOR PROPOSAL
DATA COMMUNICATIONS PRODUCTS AND SERVICES CONTRACT
Solicitation # JP14001 Revised 5/30/2013

Section 1: WSCA-NASPO Solicitation General Information

1.1 Purpose of Request for Proposal (RFP)

The State of Utah, Division of Purchasing is requesting proposals in conjunction with WSCA-NASPO Cooperative Purchasing Organization, LLC (WSCA-NASPO). The purpose of this request for proposal is to establish master agreements with qualified manufacturers to provide Data Communications products and services outlined in the specifications for all participating States. The services resulting from the award of this solicitation are to be available to all state entities, cities, counties, higher education, school districts and other political subdivisions on an as needed basis under the same pricing and terms and conditions agreed to in the Master Agreement.

It is anticipated that this RFP may result in Master Agreement awards to multiple contractors.

While the primary purpose of this solicitation is to select a proposer(s) who can offer the Products or Services for all Participating States, proposers are permitted to submit a proposal on more limited geographical areas, but not less than one entire Participating State. Proposers must clearly describe the geographical limits (e.g. by State name) if proposing a geographical area less than that of all Participating States. However, if a proposer elects to submit a Proposal for a single State then the proposer must be willing to supply the entire State and will not be allowed to add additional States following award or at any time during the term of the contract or any renewals.

A Participating State may evaluate and select a proposer for award in more limited geographical areas (e.g. A single state) where judged to be in the best interests of the State or States involved.

Each participating entity shall select the authorized contractor(s) they choose to do business with during the participating addendum process. A participating entity may require the authorized contractor(s) to submit additional information regarding their firm as part of the selection process during the execution of a participating addendum. This information could include, but is not limited to; partners or resellers approved under their PA, business references, number of years in business, technical capabilities, and the experience of both their sales and installation personnel.

Each participating entity has the option to select one or more product categories or services from the resulting Master Agreement(s) during the execution of the participating addendum process.

Each participating entity has the option to negotiate an expanded product line within the product category offering and within the scope of this RFP during the Participating Addendum process. Any additional incremental discounts available to a Participating Entity, if offered, may be provided at the discretion and as the sole legal obligation of the Contract provider or their Authorized Sub-Contractor to the Participating Entity and negotiated during the Participating Addendum process. All Participating entities have the right to put dollar limits and certain line item, parts or on the total amount purchased per occasion on their individual PA's as they deem appropriate.

The resulting Master Agreement will be awarded with the understanding and agreement that it is for the sole convenience of the participating entities. The participating entities reserve the right to obtain like goods or services from other sources when necessary.

This RFP is designed to provide interested proposers with sufficient basic information to submit proposals meeting minimum requirements, but is not intended to limit a proposal's content or exclude any relevant or essential data. Suppliers are encouraged to expand upon the specifications to evidence service and capability.

Ciena Response: Read and Understood.

1.2 WSCA-NASPO Background Information

WSCA-NASPO is a cooperative purchasing organization of all 50 states, the District of Columbia and the organized US territories. WSCA-NASPO is a subsidiary of the National Association of State Procurement Officials (NASPO). NASPO is a non-profit association dedicated to strengthening the procurement community through education, research, and communication. It is made up of the directors of the central purchasing offices in each of the 50 states, the District of Columbia and the territories of the United States. For more information consult the following websites www.wsca-naspo.org and www.naspo.org

Obligations under master agreements that result from this cooperative procurement are limited to those states and other eligible entities that execute a Participating Addendum:

63G-6a-2105. Participation of a public entity or a procurement unit in agreements or contracts of procurement units -- Cooperative purchasing -- State cooperative contracts.

> (2) A public entity may obtain a procurement item from a state cooperative contract or a contract awarded by the chief procurement officer under Subsection (1), without signing a participating addendum if the quote, invitation for bids, or request for proposals used to obtain the contract includes a statement indicating that the resulting contract will be issued on behalf of a public entity in Utah.

Financial obligations of Participating States (Entities) are limited to the orders placed by the departments, agencies and institutions of that Participating State (Entity) having legally available funds. Participating States incur no financial obligations on behalf of its political subdivisions, other governmental entities or other eligible entities.

Unless otherwise specified in the solicitation or a Participating Addendum, the resulting master price agreement(s) will be permissive.

This RFP is designed to provide interested Offerors with sufficient basic information to submit proposals meeting minimum requirements, but is not intended to limit a proposal's content or exclude any relevant or essential data. Proposals must be succinct, concise, and as short as possible to allow for efficient evaluation. Blanket marketing material and unnecessary elaborate brochures or representations beyond what is sufficient to present a complete and effective proposal are not acceptable.

Offerors must respond to any or all of the 12 categories that follow. The following product and service categories are included in this RFP:

1. Data Center Application Services
2. Networking Software
3. Network Management and Automation
4. Network Optimization and Acceleration
5. Optical Networking
6. Routers
7. Security
8. Storage Networking
9. Switches
10. Wireless
11. Unified Communications
12. Services

Ciena Response: Read and Understood.

1.3 Objective

The objective of this RFP is to obtain deeper volume price discounts than are obtainable by an individual state or local government entity. This discount is based on the collective volume of potential purchases by the numerous state and local government entities. The savings realized by the contractor in managing one

comprehensive WSCA-NASPO Master Agreement rather than numerous state and local contracts should result in the most attractive service level and discounts available in the marketplace.

The Master Agreement(s) resulting from this procurement may be used by state governments (including departments, agencies, institutions), institutions of higher education, political subdivisions (i.e., colleges, school districts, counties, cities, etc.), and other eligible entities subject to approval of the individual state procurement director and local statutory provisions.

Participation by political subdivisions, other government entities and other eligible participants is with the authorization or acknowledgement of the specific state chief procurement official, and the execution of a Participating Addendum.

Ciena Response: Read and Understood.

1.4 Solicitation Background

This is a rebid for the current for the WSCA-NASPO Data Communications Equipment, Supplies and Services contracts. Eight (8) Manufacturers currently have Master Contracts to provide Data Communications Equipments, Supplies and Services. They are as follows:

Alcatel-Lucent – AR1466
Brocade Communications – AR214
Cisco Systems – AR233
Enterasys Networks, Inc. – AR1471
Extreme Networks – AR1471
Hewlett-Packard - AR1464
Juniper Networks – AR229
Meru Networks – AR218

Although the State of Utah and WSCA-NASPO does not guarantee any usage or spend under these contracts, for bid purposes only, the total combined spend on these contracts for 2012 was $204 million dollars.

Ciena Response: Read and Understood.

1.5 Issuing Office and Solicitation Number

The State of Utah, Division of Purchasing is the issuing office for this document and all subsequent addenda relating to it. The reference number for the transaction is Solicitation # JP14001. This number must be referred to on all proposals, correspondence, and documentation relating to the RFP.

Ciena Response: Read and Understood.

1.6 WSCA-NASPO Contract Administrator

The WSCA-NASPO Contract Administrator designated by WSCA-NASPO and the State of Utah, Division of Purchasing and General Services is:

Name: Jennifer Porter
State of Utah Division of Purchasing and General Services
State Office Building, Capitol Hill
Room 3150
Salt Lake City, UT 84114-1061
Email: jenniferporter@utah.gov
Phone: 801-538-3064
Fax: 801-538-3882

Ciena Response: Read and Understood.

1.7 Proposal Submittal

Offers must be received, according to instructions, by the posted due date and time. Offers received after the deadline will be non-responsive.

Proposals are due August 30, 2013 at 11:00 am MST

Questions will be accepted until July 26, 2013 at 11:00 am MST

Data Communication RFP Release Webinar is scheduled for July 11, 2013. Webinar details will be posted on the WSCA-NASPO website (www.wsca-naspo.org).

The preferred method of submitting your original 'master' proposal packet is electronically in Microsoft Word and Excel through BidSync, (www.bidsync.com), or you may mail or drop off your hard copies to the address noted in Section 1.6 of this RFP on or before the due date and time. The original 'master' proposal packet shall include a separate document or sealed envelope labeled "SOLICITATION # JP14001 Cost Schedule" that contains the pricing document. Please note that the State of Utah Division of Purchasing office is closed on Saturday and Sunday and therefore does not accept deliveries on those days.

When submitting an offer electronically through BidSync, please allow sufficient time to complete the online forms and upload documents. The solicitation will end at the closing time listed in the offer. If you are in the middle of uploading your documents at the closing time, the system will stop the process and your offer will not be received by the system. It is recommended that the submission process be completed the day prior to the due date, with the knowledge that any changes/updates will be accepted through the due date and time.

Electronic offers may require the uploading of electronic attachments. BidSync's site will accept a wide variety of document types as attachments. However, the submission of documents containing embedded documents (zip files), mov, wmp, and mp3 files are prohibited. All documents should be attached as separate files.

BidSync customer support may be contacted at (800) 990-9339 for guidance on the BidSync site.

Respondents are responsible for ensuring that their BidSync registration information is current and correct. The State of Utah accepts no responsibility for missing or incorrect information contained in the vendor registration in BidSync. Incorrect or missing vendor registration information may result in failure to receive notification from BidSync regarding this procurement.

In addition to the original 'master' proposal packet submission, Respondents are required to send one (1) hard copy and one (1) electronic version (Microsoft Word and Excel) of the complete proposal, **excluding pricing information**, to each of the evaluation team members listed below. Each proposal packet shall be marked with the solicitation number and be in accordance with the submittal requirements. The original 'master' sent to the WSCA-NASPO Master Agreement Administrator identified in Section 1.6 of this RFP will prevail in resolving any discrepancies.

Alaska – Ted Fawcett
Contracting Officer
ted.fosket@alsaka.gov

California - Bonnie Bahnsen
bonnie.bahnsen@dgs.ca.gov

Nevada – Marti Marsh
Purchasing Officer
mmarsh@admin.nv.gov

New Jersey – Vicente Azarcon
Procurement Specialist
vicente.azarcon@treas.state.nj.us

Utah – Jennifer Porter

Purchasing Agent
State of Utah
jenniferporter@utah.gov

Ciena Response: Read and Understood.

1.8 Current State Participants

The States currently participating in the existing contracts are: Alaska, Arkansas, California, Colorado, Delaware, District of Columbia, Hawaii, Idaho, Iowa, Kentucky, Louisiana, Minnesota, Missouri, Montana, Nevada, New Jersey, Oklahoma (Grand River Dam Authority), Oregon, South Dakota, Utah, Washington, Wisconsin and Wyoming.

States with "Intent to Participate" – The following states have executed an Intent to Participate thru WSCA-NASPO, which simply indicates that they want to be formally listed in the published Request for Proposal as participating in the solicitation process: California, Hawaii, Minnesota, Missouri, Montana, Nevada, New Jersey, South Carolina, South Dakota, Utah, Vermont and Washington. All 56 NASPO members are eligible to participate in all WSCA-NASPO contracts when and if they decide they want to, in accordance with their individual statutory requirements.

Ciena Response: Read and Understood.

1.9 Governing Laws and Regulations

This procurement is conducted by the State of Utah, Division of Purchasing & General Services, in accordance with the Utah Procurement Code. These are available at the Internet website www.purchasing.utah.gov for the State of Utah's Division of Purchasing & General Services.

The laws of the State of Utah will govern all Master Agreements that result from this procurement unless the Data Communications Products and Services Provider and participating entity agree in a Participating Addendum that the laws of another jurisdiction will govern purchases made by purchasing entities within the jurisdiction of the participating entity.

Ciena Response: Read and Understood.

1.10 Length of Contract

The Master Agreement(s) resulting from this RFP will be for a period of five years (initial term). The Master Agreement(s) may be extended beyond the original Master Agreement period for a two (2) year period, by mutual agreement.

Ciena Response: Read and Understood.

1.11 Pricing Structure

Pricing Structure: Pricing for the WSCA-NASPO Master Agreements shall be based on the Percent Discount off the current global MSRP Schedule applicable to United States customers.

Ciena Response: Comply.

1.12 Price Guarantee Period

Price Guarantee Period: The Data Communication Provider's Discount rate shall remain in effect for the term of the WSCA-NASPO Master Price Agreement.

Ciena Response: Read and Understood.

1.13 Price Escalation

Equipment, Supplies and Services: Data Communications provider may update the pricing on their MSRP price list one time every year after the first year of the original contract term. The WSCA-NASPO Contract Administrator will review a documented request for a Price Schedule price list adjustment only after the Price Guarantee Period.

Ciena Response: Read and Understood.

1.14 Price Reductions

In the event of a price decrease in any category of product at any time during the contract in a Provider's Price Schedule, including renewal options, the WSCA-NASPO Contract Administrator shall be notified immediately. All Price Schedule price reductions shall be effective upon the notification provided to the WSCA-NASPO Master Agreement Administrator.

Ciena Response: Read and Understood.

1.15 Usage Reporting Requirement

All Data Communication Provider's will be required to provide quarterly usage reports to the WSCA-NASPO Contract Administrator or designee. The initiation and submission of the quarterly reports are the responsibility of the Data Communication Contract Provider. You are responsible to collect and report all sales data including your resellers and partners sales associated with your Master Agreement. There will be no prompting or notification provided by the WSCA-NASPO Contract Administrator.
Quarterly reports must coincide with the quarters in the fiscal year as outlined below:

Quarter #1: July 1 through September 30, due annually by October 30.
Quarter #2: October 1 through December 31, due annually by January 30.
Quarter #3: January 1 through March 31, due annually by April 30.
Quarter #4: April 1 through June 30, due annually by July 30.

Respondents must identify the person responsible for providing the mandatory usage reports. This contact information must be kept current during the Master Agreement period. The WSCA-NASPO Contract Administrator must be notified if the contact information changes. The contact information for the person responsible for the mandatory quarterly usage reporting must be specified per Section 3.1.5.

The purpose of the Master Agreement usage-reporting requirement is to aid in Master Agreement management. The specific report content, scope, and format requirements will be provided to the awarded Data Communications Products and Services Provider's during Master Agreement execution. Some WSCA-NASPO States may require additional reporting requirements. Those requirements will be addressed through the individual participating entity's Participating Addendum process. Failure to comply with this requirement may result in Master Agreement cancellation.

Ciena Response: Read and Understood.

1.16 Standard Contract Terms and Conditions

Any Master Agreement resulting from this RFP will include, but will not be limited to, the WSCA-NASPO Standard Master Agreement Terms and Conditions, the State of Utah Additional Terms and Conditions (Appendix A) and any additional terms and conditions specific to WSCA-NASPO participating addendums for participating entities. The WSCA-NASPO Master Agreement Terms and Conditions and State of Utah Additional Terms and Conditions will take highest precedence in any contract resulting from this solicitation. Vendors must clearly identify exceptions to the WSCA-NASPO Standard Master Agreement Terms and Conditions and the State of Utah Additional Terms and Conditions in the bid submission. Vendor exceptions must include proposed solution language. Failure to submit exceptions and/or solution language will constitute vendor acceptance of WSCA-NASPO and State of Utah Additional Terms and Conditions. No third party terms and conditions will be allowed in resulting contracts awarded under this solicitation.

Additional vendor terms and conditions must be submitted with the solicitation bid response for legal review and contract applicability. Submission of vendor terms and conditions with a bid response does not guarantee acceptance. Vendor terms and condition will not include any reference to website URLs that house additional terms and conditions. All terms and conditions associated with resulting contracts will be identified and attached to the WSCA-NASPO Master Agreement. The State of Utah reserves the right to accept, reject, and/or negotiate vendor terms and conditions after the award(s) have been made if it is in the best interest of the State of Utah. Participating States reserve the right to negotiate vendor terms and conditions during the Participating Addendum process. Vendor terms and conditions included with a bid response are limited to a maximum of 10 pages ($8^{1/2}$ x 11 inch paper, 10 pt Arial font, and single sided). Failure to adhere to these terms and conditions requirements may result in vendor disqualification.

Ciena Response: Read and Understood. Please see Vendor response to Section 7 below.

1.17 Questions

All questions must be submitted through BidSync. Answers will be given via the BidSync website. Questions received after the Question/Answer period will not be answered. No agency employee, board member, or evaluation committee member should be contacted concerning this solicitation during the solicitation posting and selection process. Failure to comply with this requirement may result in vendor disqualification.

Ciena Response: Read and Understood.

1.18 Discussions with Respondents (Oral Presentation)

An oral presentation by a Respondent to clarify a proposal may be required at the sole discretion of the WSCA-NASPO Master Agreement Administrator. However, the WSCA-NASPO Contract Administrator may award a Master Agreement based on the initial proposals received without discussion with the Respondent. If oral presentations are required, they will be scheduled after the submission of proposals. Oral presentations will be made at the Respondents expense.

Ciena Response: Read and Understood.

1.19 Protected Information

The Government Records Access and Management Act (GRAMA), Utah Code Ann., Subsection 63-2-304, provides in part that:

> the following records are protected if properly classified by a government entity:
> (1) trade secrets as defined in Section 13-24-2 if the person submitting the trade secret has provided the governmental entity with the information specified in Section 63-2-308 (Business Confidentiality Claims);
> (2) commercial information or non-individual financial information obtained from a person if:
> (a) disclosure of the information could reasonably be expected to result in unfair competitive injury to the person submitting the information or would impair the ability of the governmental entity to obtain necessary information in the future;
> (b) the person submitting the information has a greater interest in prohibiting access than the public in obtaining access; and
> (c) the person submitting the information has provided the governmental entity with the information specified in Section 63-2-308;
> * * * * *
> (6) records the disclosure of which would impair governmental procurement proceedings or give an unfair advantage to any person proposing to enter into a contract or agreement with a governmental entity, except that this Subsection (6) does not restrict the right of a person to see bids submitted to or by a governmental entity after bidding has closed; ....

GRAMA provides that trade secrets, commercial information or non-individual financial information may be

protected by submitting a Claim of Business Confidentiality.

To protect information under a Claim of Business Confidentiality, the Respondent must:

1. provide a written Claim of Business Confidentiality at the time the information (proposal) is provided to the State, and
2. include a concise statement of reasons supporting the claim of business confidentiality (Subsection 63-2-308(1)).
3. submit an electronic "redacted" (excluding protected information) copy of your proposal response. Copy must clearly be marked "Redacted Version." Failure to submit a redacted version may result in release of your entire proposal.

A Claim of Business Confidentiality may be appropriate for information such as client lists and non-public financial statements. **Pricing and service elements cannot be protected**. **An entire proposal cannot be protected under a Claim of Business Confidentiality or Propritary. Failure to comply with this requirement many result in your proposal being ruled Non-Responsive** and no longer considered**.** The claim of business confidentiality must be submitted with your proposal on the form which may be accessed at:
www.purchasing.utah.gov/contract/documents/confidentialityclaimform.doc

To ensure the information is protected, the Division of Purchasing asks the Respondent to clearly identify in the Executive Summary and in the body of the proposal any specific information for which a Respondent claims business confidentiality protection as "PROTECTED".

All materials submitted become the property of the State of Utah. Materials may be evaluated by anyone designated by the State as part of the sourcing team. Materials submitted may be returned only at the State's option.

Ciena Response: Read and Understood.

1.20 WSCA Administrative Fee

The Contracted Supplier must pay a WSCA-NASPO administrative fee of one quarter of one percent (.025%) in accordance with the terms and conditions of the contract. The WSCA-NASPO administrative fee shall be submitted quarterly and is based on the actual sales of all products and services in conjunction with your quarterly reports. The WSCA-NASPO administrative fee must be included when determining the pricing offered. The WSCA-NASPO administrative fee is not negotiable and shall not be added as a separate line item on an invoice.

Additionally, some WSCA-NASPO participating entities may require that an administrative fee be paid directly to the WSCA-NASPO participating entity on purchases made by purchasing entities within that State. For all such requests, the fee percentage, payment method and payment schedule for the participating entity's administrative fee will be incorporated in the Participating Addendum. Data Communications Provider will be held harmless, and may adjust (increase) the WSCA-NASPO Master Agreement pricing by the fee percentage for that participating entity accordingly for purchases made by purchasing entities within the jurisdiction of the State. All such agreements may not affect the WSCA-NASPO fee or the prices paid by the purchasing entities outside the jurisdiction of the participating entities requesting the additional fee.

Ciena Response: Read and Understood.

1.21 Interest

Any payments that a Contracted Supplier makes or causes to be made to WSCA-NASPO after the due date as indicated on the Quarterly Report schedule shall accrue interest at a rate of 18% per annum or the maximum rate permitted by law, whichever is less, until such overdue amount shall have been paid in full. The right to interest on late payments shall not preclude WSCA-NASPO from exercising any of its other rights or remedies pursuant to this agreement or otherwise with regards to Data Communication Provider's failure to make timely remittances.

Ciena Response: Read and Understood.

1.22 Proposal Offer Firm

Responses to this RFP, including proposed discounts offered will be considered firm for one hundred and sixty (160) days after the proposal due date. By signature (electronic or otherwise) and submission of a proposal, the person signing verifies that they are authorized to submit the proposal and bind the firm to provide the products/services in the proposal and potential Master Agreement.

Ciena Response: Comply.

1.23 Cancellation of Procurement

This RFP may be canceled at any time and any and all proposals may be rejected in whole or in part when the State of Utah, Division of Purchasing and General Services determines such action to be in the best interest of the State of Utah.

Ciena Response: Read and Understood.

1.24 Right to Waive

The sourcing team reserves the right to waive minor irregularities at its sole discretion.

Ciena Response: Read and Understood.

1.25 Right to Accept All or Portion

It is our intent to accept the entire line of Data Communications Equipment and Services (included in the scope) from the awarded Data Communications Providers, however we reserve the right to accept all or a portion of a Respondents proposal.

Ciena Response: Read and Understood.

1.26 Service Line Additions and Updates

During the term of the contract, Data Communications Providers may submit a request to update the awarded items (within the scope listed in IDENTIFY SECTION) as new technology is introduced, updated or removed from the market. The Master Agreement Administrator will evaluate requests and update the contract offering via written amendment as appropriate. The Data Communications Service Provider shall update the dedicated website, price lists, and catalogs to reflect approved changes. Pricing must utilize the same pricing structure as was used for services falling into the same service category.
Ciena Response: Read and Understood.

1.27 Right to Publish

Throughout the duration of this procurement process and Master Agreement term, Respondents, Data Communications Providers and their authorized contractors must secure from the WSCA-NASPO Contract Administrator prior approval for the release of any information that pertains to the potential work or activities covered by this procurement or the Master Agreement. The Data Communications Provider shall not make any representations of WSCA-NASPO's opinion or position as to the quality or effectiveness of the services that are the subject of this Master Agreement without prior written consent of the WSCA-NASPO Contract Administrator. Failure to adhere to this requirement may result in disqualification of the Respondents proposal or termination of the Master Agreement for cause

Ciena Response: Read and Understood.

1.28 Changes in Representation

The Contracted Supplier must notify the WSCA-NASPO Contract Administrator of changes in the Contracted Supplier's key administrative personnel, to the extent that there may be adverse impacts to the contract. The

WSCA-NASPO Contact Administrator reserves the right to require a change in Contracted Supplier(s) representatives if the assigned representative(s) is not, in the opinion of the WSCA-NASPO Contract Administrator, meeting the terms and conditions of the contract.

Ciena Response: Read and Understood.

1.29 E-Rate Requirement

All award contractors must commit to participation in the Federal Communication Commission's E-rate discount program established under authority of the Federal Telecommunications Commission Act of 1996. Participation in, and implementation of, this program must be provided without the addition of any service or administration fee by the contractor.

Ciena Response: Comply. For E-Rate procurement, Ciena leverages Ciena-authorized partners and their E-Rate SPIN#s.

1.30 Section 508 Compliant

Respondents must meet all Federal and State regulations required to these type of products including but limited to accessible products by describing their support of the applicable provisions of the Workforce Investment Act of 1998, Section 508.

Ciena Response: Read and Understood.

1.31 Glossary

Authorized Contractor: The Prime Contractor as listed as Contractor under the resulting Master Agreement(s) as a result of this RFP.

Authorized Sub Contractor: sub Contractor, Reseller, Partner, etc. Authorized by the Contractor (Prime) to sell only the products and services listed under the Master Agreement (s) established as a result of this RFP. This authorized sub contractor must have the authority and ability to accurately reflect the ability of the Respondent to meet the requirements detailed in this RFP.

WSCA-NASPO Contract Administrator: A dedicated person with the authority and ability to manage compliance with the scope and terms and conditions for this contract.

Mandatory Minimum Requirements: Requirements that must be met in order to be considered for further evaluation. Mandatory minimum requirements are non-negotiable. An offer that does not meet the mandatory minimum requirements will be disqualified from further consideration.

Participating Addendum: A Participating Addendum must be executed by any State that decides to adopt a WSCA-NASPO Master Agreement.

> A Participating Addendum shall be executed for each contractor by the individual State desiring to use their contract.
>
> Additional States may be added with the consent of the contractor and the Lead State (on behalf of WSCA-NASPO) through execution of Participating Addendums.
>
> A Participating Addendum allows for each Participating State to add terms and conditions that may be unique to their State.
>
> The Participating State and the Contractor shall negotiate and agree upon any additional terms and conditions prior to the signing and execution of the Participating Addendum.
>
> States are not mandated to sign a Participating Addendum with all awarded vendors.

Participating Entity: A State that has indicated intent to participate in the solicitation process, or after

award, a State that has executed a participating addendum.

Purchasing Entity: Any end-user in a participating State that is eligible to use the Master Agreement(s) through the participating addendum, including but not limited to State Agencies, Counties, Cities, Education, and other entities.

Qualified Entity: An entity that is eligible to use the Master Agreement(s).

Usage Report Administrator: A contractors person responsible for the quarterly sales reporting and payments described in Section 1.15 Usage Reporting Requirement.

Volume Discount: A percentage discount offered by the seller to the buyer for purchasing a stated dollar amount of Data Communications services and products to be delivered at one time or for a specified period.

Sourcing Team: The technical and business team charged with setting requirements for the Data Communications procurement, and its subsequent evaluation.

Section 2: General Proposal Requirements and Information

2.1 Proposal Content and Format Requirements

Proposals must be detailed and concise. Unless otherwise stated in your proposal as an "exception", Respondents agree to comply with every section, subsection, attachment and addendum of this RFP. Each proposal must be submitted in Microsoft Word or Excel, labeled and organized in a manner that is congruent with the section number, headings, requirements, and terminology used in this RFP. Proposal documents must be Arial font size 10. Respondent responses that are limited to a specified number of pages are referring to single sided pages. As an example, a response that is limited to a document that is no more than two pages long may be submitted on one double sided page, but not two double sided pages.

Ciena Response: Read and Understood.

2.2 RFP Revisions

Revisions, if any, and all written questions and the State's answers, will be posted on the BidSync website. Solicitation documents will not be mailed to prospective Proposers. Respondents must register (free of charge) as a vendor with BidSync in order to have access to the RFP and related documents. Respondents are responsible for ensuring that their registration information is current and correct. The State of Utah accepts no responsibility for missing or incorrect information contained in the supplier's registration information on BidSync. The State of Utah accepts no responsibility for a prospective Respondent not receiving solicitation documents and/or revisions to the solicitation. It is the responsibility of the prospective Respondent to obtain the information provided through BidSync.

Ciena Response: Read and Understood.

2.3 Right to Waive

The State of Utah reserves the right to waive any informality or technicality in any proposal.

Ciena Response: Read and Understood.

2.4 Proposals Become Property of the State of Utah

All proposal contents become the property of the State of Utah. All proposal content is proprietary during the proposal evaluation process. Upon Master Agreement award, the successful Respondents' proposals will be open to public inspection, by request, with the exception of any proposal content that is marked as "proprietary or confidential" by the Respondent. All content designated as "proprietary or confidential" must be supported by documentation as to the rationale for the proprietary nature of the information.

Ciena Response: Read and Understood.

2.5 News Releases

News releases or other public disclosure of information pertaining to this RFP or the statewide contracts may not be published without the prior written permission of the State of Utah.

Ciena Response: Read and Understood.

2.6 State Seal Use

The Utah Great Seal Rule states, in section R622-2-3.Custody and Use, that "no facsimile or reproduction of the Great Seal may be manufactured, used, displayed, or otherwise employed by anyone without the written approval of the Lieutenant Governor."

Other participating States have similar rules that must be adhered to by Respondents or interested parties.

Ciena Response: Read and Understood.

Section 3: Data Communications Provider Mandatory Minimum Requirements

3.1 General Information

This section contains requirements that must be addressed in order for your proposal to be considered for the evaluation phase of this RFP. All of the items described in this section are non-negotiable. Respondents are required to complete:

Mandatory Requirements (M)
All Respondents must meet the **(M)** requirements listed in this section, and explain how the requirement is met. A 'no' response on the acceptance document or omission of the required explanation will disqualify the service from further evaluation.

3.1.1 Equipment Offering

(M) Identify Equipment Offering in sections 5.2.1-5.3.0.

Ciena Response: Ciena's portfolio is targeted towards Sections 5.2.4 – Optical Networking and 5.2.8 – Switches. Ciena elects not to respond to other sections of this RFP in favor of continued leadership in our key areas of expertise. While some vendors try to be all-things to all-people, Ciena specializes in Packet-Optical solutions which allows us to target our R&D and support investments. This concentrated focus enables us to lead the industry in Ethernet and Optical innovation, resiliency, and performance.

3.1.2 Service Offering

(M) Identify Service Offerings for all products offered in Sections 5.2.1-5.3.0.

Ciena Response: Ciena's portfolio is targeted towards Sections 5.2.4 – Optical Networking and 5.2.8 – Switches. Ciena elects not to respond to other sections of this RFP in favor of continued leadership in our key areas of expertise. While some vendors try to be all-things to all-people, Ciena specializes in Packet-Optical solutions which allows us to target our R&D and support investments. This concentrated focus enables us to lead the industry in Ethernet and Optical innovation, resiliency, and performance.

3.1.3 Insurance Requirement

(M) This pertains to the State of Utah insurance requirements. Other Participating States may identify

different insurance requirements during the participating addendum process.

Data Communications Provider's and their authorized contractors shall procure and maintain insurance which shall protect the authorized contractor and The State and/or purchasing entity (as an additional insured) from any claims from bodily injury, property damage, or personal injury covered by the indemnification obligations set forth herein. The Data Communications Provider's authorized contractor shall procure and maintain the insurance policies described below at their own expense and shall furnish to the procurement manager, upon award, an insurance certificate listing the participating State(s) as certificate holder and as an additional insured. The insurance certificate must document that the Commercial General Liability insurance coverage purchased by the authorized contractor to include contractual liability coverage applicable to this Master Agreement. In addition, the insurance certificate must provide the following information: the name and address of the insured; name, address, telephone number and signature of the authorized agent; name of the insurance company (authorized to operate in all States); a description of coverage in detailed standard terminology (including policy period, policy number, limits of liability, exclusions and endorsements) and an acknowledgment of notice of cancellation to the participating States.

> Authorized contractor is required to maintain the following insurance coverage's during the term of the WSCA-NASPO Master Agreement:
>
> 1) Workers' Compensation Insurance – The Data Communications Provider's authorized contractor must comply with Participating State's requirements and provide a certificate of insurance.
> 2) Commercial General Liability Policy per occurrence - $1,000,000. Coverage to include bodily injury and property damage combined single limit.
> 3) Business Automobile Policy to include but not limited to liability coverage on any owned, non-owned, or hired vehicle used by Data Communications Provider's authorized contractor personnel in the performance of this Master Agreement. The business automobile policy shall have the following limits of liability: Per Occurrence - $1,000,000, Annual Aggregate - $3,000,000, Annual Aggregate applying to products and services - $3,000,000. Coverage must include premises and operations, bodily injury and property damage, personal and advertising injury; blanket contractual, products and services, owner named as an additional insured. The State of Utah must be listed as an additional insured.

Within 10 days of contract award, the Contracted Supplier and/or Authorized Contractor must submit proof of certificate of insurance that meets the above requirements or the Participating States requirements.

Ciena Response: Comply.

3.1.4 Delivery

(M) The prices offered shall be the delivered price to any WSCA-NASPO purchasing entity. All deliveries shall be F.O.B. destination with all transportation and handling charges paid by the contractor. Responsibility and liability for loss or damage shall remain the Contractor until final inspection and acceptance *(within 30 days after delivery for external damage and 30 days for any concealed damage)* when responsibility shall pass to the Buyer except as to latent defects, fraud and Contractor's warranty obligations. The minimum shipment amount will be found in the special terms and conditions. Any order for less than the specified amount is to be shipped with the freight prepaid and added as a separate item on the invoice. Any portion of an order to be shipped without transportation charges that is back ordered shall be shipped without charge.

Ciena Response: Comply.

3.1.5 Service Offering Documentation

(M) Upon request, user and/or technical documentation should be supplied for all procured products and services. Manuals may be available via the Contracted Supplier's website. The manual shall contain user and technical instructions appropriate to the service.

Ciena Response: Comply.

3.1.6 Data Communications Provider Contract Administrator and Usage Report Administrator

(M) The Contracted Supplier shall provide a Contract Administrator to manage compliance with the scope and terms and conditions for this contract. The following Information, at a minimum, regarding the Contract Administrator shall be provided:

a. Administrator's number of years experience in the Data Communications Services business.
b. Confirmation that the Data Communications Provider Contract Administrator has authority to enforce the scope of work and terms and conditions of the resulting contract.

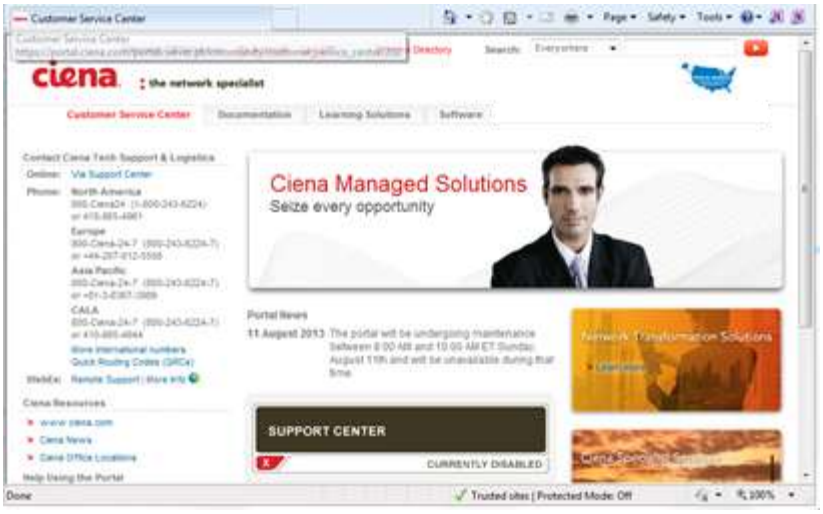
The Contracted Supplier shall also provide a Usage Report Administrator responsible for the quarterly sales reporting described in Section 1.15 Usage Reporting Requirement.

Ciena Response: Comply. Steve Darflinger will be the Contract Administrator to manage compliance with the scope and terms and conditions for this contract. Steve currently holds the position of Regional Sales Consultant with Ciena and has 28 years experience in the Data Communications industry.

3.1.7 eMarket Center Cooperation

(M) To be eligible for contract award, the Contractor must agree to cooperate with WSCA-NASPO and SciQuest (and any authorized agent or successor entity to SciQuest) with uploading a hosted catalog or integrating a punchout site. The contract requirements are in section 7.

Ciena Response: Comply. Upon PO receipt, Ciena creates and administers portals per customer. These portals are customized to the product set and deployments specific to the customer and can be used for documentation, trouble entry/tracking, etc. For the purpose of this RFP, Ciena has proactively created a WSCA portal for your consideration. At this time, the portal is available though devoid of content until we progress towards contracting. For access to the portal, please see https://portal.ciena.com, click the Register button, and create an account that references WSCA.



Section 4: Data Communications Provider Qualifications

4.1 General Information:

Provide any pertinent general information about the depth and breadth of the Offeror's product and service offerings and their overall use and acceptance in the Data Communications marketplace.

Ciena Response: Best in class! Ciena's metro Packet-Optical innovation and market leadership exceeds all vendors globally! 10M to 100G Ethernet transport including integrated C/DWDM and OTN functionality has shaped Packet Optical Transport Systems (P-OTS). Ciena extends this criteria further with PDH, SONET, SANS, and Video transport within the same portfolio.

Key Areas of Leadership:

- Latency: Video, Teleprotection, HFT, and Active-Active have driven Ciena's low-latency expertise.
- Protection: A history delivering the world's largest MESH network and an evolution to MPLS and now 8032 sub-50ms native Ethernet protection.
- Manageability: The MEF, ITU, and IEEE have retained Ethernet's ubiquitous low-cost attributes and evolved Ethernet further to deliver Carrier Ethernet's strong OAM&P including, among others, embedded test-set functionality that measures loss, latency, and jitter in-device, in-network, and in-service. Ciena is instrumental in driving these industry standards and leads in their development and Carrier, Enterprise, and Government deployments.
- Capacity: As small as a single 10/100/1000M x 1GbE smart demark and up to 88 wavelengths of 100G each. Ciena has also field trialed 400G and 800G wavelengths and lab-demonstrated 1T circuits.
- Reach: Electrical and inexpensive short-reach solutions up to trans-oceanic 100Gs.

Ciena's technology leadership does not come at a price premium as we support:

- Electronic Dispersion Compensation at 10G+
  - Competitors may only support it at 40G+
  - This helps lower latency and cost
- Coherent Receivers at 40G/100G
  - Competitors may support 40G/100G, but often not with Coherent receivers
  - This accommodates otherwise-inadequate fiber and reduces regens
- ROADM and Non-ROADM networks
  - Reconfigurable Optical Add/Drop Multiplexers can reduce CAPEX and OPEX in some network architectures
  - Competitors support either ROADM or Non-ROADM while Ciena supports hybrid networks that optimize per site.
- Converged Optical-Ethernet
  - All Optical solutions;
  - All Ethernet solutions;
  - Converged Optical-Ethernet networks; &
  - Converged Optical-Ethernet nodes for efficient Carrier Ethernet on a card within an otherwise optical platform
- Efficient Aggregation
  - SONET has evolved into Optical Transport Networks (OTN) - Ciena has been a leader in OTN from the onset
  - Sub-OTN (ODU) aggregation and grooming functionality improves on SONET in single or multi-protocol environments:
    - Reduced line-rate bandwidth consumption;
    - Increased client rate options, eg. full 10G LANPHY
    - Transparent client transport,
    - Forward Error Correction; and

- Reduced complexity and cost.

- Simplified Turn-Up, Provisioning, and Maintenance
  - Automated plug-and-play Ethernet turn-up and provisioning options
  - Multi-layer, end-to-end, point-and-click provisioning
  - Simplified layer 2 vs 3 network provisioning

- Industry Standards
  - Interoperability enables augments to existing capital deployments
  - This prevents proprietary vendor-lock and fork-lift upgrades

- …and we right-size solutions to our customers' specific location and network requirements. Ciena support Hardened, Hermetically Sealed, 1RU, Clamshell, and more saleable solutions to meet your needs.

While others are catching up with 100G, for example, and you may not require trans-oceanic products… Ciena's proven industry leadership that powers the most advanced field deployments, assures that your network requirements are well within the scope of Ciena's track record.

Heavy Reading reports that "operators worldwide most associate Ciena with metro P-OTS leadership followed by Cisco, Alcatel-Lucent, and Huawei. Others studied included Fuji, Juniper, Infinera, Ericsson, Tellabs, ZTE, and more.

Please reference **Appendix A – Heavy Reading Metro P-OTS 2.0 Survey Snapshots and Appendix B – Dell'Oro-Optical-Packet-Platform-Excerpt-1Q13.** Excerpts from these two articles include the following graphs:

Figure 1: Metro Optical Revenue by Segment, 2010-2016

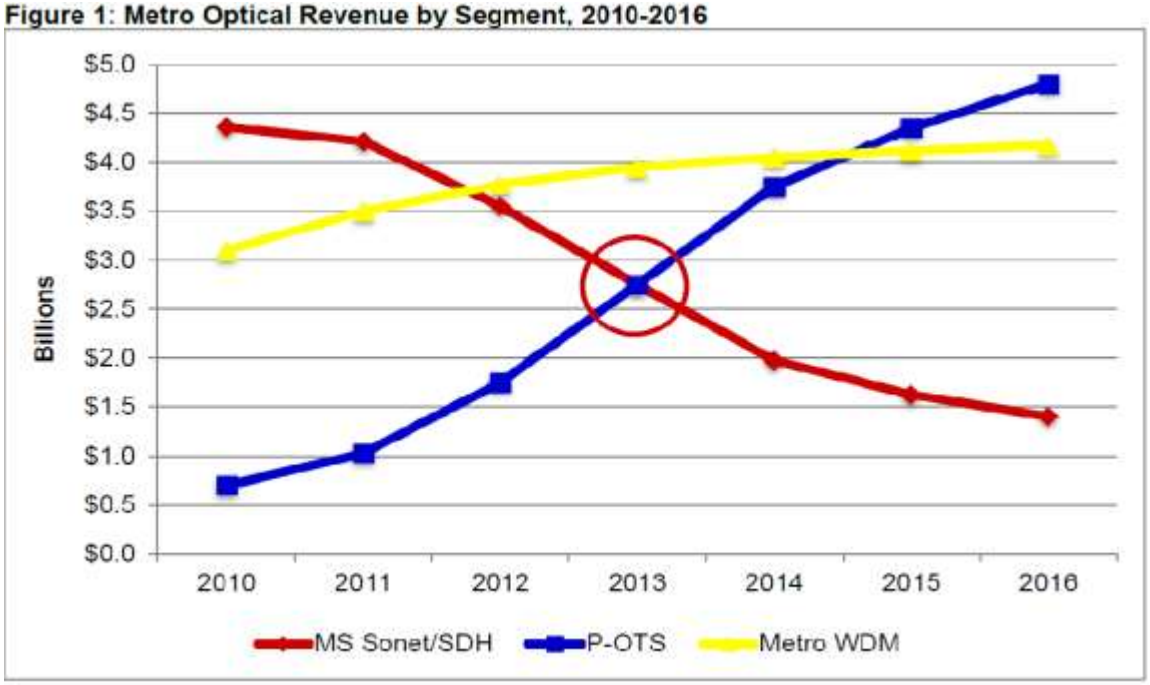
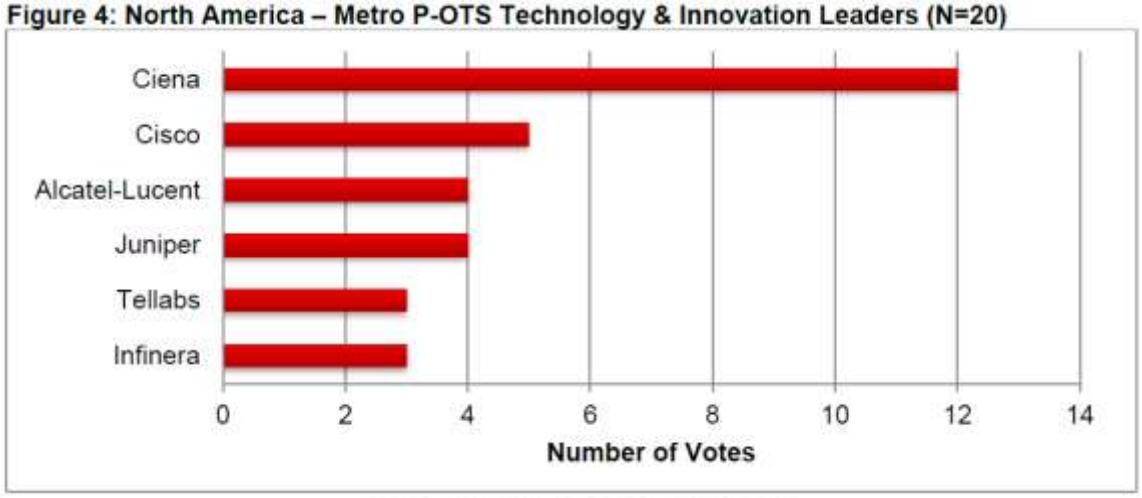
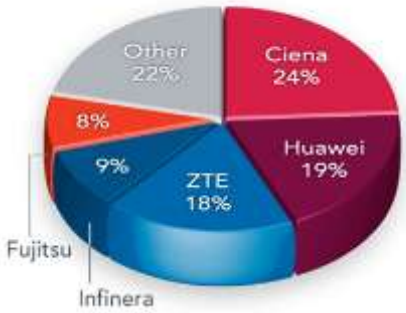


Figure 4: North America – Metro P-OTS Technology & Innovation Leaders (N=20)



Q1'13 PACKET OPTICAL REVENUE



4.2 Warranty

Specify the Offeror's standard warranty offerings for the products and services proposed in the response to this RFP.

Ciena Response: Ciena provides Standard Hardware Warranty and Repair Service at no additional charge following initial hardware purchase and during the applicable warranty period set forth in the applicable agreement. As described below, upon the expiration of the warranty period, Buyer may purchase an annual extension of this Service. The products covered by this Service are referred to as "Covered Products" and the period of support, whether related to an applicable warranty or the subsequent purchase of this Service, is referred to as the "Coverage Period." **See Appendix C – Standard Hardware Warranty and Repair Service SOW,** and **Appendix D – Standard Software Warranty SOW**, for additional information.

- 30 Day Repair and Return: In the event of hardware failure, Ciena will repair or replace a defective Field Replaceable Unit (FRU) with an equivalent FRU. Ciena will ship the repaired or replacement FRU within 30 calendar days following receipt of the defective hardware.
  - Buyer must return the defective hardware in accordance with Ciena's standard parts exchange procedures, and Ciena will ship the repaired or replacement FRU in accordance with Buyer's instructions.

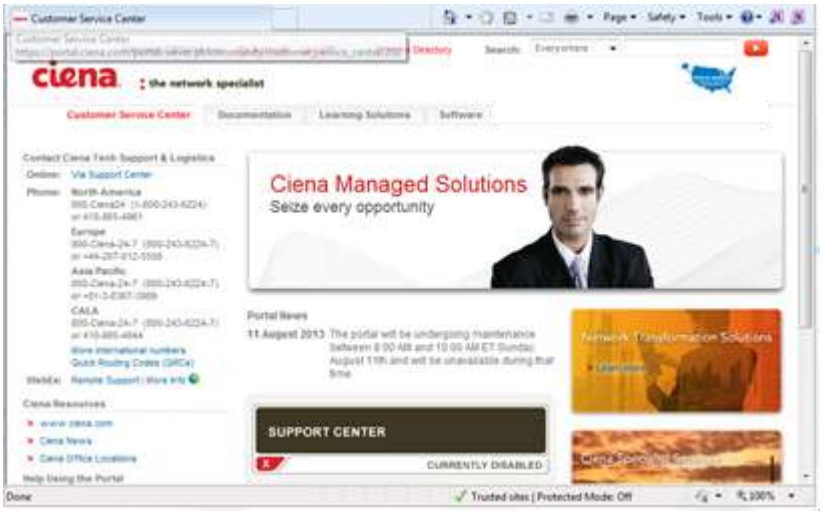
- For CESD hardware, Ciena will repair or return a defective FRU with an equivalent FRU. Ciena will ship the repaired or replacement FRU within 10 calendar days following receipt of the defective hardware.
- Excluded Jurisdictions: For Brazil, Ciena will repair or return a defective FRU with an equivalent FRU. Ciena will ship the repaired or replacement FRU within 120 calendar days following receipt of the defective hardware.

- NBD -- Dead on Arrival (90 Days): For up to 90 calendar days after initial shipment, Ciena will provide Next Business Day replacement of hardware that is found to be dead on Arrival ("DoA") (i.e., hardware that is not immediately capable of performing in accordance with the product warranty).
  - Ciena will ship a replacement for DoA hardware by the next business day, provided that the Return Material Authorization (RMA) number is issued by 3 PM ET. Any RMA number issued after 3 PM ET will be processed the next business day and shipped by the following business day thereafter.
  - Ciena does not require DoA hardware to be returned before it ships a replacement. However, Buyer must return DoA hardware within 30 days after receipt of the replacement hardware. If the hardware is not returned within 30 days, Buyer will be invoiced for the replacement hardware at Buyer's then-current purchase price.

4.3 Website

Award contractors are required to establish and maintain a website applicable to the WSCA/NASPO contract which will allow Participating States to see applicable contract price list, discounts on said price list, approved resellers or partners for their state and any additional information that may be required to assist the participating states in obtaining information concerning the contract award. The State of Utah representing WSCA/NASPO reserves the right to require the award contractor to add additional items to assist in this process. Specify Websites used by the Offeror to facilitate customer ordering under awarded contracts. This is a mandatory requirement.

Ciena Response: Comply. Upon PO receipt, Ciena creates and administers portals per customer. These portals are customized to the product set and deployments specific to the customer and can be used for documentation, trouble entry/tracking, etc. For the purpose of this RFP, Ciena has proactively created a WSCA portal for your consideration. At this time, the portal is available though devoid of content until we progress towards contracting. For access to the portal, please see https://portal.ciena.com, click the Register button, and create an account that references WSCA.



4.4 Customer Service

Specify the Offeror's standard customer service policies and detail the escalation process used to handle customer-generated issues.

Ciena Response: Ciena offers Standard Technical Support Service as a recommended purchasable service uplift during the applicable product warranty period to cover non-defect related support issues or upon expiration of the applicable product warranty period. The products covered by this Service are referred to as "Covered Products" and the applicable support period is referred to as "Coverage Period." **See Appendix E – Standard Technical Support Service,** for additional information.

This Service covers technical support requests related to Ciena products and, during the warranty period, is a supplement to the Standard Software Warranty Service which covers defect related issues only. This Service provides Buyer with the following service entitlements for the Covered Products during the Coverage Period:

- 7 x 24 x 365 Technical Support: Access to the Ciena Technical Support hotline 7 days a week, 24 hours a day, 365 days a year (7x24x365) for assistance with questions or issues related to Covered Products, via the telephone numbers and email addresses located on www.ciena.com.
    - Ciena will assist in isolating the problem and determining the proper resolution, including: verify the trouble description with Buyer; review active alarms and alarm history; diagnose reported trouble and alarms using available test equipment and tools; and, if necessary, issuance of an Equipment Return (ER) number.
- Web Enabled Service: Using a secure user login and password, Buyer may retrieve online product documentation, updated trouble ticket information and Ciena contact information through Ciena's extranet web portal.

Classification	Recovery Target	Resolution Target	Availability
Outage (Loss of traffic)	Continuous until recovered; service restored 50% of the time within 4 hours of Ciena being notified, service restored 90% of the time within 12 hours of Ciena being notified**	50% resolved in 3 business days, 90% resolved in 30 calendar days	24x7
System Compromised (Loss of redundancy, element visibility or management. Further failure in the system may lead to a loss of traffic.)	Continuous until system restored; system restored 50% of the time within 24 hours of Ciena being notified, system restored 90% of the time within 15 days*	50% resolved in 3 business days, 90% resolved in 30 calendar days	24x7
Business Critical (Seriously impacts Buyer's business.)	–	50% resolved within 1 business day*, 95% resolved in 30 calendar days	Ciena will match Buyer's availability
Major (Product is usable, but a condition exists that seriously degrades the production operation, maintenance or administration, and requires attention during pre-defined standard hours to resolve the situation)	–	50% resolved in 3 business days*, 90% resolved in 30 calendar days	Buyer Local Business Hours
Minor (Other problems of a lesser severity that have little or no impairment on system function.)	–	50% resolved in 3 business days*, 90% resolved in 30 calendar days	Buyer Local Business Hours

*EXCLUDES time spent waiting on Buyer response or action.

** INCLUDES time spent waiting on Buyer response or action. Buyer is expected to remain engaged with Ciena Technical Support throughout the recovery process.

4.5 Firm

a. Provide a brief history of your firm including the following:

Ciena Response: As per our response for 4.1, Ciena is the global leader in both technology and current deployments with respect to Packet-Optical Transport Systems (P-OTS) that include the Ethernet and WDM solutions reflected in this RFP. Specifically, Dell'Oro and

Heavy Reading have concluded that Ciena is:

- #1 P-OTS
- #1 Long-Haul + Metro WDM
- #1 Ethernet Fiber Access
- #1 Optical Mesh

Some of our corporate statistics include the following:

- HQ: Hanover, MD
- 4,300+ employees
- 1,000+ customers
- 80+ countries
- Incorporated 1992
- CIEN – NASDAQ

1. Number of years providing Data Communications Services being offered in response to this RFP.

Ciena Response: Ciena has provided telecom solutions for over 21 years and components of our DNA, for example our Nortel MEN acquisition, have existed for a greater period.

2. Number of separate services provided in each of the area categories described in this RFP.

Ciena Response: Ciena has a full suite of portfolio that enables a customized response to your needs. Within the Ethernet switch portfolio, for example, we have over a dozen different switches that hone in on your per-site requirements for best performance and price. From a single 10/100/1000 edge switch up to a multi-terabit core switch, Ciena can optimize your network including hardened, hermetically sealed, and converged protocol requirements. All products are rolling under a single Network Management System for complete end-to-end manageability across service layers, and/or Ciena also offers a NOC service and various distributed sparing and smart-hand options.

b. Describe specifically what makes your firm a stable long term partner for WSCA-NASPO.

Ciena Response: Ciena is a well-established U.S. based company in strong financial standing and leads the world in many key areas of telecommunications transport. We primarily specialize in Ethernet and WDM solutions which allow us to focus on a concentrated portion of your network. We are not a router vendor, for example, though we lead all vendors in Packet-Optical Transport where customers have realized both performance and cost benefits while centralizing their routing functions. While we lead industry innovation, Ciena has a standards-based interoperable philosophy allowing you to retain your historical CAPEX investments while adopting new technologies and modernizing your network.

c. Describe specifically what information the Data Communications Provider contract administrator would provide at annual meetings with an entity that has executed a participating addendum.

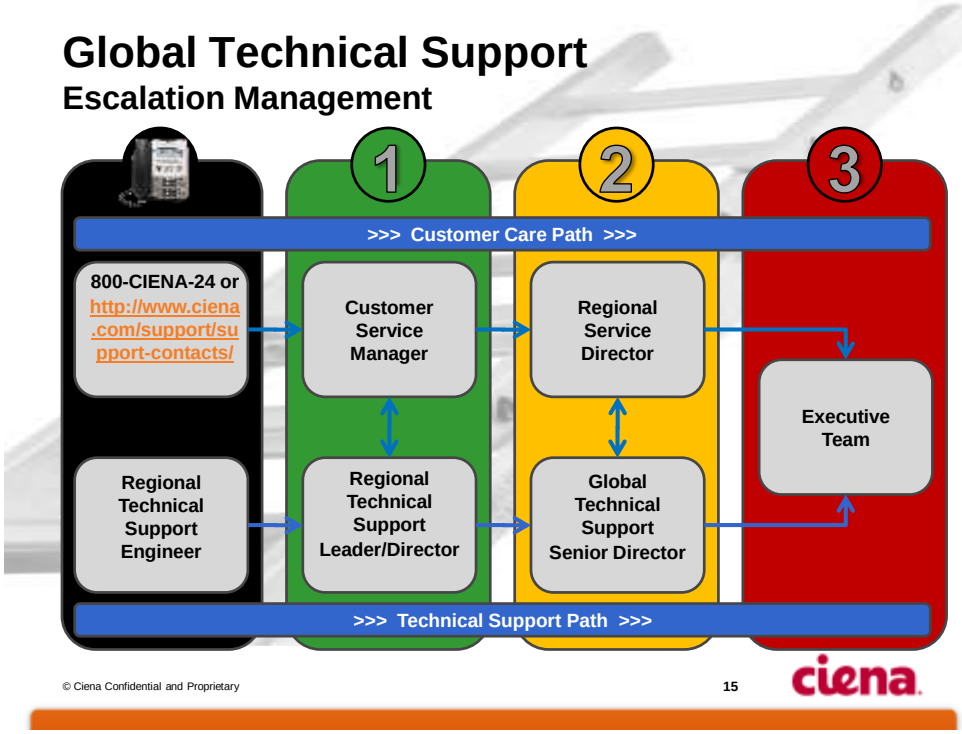
Ciena Response: The contract administrator would provide all products, services, software, or solutions that are commercially available by Ciena under the approved contract with WSCA.

d. Describe how you plan to implement the contract including having a single point of contact to perform and manage all aspects of this contract.

Ciena Response Ciena expects the project schedule to vary as the project discussions start and shall provide the detailed project implementation schedule including timelines for the different deployment activities of the complete project. This shall be provided upon Ciena's product being selected by any of the participating entities with a clear understanding of the project deliverables. Any changes in the project timelines as mutually agreed between the parties at any stage shall also be reflected with the new version of the implementation schedule.

e. Describe in detail your firm's escalation management plan including contact information.

Ciena Response: See details in response to 4.4.



Rob Lebel, Senior Director, GTS - Technical Operations, 514-228-2738 Direct
Mark Biegler, Director, GTS - Technical Operations, 613-670-2933 Direct
Don Clayton, Director, GTS - Emergency Technical Support Engineering, 919-425-1747 Direct
John Fitzgerald, Director, GTS - Global Product Support Engineering, 613-670-3017 Direct
Marc Robidoux, Director, GTS - Regional Technical Support Engineering, 613-670-3192 Direct
John Welsh, Director, GTS - Technical Operations, 613-670-3274 Direct

4.6 Authorized Sub Contractor Relationships

Respondents may propose the use of Servicing Subcontractors or partners however, the Contractor shall remain solely responsible for the performance under the terms and conditions of the Contract if Servicing Subcontractors are utilized. This includes sales report information. The Contractor will be responsible to collect, and report this information from all partners or resellers representing your contract.

a. Briefly describe what your firm requires from potential contractors to become an "Authorized Data Communications Reseller". Provide an Authorized Contractor List.

Ciena Response: Partners / Resellers: Ciena's award winning BizConnect partner program is detailed at the following link: http://www.ciena.com/partners/.

Relevant awards include:

- CRN's 5-Star Partner Program: Best Channel Program in the Market
- AT&T: Outstanding Supplier
- Verizon: Outstanding Performance
- Cable Spotlight: Product of the Year
- Total Telecom's World Communication Award: Best Technology Foresight
- Heavy Reading: #1 Packet-Optical Transport Systems
- WDM & Next Generation Optical Networking Conference: Next Generation Optical Networking Award
- Telecom Asia Readers Choice Award: Optical Vendor of the Year

Ciena Partner requirements are extensive and include, among others, training, certifications, and business planning. A full list of Ciena partners can be located at the afore-mentioned partner link above, though the current partners in the Americas include:

- Adexus - Resale
- Allstream – Managed Service Provider
- AT&T – Managed Service Provider & Resale
- Carousel - Resale
- CDW - Resale
- CenturyLink – Managed Service Provider & Resale
- Comcast – Managed Service Provider
- Desca - Resale
- EMC - Resale & Strategic Alliance
- Fiberlight – Managed Service Provider
- Fibertech – Managed Service Provider
- First Tech - Resale
- G4S - Resale
- IBM – Resale & Strategic Alliance
- ITS InfoCom - Resale
- Integra – Managed Service Provider
- IPC - Resale
- Level(3) – Managed Service Provider
- Lightower – Managed Service Provider
- LightRiver - Resale
- Presidio - Resale
- Ronco - Resale
- SafeNet – Resale & Strategic Alliance
- SAIC - Resale
- SNR - Resale
- Sofrecom - Resale

- Sprint - Managed Service Provider
- Telamon - Resale
- Verizon - Resale
- Westcon - Distributor
- XO – Managed Service Provider
- Zayo – Managed Service Provider

Servicing Subcontractors: Ciena selects service providers through a competitive assessment process based on a set of performance parameters designed to insure supplier capabilities are aligned with Ciena standards of performance.

b. Describe in detail how your firm currently measures an authorized contractors' performance.

Ciena Response: Partners / Resellers: Ciena will facilitate a minimum of two reviews throughout the year after the initial business plan has been completed. The mid-year review will be conducted in order to determine the partners overall progress in the program. This will provide a six-month notice on any requirements that still need to be addressed prior to the end of the year. Partner activity will also be updated quarterly using the partner dashboard which is available to all partners on the portal landing page. Annual reviews will be conducted in November and are designed to determine any necessary changes including moving partners up, down, or out of the program.

Servicing Subcontractors: Ciena requires suppliers to report on a specific performance criteria on a periodic basis. The frequency and performance levels are dictated as part of the contractual agreement between Ciena and the supplier.

c. Describe in detail the process for revoking a designation as a sub contractor from an authorized contractor for issues related to customer service, or other authorized contractor performance related issues.

Ciena Response: Partners / Resellers: Ciena's BizConnect program allows for movement within the program levels. If the minimum criteria are not met, a partner will be removed from the program.

Servicing Subcontractors: Term for revocation for cause or convenience is dictated as part of the contract terms between Ciena and the supplier.

d. Describe in detail how your firm will support and assist an authorized contractor in improving their performance and the corrective action process.

Ciena Response: Servicing Subcontractors: As part of the ongoing process of oversight, Ciena monitors supplier performance. When performance falls outside contracted parameters, Ciena requires supplier to provide a formal corrective action plan which is in-turn monitored to fruition which can result in clearing of probation or discontinuance of our professional relationship.

e. Describe in detail the process that your firm uses to track and respond to issues and concerns from both your authorized contractors and from participating entities.

Ciena Response: Servicing Subcontractors: Ciena's suppliers report periodically on performance to contracted criteria. In instances where performance does not meet criteria and a corrective action is requested, Ciena monitors the supplier's performance to the corrective action plan as part of supplier performance to our contractual obligations.

f. Describe in detail how your firm will track, report and verify sales from your designated Data Communication partners and authorized contractors.

Ciena Response: Partners / Resellers: Ciena currently uses Siebel and is transitioning to Salesforce with an Oracle database. A combination of partner-specific pricelists and segmentation within the database allow for detailed customer-specific reporting to the component level for all orders.

Servicing Subcontractors: Ciena leverages a spend analytics tool that captures spend by vendor and by category. This is leveraged in conjunction with the booking database of record as noted above - Siebel today and transitioning to Salesforce supported by Oracle.

Section 5: Service Offering Qualifications

5.1 General Information

This section contains mandatory minimum requirements that must be met in order for your proposal to be considered for the evaluation phase of this RFP. All of the items described in this section are non-negotiable. Respondents are required to complete:

Mandatory Requirements (M)

All Respondents must meet the **(M)** requirements listed in this section, and explain how the requirement is met. A 'no' response on the acceptance document or omission of the required explanation will disqualify the service from further evaluation.

5.1.1 General Business Requirements

Each provider must meet the following mandatory general business requirements:

5.1.2 Terms and Conditions

(M) Respondents *must* indicate their acceptance of the State of Utah Standard Terms and Conditions in addition to the WSCA-NASPO Terms and Conditions attached to this RFP as Attachment A and Attachment B. Any exceptions to these terms and conditions must be clearly identified in bid response and during the question and answer period on BidSync. Significant exceptions may constitute grounds for rejecting Respondent proposals.

Ciena Response: Read and Understood. Please see Ciena's response to Section 7.

5.1.3 Experience

(M) Respondents *must* be able to provide reference service contracts from a minimum of five government or commercial customers for their Data Communications Product and Services offerings. Government references are preferred. References must include environments and complexity that is similar in scope to those described within this RFP. Any proposals from Respondents that cannot meet these requirements will not be considered. The Respondent must provide specific contact information describing their reference service contracts, which may be verified.

Ciena Response: Comply. Per the requirement, Ciena sent the Attachment B – Reference Form, to the following customers: 1) UMaine; 2) DIR, State of TX; 3) NIU/IFiber; 4) MREN/UNC; 5) LONI; 6) Okanogan County Public Utility District; 7) Howard County; 8) Baltimore County; 9) Sunset Digital.

5.1.4 Financial Stability

(M) The Data Communications Product and Services vendor ***must*** provide audited financial statements to the State and should meet a minimum Dun and Bradstreet (D&B) credit rating of 4A2 or better, or a recognized equivalent rating. Please provide the Respondent's D&B Number and the composite credit rating. The State reserves the right to verify this information. If a branch or wholly owned subsidiary is bidding on this RFP, please provide the D&B Number and score for the parent company that will be financially responsible for performance of the agreement. Prime contractors working on behalf of Respondents must submit financial statements that demonstrate financial stability, and adequate working capital, but do not need to meet 4A2 credit rating requirements.

Ciena Response: Ciena has one of the strongest financial positions in the industry. With approximately $457 million in cash and investments, and supported by annual growth that has averaged better than 10% since 2004, our growing momentum, cash generation, debt reduction, and improved operating leverage provide assurance that our commitment to ongoing research and development will continue for years to come. **See Appendix F - Ciena 2012 Annual Report.**

D&B Number: Ciena Communications, Inc. 78-598-7798. See **Appendix G - Ciena Dun & Bradstreet Report, April 2013.**

5.1.5 Other General Responsibilities

(M) The Respondent *must* provide the personnel, equipment, tools, and expertise to meet the requirements in this RFP.

(M) Computer applications and Web sites *must* be accessible to people with disabilities, and *must* comply with Participating entity accessibility policies and the Americans with Disability Act.

(M) Applications and content delivered through Web browsers must be accessible using current released versions of multiple browser platforms (such as Internet Explorer, Firefox, Chrome, and Safari) at minimum.

Ciena Response: Comply.

5.2 Data Communications Services – Requirements

Offerors may respond to any of the sections where they have substantive product offerings that address the scope detailed in each Section from 5.2.1-5.3.0. All Offerors must include a response to section 5.31 services, that addresses products proposed in 5.2.1-5.3.0.

Products may be used by the states in branch offices, main government offices and data centers, and by overall government data communications providers offering carrier class services. Responses should consider this breadth of use and users.

The scope and context of this solicitation **does not include endpoints such as cell/smart phones, other mobile devices or devices designed exclusively for use by individual users**. It is focused on the equipment and software infrastructure required to support provisioning of a variety of network services within a modern digital network. The user context will vary from branch offices through enterprise and statewide data communication network installations. Respondents should offer a range of solutions that are appropriate for installations of varying size and complexity.

Ciena Response: Ciena's portfolio is targeted towards Sections 5.2.4 – Optical Networking and 5.2.8 – Switches. Ciena elects not to respond to other sections of this RFP in favor of continued leadership in our key areas of expertise. While some vendors try to be all-things to all-people, Ciena specializes in Packet-Optical solutions which allows us to target our R&D and support investments. This concentrated focus enables us to lead the industry in Ethernet and Optical innovation, resiliency, and performance.

5.2.1 DATA CENTER APPLICATION SERVICES — Application networking solutions and technologies that enable the successful and secure delivery of applications within data centers to local, remote, and branch-office users using technology to accelerate, secure, and increase availability of both application traffic and computing resources.

Ciena Response: Ciena will not be responding to this section.

5.2.1.1 **Virtualized Load Balancers** — Virtual devices that act like a reverse proxy to distribute network and/or application traffic across multiple servers to improve the concurrent user capacity and overall reliability of applications. Capabilities should include:

- SSL (Secure Sockets Layer) Off-loading
- Caching capabilities
- Layer 4 Load Balancing
- Layer 7 Load Balancing
- Detailed Reporting
- Supports multiple load balancers in the same system for multiple groups
- Supports TLS1.2

5.2.1.2 **WAN Optimization** — An appliance utilizing a collection of techniques for increasing data-transfer efficiencies across wide-area networks (WAN). Capabilities should include:

- CIFS (Common Internet File System) acceleration
- Data Compression
- SSL encryption/decryption for acceleration (Optional)
- Layer 4-7 visibility

- Application Specific optimization

5.2.2 NETWORKING SOFTWARE — Software that runs on a server and enables the server to manage data, users, groups, security, applications, and other networking functions. The network operating system is designed to allow shared file and printer access among multiple computers in a network, typically a local area network (LAN), a private network or to other networks. Networking software capabilities should include:

- Restartable Process
- High availability options
- Targeted operating systems, i.e. DC, campus, core, wan, etc.
- Operating System Efficiencies

Ciena Response: Ciena will not be responding to this section.

5.2.2.1 **Network Management and Automation** — Software products and solutions for data center automation, cloud computing, and IT systems management.

5.2.2.2 **Data Center Management and Automation** — Software products and solutions that capture and automate manual tasks across servers, network, applications, and virtualized infrastructure.

5.2.2.3 **Cloud Portal and Automation** — Software products and solutions for cloud management with policy-based controls for provisioning virtual and physical resources.

5.2.2.4 **Branch Office Management and Automation** — Software products and solutions for management of branch offices. Capabilities include remote troubleshooting, device management, WAN performance monitoring.

5.2.3 NETWORK OPTIMIZATION AND ACCELERATION — Devices and tools for increasing data-transfer efficiencies across wide-area networks.

Ciena Response: Ciena will not be responding to this section.

5.2.3.1 **Dynamic Load Balancing** — An appliance that performs a series of checks and calculations to determine which server can best service each client request in order to select the server that can successfully fulfill the client request and do so in the shortest amount of time without overloading either the server or the server farm as a whole.

5.2.3.2 **WAN Acceleration** — Appliance that optimizes bandwidth to improve the end user's experience on a wide area network (WAN). Capabilities should include:

- CIFS acceleration
- Data Compression
- SSL encryption/decryption for acceleration (Optional)
- Layer 4-7 visibility
- Application Specific optimization

5.2.3.3 **High Availability and Redundancy** — Limits any disruption to network uptime should an appliance face unforeseen performance issues. Transparently

redistributes workloads to surviving cluster appliances without impacting communication throughout the cluster.

5.2.4 OPTICAL NETWORKING — High capacity networks based on optical technology and components that provide routing, grooming, and restoration at the wavelength level as well as wavelength based services.

5.2.4.1 Core DWDM (Dense Wavelength Division Multiplexing) Switches — Switches used in systems designed for long haul and ultra long-haul optical networking applications.

Ciena Response: 6500 Features & Benefits

The 6500 integrated platform provides a DWDM intelligent photonic layer in addition to service access and transport interfaces for protocols such as Ethernet, SONET, storage, 10G, 40G and 100G services. The 6500 will allow WSCA-NASPO to create a network that will support 100G transmission day one with a network that mitigates risk and operates over the fiber footprint with maximum operating and spectral efficiency.

Ciena's solution not only meets all requirements, but also supports metro & long haul 100G connectivity today, with minimal risk, and at an affordable cost with a path to higher connectivity speeds in the future. Additionally the 6500 provides an optimal combination of intelligent photonics, services flexibility and high operational efficiency versus competitive solutions.

Strategic Benefits of the Ciena 6500 Solution include:

- Proven 100G Capability: With first in the world commercial deployment of spectrally-efficient 100G systems in a long haul network.
- Leading Photonic Capabilities: With coherent detection and electronic dispersion compensation allowing the platform to be deployed on virtually any fiber with no in-line dispersion compensating fiber, resulting in lower operating costs and few if any engineering challenges once the network is deployed.
- Scalability: Unmatched growth potential to 8.8 Tbps capacity with 100G line cards with ability to operate 40G, 100G and higher rates over any existing networks.

Ciena feels that the 6500 is designed to serve as the optical network platform for more than a decade, with scalability and design to support emerging connectivity requirements for the long term foreseeable future.

Key Technical Advantages:

- Supports WaveLogic3 coherent 40G and 100G interfaces to maximize return on investment by delivering up to 10 times more traffic capacity on the existing network.
- Electronically compensates for dispersion, eliminating the need for fixed compensators and associated amplifiers, while also simplifying engineering of the network.
- Delivers high density with efficient space and power requirements, enabling multiple 10G / 40G /100G services to be supported from a location, side by side.

Since delivering the 40Gbps optics in May 2008, Ciena has shipped over 1,500 40G Coherent Receivers and has secured the #1 position in 40G shipments globally with 41% market-share. The 100Gbps optics utilizes the same technology thus minimizing risk associated with the technology delivery of 100G. As bandwidth demands continue to increase, 40G or 100G connectivity can be added to established networks without re-engineering the network or any disruption to service. Ciena's 100G Adaptive Optical Engine solutions deliver 100G network capacity, enabling ten times the existing network throughput and enabling the network to keep pace with dramatically increasing bandwidth demand.

Ciena's 40G and 100G solutions are based on our WaveLogic 3 family of coherent optical processors which allow for multiple modulation techniques such as Dual Polarization Quadrature Phase Shift Keying DP-QPSK modulation, Dual Polarization Binary Phase Shift Keying (DP-BPSK modulation, Dual Polarization 16 Quadrature Amplitude Modulation (DP-16QAM) modulation, coherent detection and advanced electronic digital signal processing techniques—all of which has been first commercialized by Ciena.

Coherent technology allows 40Gbps and 100Gbps operation over 10G-engineered networks and advanced digital signal processing automatically corrects for signal degradations caused by fiber impairments.

- The 6500 family provides industry leading 40G and 100G coherent based solutions. Up to 88 channels of 100Gbps wavelengths, or 8.8Tbps, can be supported on a single fiber or a mix of 10G/40G/100G wavelengths. The 6500 solution provides the highest spectral efficiency supporting 40Gbps or 100Gbps on a single wavelength, compare to some other solutions that requires more than 1 wavelength for transporting 40Gbps or 100Gbps. The 6500 40G and 100G solutions have been proven to run over any types of fiber including fiber with very high PMD. Moreover, the 6500 solution can be deployed over foreign networks.

- Density and Efficiency: Ciena's 40G and 100G have longer distance support without regen than competitive solutions, which results in lower CAPEX/OPEX and power. Ciena's 100G and 40G densities are higher than competitive offerings as well. Additionally, network flexibility with higher degree ROADM support on 6500 with support of 2/4/8 degree switching and branching at the individual wavelength basis. Finally, the 6500 supports lower sparing expense with tunable optics on the 6500.

Ciena's 100G Differentiation

Ciena's 6500 supports 100G now, with a proven implementation that is widely recognized as leading the commercial development of 100G transmission. Additionally, the Ciena solution is designed to support transmission beyond 100G, an inevitable bandwidth threshold that we have now prototyped, and that will likely be commercially available in the 2015 time frame.

- Proven 100G technology: Ciena's 100G technology has been demonstrated in numerous public trials of challenging scope, many of which operated live network traffic alongside pre-existing 10G and 40G wavelengths as shown below.

- Proven Technology Foundation: Additionally Ciena's 40G and 100G solutions are serving 50+ customer globally today with 40G in commercial deployment since May 2008 and 100G since December 2009. Ciena was the first to market in delivering both 40G and 100G DP-QPSK coherent based transport solutions.

- OIF Standard Compliant: Ciena pioneered the DP-QPSK coherent based solution for high capacity transport and it has been standardized by OIF as the modulation scheme for 100G transport.

- Proven Interoperability: Ciena certified interoperability for 100G client support with Juniper Networks in May 2010, eliminating risk of interoperability hurdles.

- Seamless support of any mix of 10G/40G and 100G connectivity: Ciena's architecture enables 100G services to be implemented side by side with 10G and 40G and sub rate services with each service running independently with minimal impact to the other (regeneration locations, etc).

- Soft-Forward Error Correction (FEC): Moving to ultra-high-capacity links while retaining a commercially viable reach requires improved noise mitigation, which can be achieved using high-gain FEC. In contrast to hard-coded FEC, which uses ones and zeros to make its correction decision, soft FEC uses probabilities in conjunction with receiver intelligence. This results in significantly improved system performance that can support higher capacities (with suitable reach), tolerate higher span losses, or achieve significant reach improvements. WaveLogic 3 soft FEC can also be adjusted to minimize latency, in exchange for higher system gain, to provide optimal performance in latency-sensitive applications.

- WaveLogic 3 Digital Signal Processor chipsets: Leveraging Ciena's history of DSP and coherent deployment experience, the WaveLogic 3 coherent receiver DSP engine has six times more processing power than WaveLogic 2 and provides stronger PMD mitigation and improved system performance. Achieving 75 trillion operations per second, 32nm CMOS provides the highest level of functional integration with the lowest power consumption. Thus, for example, the soft FEC is integrated into the Rx ASIC.

  Tx DSP delivers some very important flexibility and economic networking benefits. Spectral shaping can provide improved system margin, especially in the cascaded filter/OADM environments typically found in metro networks, as well as optimal spectral efficiency on a flexible grid. Spectral shaping is also critical for spectrally efficient Terabit transmission superchannels.

  Programmable modulation, or constellations with both varying phase and amplitude, is required to practically achieve greater than 100 Gb/s transmission rates and allows the operator to make trade-offs between reach and capacity for a particular application. Tx DSP also provides additional distortion mitigation.

- 100G Integrated OTDR Test Set: By integrating a 100G OTDR test set into our 100G transponder circuit packs, Ciena has effectively reduced CapEx, eliminated the need to purchase expensive 100G test tests, turn up services more quickly and perform faster troubleshooting. Turning up 100G wavelengths has never been easier. This

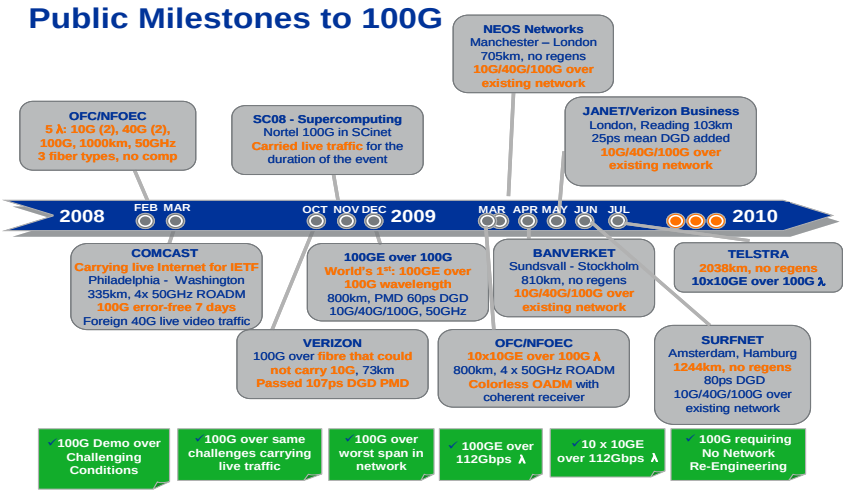
unique capability provides the ability to verify the integrity of a partial or complete connectivity path with or without fiber loopbacks. The integrated OTDR test set is an optional feature on our transponders.

The Ciena 100G solution fully meets and exceeds commercial requirements for 100Gbps transmission where it is needed in the network:

- Supports 44 100GHz wavelengths of 100Gbps for a line capacity of 4.4Tbps
- Supports 88 50GHz wavelengths of 100Gbps for a line capacity of 8.8Tbps
- Can work over the same fiber alongside 10G and 40G wavelengths
- Supports reach of 2,800km
- Requires no dispersion or PMD compensators
- Operates with better tolerance to PMD than today's 10G systems with up to 50ps of mean DGD compensation
- Can pass through 14+ ROADM's with minimal reach penalty
- Continued investment: Ciena continues to invest into advancement of 100G technology and into transmission beyond 100G. We have active development of transmission technologies for the 6500 at 400G and beyond with prototypes now in place.

Demonstrated 100G Capability

The 6500 supports 100G now, with a proven implementation that is widely recognized as leading the commercial development of 100G transmission. Ciena's 100G technologies have been demonstrated in numerous public trials, in live, production networks alongside pre-existing 10G and 40G wavelengths (see figure below). In some cases the 100Gbps optics were transported over a pre-existing foreign line system, and a world-record distance (2000 km) for 100Gbps transport was achieved with Telstra in Australia.



Ciena 100G wavelength transmission technology was first deployed as a limited availability release in October 2009, it was made generally available in Release 7.0 (July, 2010) with 10x10G client multiplexing support.

Ciena's 100GbE Client interface technology, compliant with the IEEE 100 Gbps Standard, version P802.3ba, became available in 4Q10, supported in R 7.0. Ciena supports LR-4 , LR-10, SR-10 CFP's.

Ciena has proven interoperability with a leading router vendor (Juniper Networks) with results that proved full interoperability. This testing was performed within Ciena laboratories, and Ciena houses resources and facilities to prove 802.3ba interoperability with other Optical and Layer 2/3 network platforms, and can perform that testing on request.

Ciena's Approach for 100G Transmission

Ciena's 100G solution is based upon industry proven modulation schemes and a flexible multi-degree ROADM photonic line system. Ciena's 100G Coherent optics are built on several years of development experience including: first to market eDCO (electronic Dynamically Compensating Optics), 40G/100G DP-QPSK modulation, and 40G/100G Coherent Receivers.

Ciena's 100Gbps solution operates over a 50GHz or 100GHz ITU wavelength grid and supports IEEE standard 10GbE clients while aligning with the 100GbE standards. Ciena's 100G DWDM optics have been available since 2009.

Flexible Photonic Line System – Ciena offers the 6500 Photonic Line, with full ROADM (Reconfigurable Optical Add/Drop Multiplexer) flexibility. The Wavelength Selective Switch enabled ROADM supports dynamic all-optical branching for up to eight different optical paths in addition to 100% flexible individual wavelength add/drop capabilities. The 6500 Photonic Line is designed to maximize the all-optical connectivity across the network (minimal Optical-Electrical-Optical conversion). Ciena also offers a non-shelf based Flexible Photonic line System called Common Photonic Line (CPL) with similar capabilities to the 6500 Photonic line providing service providers with a choice.

Combined with Ciena's 10G, 40G, or 100G eDCO interfaces, the photonic line requires absolutely no Dispersion Compensation or Polarization Mode Dispersion (PMD) modules, regardless of the fiber plant (mixed fiber types, older fiber, aerial deployments, etc.). Up to 88 x 100Gbps channels are supported with 50GHz channel spacing (8.8 Tbps of capacity per fiber). Ciena's 100G solution will accelerate service turn-up, and time to revenue, while allowing network operators to further leverage existing fiber plants.

Differentiator 1: Electronic Dynamically Compensating Optics (eDCO)

The Ciena 10G, 40G and 100G optical interfaces are based on Ciena eDCO technology – which allows each individual wavelength to be routed anywhere through the network independent of fiber type and impairments. eDCO's therefore offer better reach and eliminate the need for costly space-consuming compensator devices, and provides at least 15% lower end-to-end latency compared to other solutions.

Eliminating compensation devices also reduces route loss, simplifies and reduces amplifier needs, and hence costs, since the loss added by those devices is no longer added to the span. eDCO's allow the elimination of the static DCSM (Dispersion Compensating Slope Module) spools that prevent wavelength re-direction without extensive network re-engineering. Ciena's Tx/Rx circuit packs are fully automated to adjust and lock onto optimal Chromatics Dispersion values across fiber type transitions and through cascaded OADM's.

eDCO technology is patented by Ciena. In addition, all 6500 DWDM optical interfaces support tunable lasers across the entire C-Band, including the 40G and 100G interfaces, resulting in a simplified and lower costing sparing strategy.

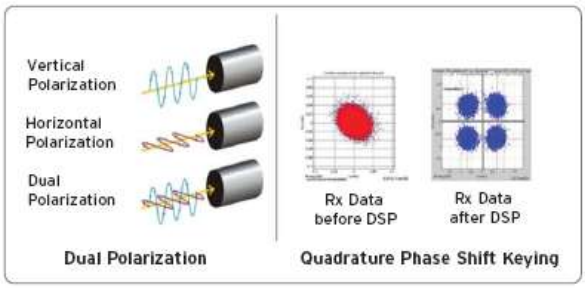
Ciena's eDCO technology meets and exceeds all the criteria of a volume deployable 100G solution and fully aligns with the vision of an adaptive all-optical intelligent network:

- Offers significantly superior CD tolerance to 10/40/100G networks, with integrated electronic dispersion compensation technology, eliminating the need for DSCM's
- Provides better PMD tolerance than 10G networks, eliminating the need for external PMD compensators
- Is scalable and can operate in 50-GHz-spaced systems
- Maintains complete agility required to meet ever-changing service requirements with flexible OADM/ROADM support
- Supports the coexistence of 10G, 40G and 100G wavelengths on the same photonic line system

Differentiator 2: Dual Polarization Quadrature Phase Shift Keying (DP-QPSK)

Shift Keying (DP-QPSK) - In February 2008, at the Optical Fiber Conference/National Fiber Optical Engineer (OFC/NFOEC) Conference, Ciena demonstrated 100Gbps transmission, whereby the 100G was adjacent to 10G and 40G channels in a 50GHz grid, over 1000km of uncompensated mixed fiber (three different fibers). One month later at the 71st IETF conference in Philadelphia, Comcast and Ciena conducted the first live 100G field trial, where 1,000 of the world's top engineers accessed the Internet over Ciena 100Gbps prototype equipment for close to a week. The 100G connection was established and operated with "commercial grade" quality of service, and without impacting the existing traffic on the Comcast network, underlining the robustness and value of the Ciena approach.

The technology that made this possible is DP-QPSK modulation with a coherent receiver. This modulation format lowers the baud rate seen by the photonic line, yet carries more information per bit by encoding data within the phase and polarization of the optical spectrum. In the case of 100Gbps, there are 2 bits per symbol, and 2 polarization states to maintain 50Gbps of data throughput using a minimal baud rate. Two of these 50Gbps DP-QPSK sub-carriers are frequency division multiplexed into a single composite 100Gbps signal that operates on a 50GHz grid.



The DP-QPSK modulation format allows for a lower effective baud rate on the line to reduce the optical fiber impairments impacts, while allowing extended reach for higher line rate signals such as 40G, 100G and beyond.

Differentiator 3: Coherent Transmission

Coherent Transmission is absolutely a key requirement to break the next bandwidth barrier, as we increase line rate from 10Gbps to 40Gbps to 100Gbps. A Coherent Receiver is analogous to tuning an FM radio to a station via the use of a local oscillator to match the carrier frequency. Much more information may be transmitted by leveraging phase and polarization information. If the local oscillator is tuned into the frequency of the incoming signal, then only the information from the incoming signal is extracted, and neighboring channel information is ignored.

Ciena applied this method, which is common to most modern radio receivers, towards solving optical transmission challenges at higher line rates in a very innovative implementation. The coherent receiver is able to lock into the frequency and phase of the incoming signal and is thus able to recover the incoming DP-QPSK bits appropriately.

- With Coherent Transmission, the receiver down-converts the whole optical signal linearly to an electrical signal by means of heterodyne or homodyne detection. A local oscillator is used (the Tx laser on the same circuit pack in Ciena's case) to mix with the incoming signal and detect phase information. This increases the number of bits per symbol and as a result creates a new leverage point for spectral efficiency (bits per Hertz per second).
- In addition, we can realize post-processing functions such as compensation for Chromatic Dispersion (CD) and Polarization Mode Dispersion (PMD) in the digital domain, all within the same Tx/Rx circuit pack in Ciena's case. This results in better overall optical performance and lower latency.

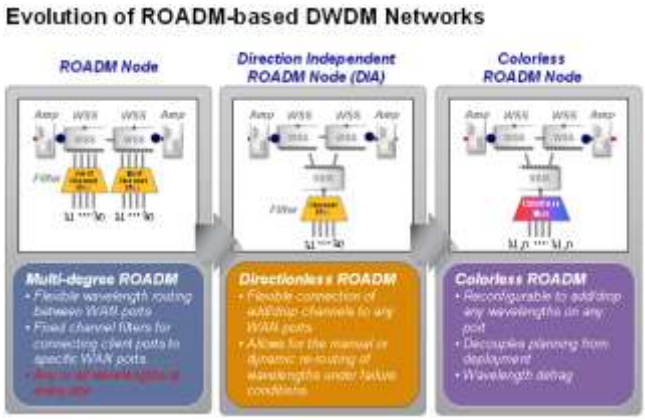
An additional benefit of Ciena's Coherent Receiver is that a traditional Mux/Demux filter is not required to isolate the received channel prior to signal termination. The Receiver may simply "tune" to the frequency of the carrier signal to detect the specific incoming wavelength. This has profound implications on expanding the overall network flexibility.

6500 Development Directions

Ciena has committed to maintain a central focus on R&D to continue to advance the 6500 product family in order to maintain leadership in transmission scalability and network automation and improved total cost of ownership.

Colorless ROADM Approach

There are several ways of implementing a colorless ROADM; typically involving tunable filters. Ciena's approach to implementing a colorless ROADM is one that does not add the cost and complexity of tunable filters rather leverages the inherent benefits of the coherent receivers that are at the heart of our transmission systems. By tuning the local oscillator that is used in the coherent detection process, we actually make a tunable receiver that can tune to any frequency in the spectrum and thus enable colorless ROADM designs without extra tunable filter elements. This approach is simple, low cost, and provides the flexibility needed for next generation network architectures.

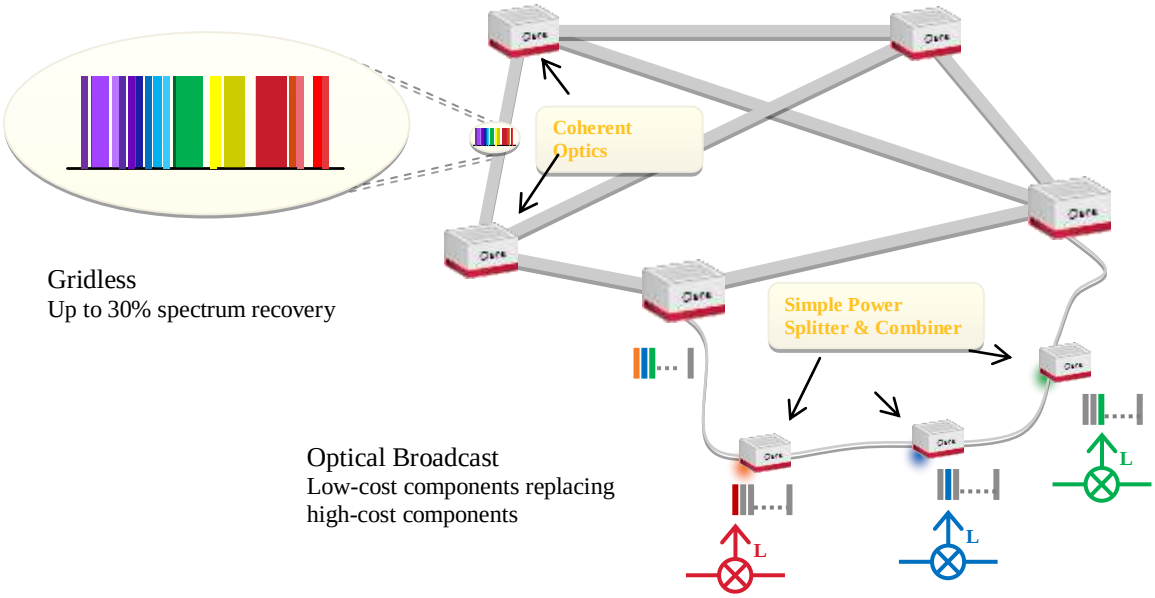


Dynamic wave restoration

The advent of practical colorless and directionless ROADM technologies has allowed Ciena for the first time to contemplate a usable control plane for the optical layer. Using similar techniques to those we have pioneered in L1 control planes, our L0 control plane will allow networks to be dynamically reconfigured at the optical level. While optical reconfiguration is not yet fast enough to be used for protection switching, it is an excellent way to adapt an optical network to changing demands or to re-establish protection paths after a network failure in a particular area.

New Architectures

For higher capacities and simpler network elements

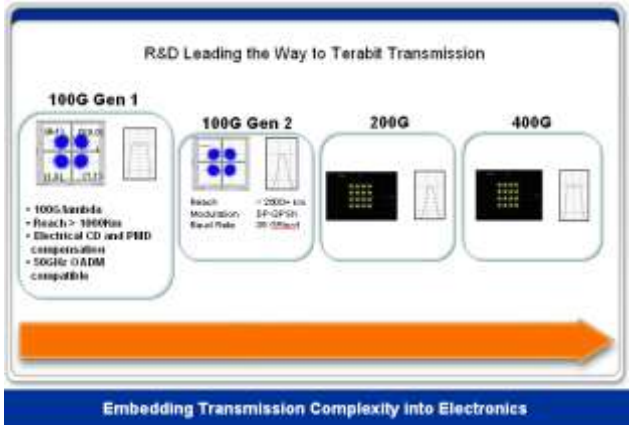


Key Benefits:

- Network simplification and full flexibility with colorless networking leveraging Ciena's unsurpassed experience in coherent technology.
- Reduced turn-up time and faster delivery of new photonic-based services with the capability of decoupling deployment from planning
- Increased network reliability and fault recovery through the redirection of channels in the photonic layer using colorless, directionless, photonic restoration
- Optimized wavelength usage over the life of a network with wavelength de-fragmentation capabilities
- Simpler operations and network troubleshooting with state-of-the-art photonic management tools

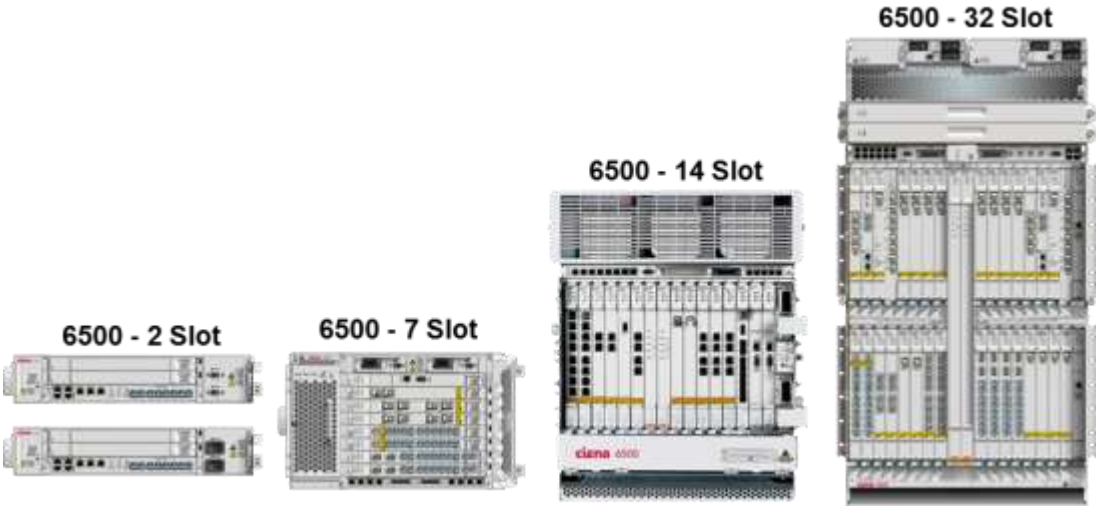
Transmission beyond 100G

Ciena continues to drive development on ultra-high bandwidth transmission. Ciena is already prototyping transmission beyond 100G, an inevitable bandwidth threshold that will be available this decade. This technology will be deployable on the 6500 with design that incorporates the best practices of our 100G solution discussed with this response, as well as others unique to the high capacity rates.

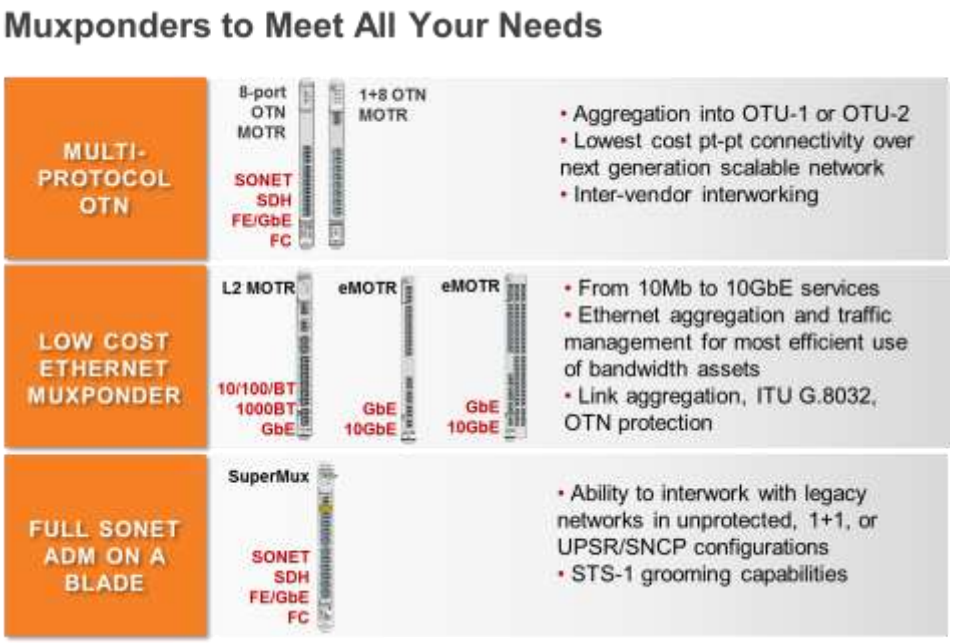


5.2.4.2 **Edge Optical Switches** — Provide entry points into the enterprise or service provider core networks.

Ciena Response: All the features described above in section 5.2.4.1 for the 6500 apply here as well for Edge Optical Switches. The 6500 provides multiple form factors with interchangeable modules. The 6500 2-slot and 7-slot shelves shown below are ideal for providing entry points into the enterprise or service provider core networks while the 14-slot shelf is ideal for larger locations requiring multiple degrees and more than a few wavelengths. The 32-slot shelf is designed for service provider networks.



Ciena's 10G/40G/100G transponders can all be used in the 6500 2-slot or 7-slot shelf. Ciena also has muxponders that incorporate both layer 1 Ethernet transport as well as layer 2 Ethernet switching that provide Carrier Ethernet services. A Muxponder is simply a multiplexor with an integrated transponder for aggregating lower speed circuits onto a wavelength. Port densities range from 8 x GbE Ethernet ports on a layer 1 module to up to 40 x GbE on our eMOTR layer 2 module. Data center protocols such as Fibre Channel, FICON, ESCON, ISC-3p, PSIFB (5G Infiniband), etc. are also supported on the 6500 platform.



5.2.4.3 **Optical Network Management** — Provides capabilities to manage the optical network and allows operators to execute end-to-end circuit creation.

Ciena Response: Ciena's OneControl Unified Management System unites the management of Ciena's Carrier Ethernet Solutions, Packet-Optical Switching, and Packet-Optical Transport product portfolios under a single comprehensive solution. With its unique toolset of comprehensive management features, OneControl puts the control of critical networks at the operator's fingertips. Through a unified GUI and common management model, Network Operations Center (NOC) operators can rapidly deploy new service offerings that cut across domains (access, metro, core, and subsea) and coordinate across network protocol layers (photonic, transport, and packet) to ensure efficient use of critical network assets and bandwidth optimization.

This efficiency provides comprehensive management and control from the access customer hand-off points, through the metro, into the intelligent core, and across subsea networks. The OneControl GUI allows NOC personnel to create and activate end-to-end services at the optical layer—OTN/SONET/ SDH and Layer 2 services such as E-LAN/E-Line. Once enabled, OneControl provides complete visualization of the entire end-to-end service multi-layer correlation, facilitating proactive root cause analysis and troubleshooting.

OneControl Technology Refresh
OneControl provides a technology refresh on both the server architecture and the client to ensure OneControl provides a scalable, extendable, and useable solution.

OneControl Server Technology – The OneControl Server is built with a Service-Oriented Architecture (SOA). SOA is a set of principles and methodologies for designing and developing software in the form of interoperable services. These services are well defined business functionalities that are built as software components (discrete pieces of code and/or

data structures) that can be reused for different purposes. SOA design principles are used during the phases of systems development and integration. (source: www.wikipedia.com)

For OneControl, the SOA paradigm enables the future ability to deliver componentized solutions without requiring a full system upgrade. This capability will allow the software delivery mechanism to be more modular and customizable. This also enables agile accommodation of new feature content because the entire system does not need to be redesigned.

The server is built with a well-defined J2EE Enterprise Application Server, which enables the OneControl system to focus on feature functionality rather than the communication protocols within the system. J2EE Application Servers are used in many Web applications that need to meet the demands of millions of transactions per second, and throughout many industries to ensure scalability. Through the use of the application server, OneControl can scale to meet any customer deployment requirements.

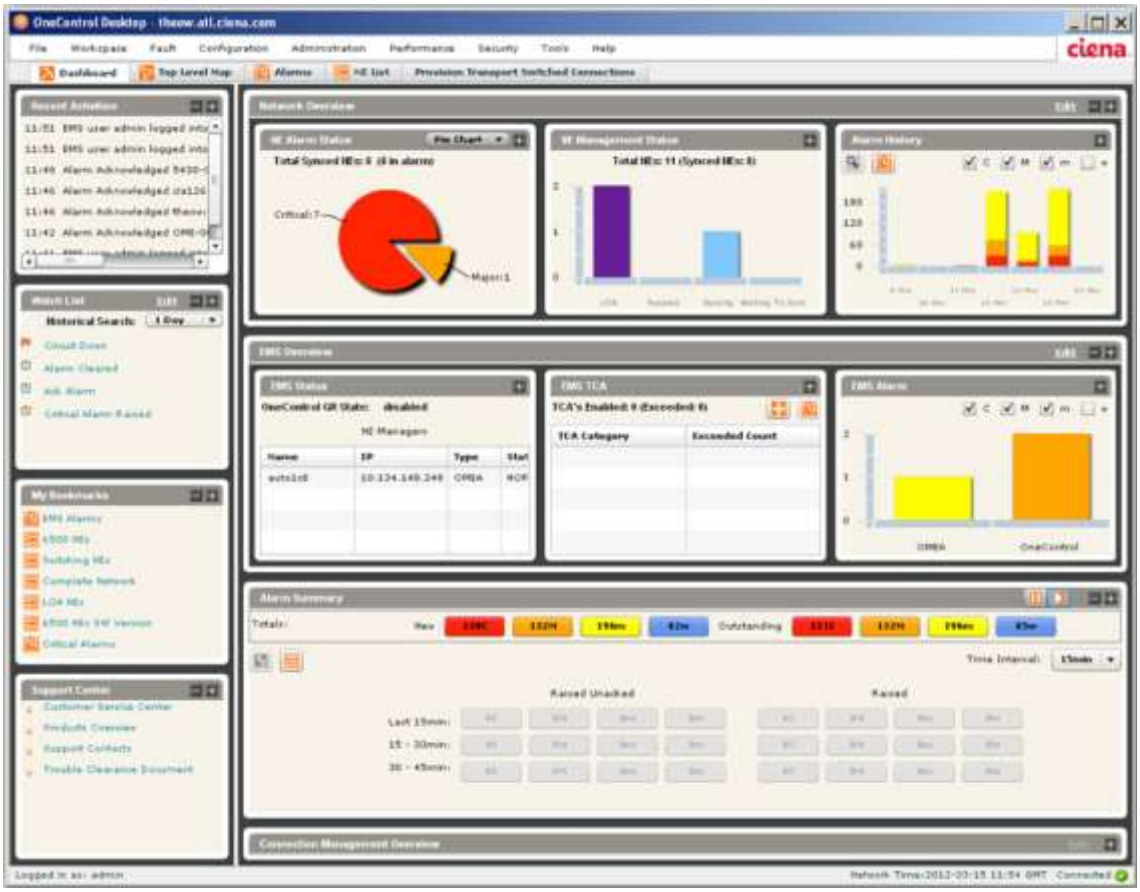
OneControl Client Technology – The OneControl Client is built with newer, Web-enabled technologies that provide the ability to present a new user experience and enable both a standalone client and a Web-enabled client in the future.

The technology allows OneControl to provide a user-flexible GUI navigation paradigm similar to the latest Web interfaces. The user can decide to manage the OneControl GUIs through a single window tab-based approach or a multi-window approach, depending on their requirements. The technology also provides enhanced graphical “widgets” that enable OneControl to provide a better user experience through the use of the GUI, and more customizable views per user.

Several OneControl servers using multiple software releases can be controlled using the same client hardware, as the client architecture allows multiple OneControl clients at different software releases to be installed in the same time.

OneControl Executive Dashboard

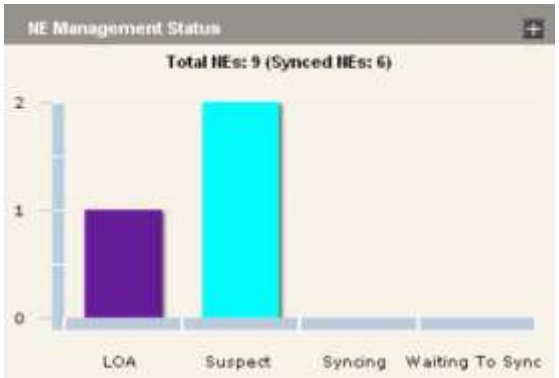
The Executive Dashboard provides the user with a set of definable widgets and offers a customized view of the most important aspects of the network in a single screen. From this launch point, users can take control quickly and efficiently zero into the trouble spots in their network, diagnose a fault, and improve the mean time to repair the fault. New releases of OneControl introduce new widgets (based on customer feedback) that enable a summarized view of the network from different aspects and attributes of the managed objects in the network. The dashboard is broken into two areas: a resource area and a summary area.



OneControl Dashboard Summary – Network Overview

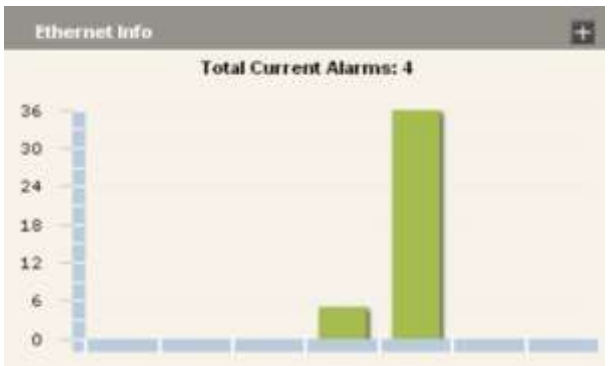
The Network Summary panel of the dashboard provides the following graphical widgets that offer specific details on the resources (Network Elements [NEs], facilities, communication) in the network.

NE Alarm Status – Provides a high-level count of the number of NEs in alarm based on its highest severity alarm. Through a single button click, the user can see which NEs are in an alarm state without having to scroll through an alarm list.

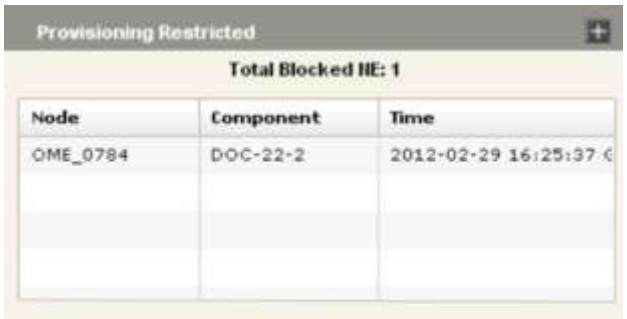


NE Management Status – Provides a high-level graphical count of the management status of the NEs that are deployed. The user will get a simple, quick view of the NEs' management status without having to view a table of data or hunt through a map. Through a single button click, the user then can get a filtered list of the affected NEs for the state requested.

Alarm History – Provides a graphical alarm history of the network, allowing the user to view by the day or by the hour. The user then can go to a filtered view of the alarms based on the timeframe required.



Ethernet Info – For Carrier Ethernet devices, this graph provides a high-level historical timeline and current view of the service failure alarms and events, including G8032 ring switches and Continuity Check Message (CCM) failures. The user then can launch the alarms/events for the required timeframe.



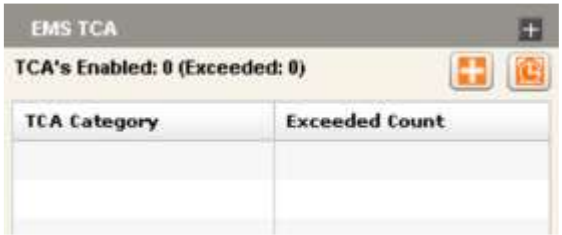
Provisioning Restricted – Provides the users a view of failures against any Domain Optical Controller (DOC) that causes provisioning to be blocked or reduced in the photonic network, time-stamped according to when the failure occurred.

Fiber Status – Provides the users a high-level historical timeline and current view of any high-capacity (Wavelength Division Multiplexing [WDM]) failures in the network. The user then can launch the alarms for the required timeframe.

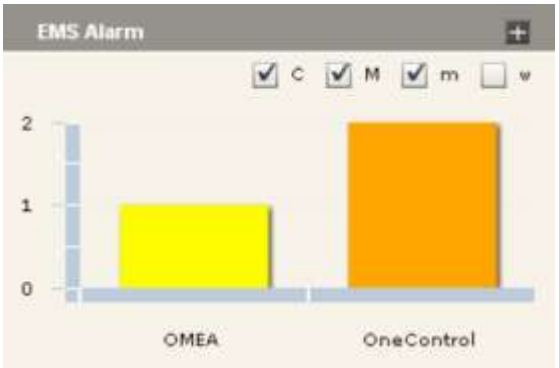
OneControl Dashboard Summary – EMS Overview

The Element Management System (EMS) Overview provides the user with the following graphical widgets that gives specific details on the EMS application and the server on which it runs.

EMS Status – Provides a graphical view of all the sub-EMS systems in the network and a high-level view of the status of the EMS system. The EMS Status also provides a state of the geographical redundancy for OneControl. The widget allows the user to have a single view of the status of the EMS systems without having to check on each EMS separately.



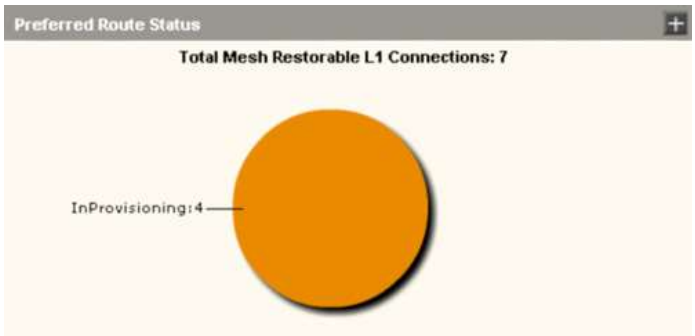
EMS Threshold Cross Alerts (TCAs) – Provides the user a consolidated view of all the EMS TCAs that are active in the system. The widget allows the user to view any threshold that has been exceeded. Through a single click, the user can access the application to provision the TCAs or view the ones that are translated into system-level alarms.



EMS Alarms – Provides the user a consolidated graphical view on the number of network management alarms in the OneControl and sub-EMS systems. This provides a quick view on the health of the EMS systems without having to scroll through a list of alarms.

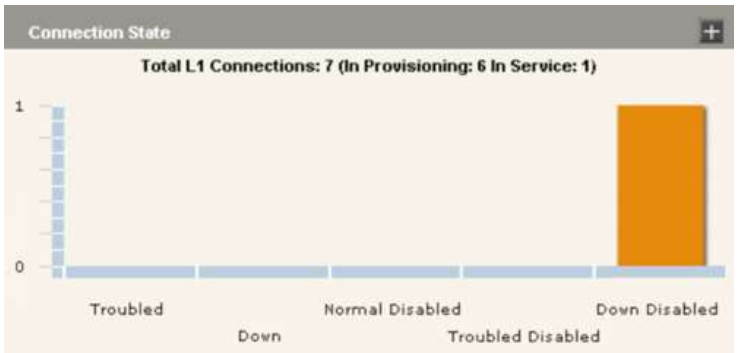
OneControl Dashboard Summary – Connection Management Overview

The Connection Management Overview provides the user with a consolidated graphical view on the status of the connections managed by OneControl (for R2.1, control plane SONET/SDH network connections are supported). The goal of this area is to allow those operators who have responsibilities for network connection management a quick view on the status and states of the connections.



Home Route Status – Provides the user a graphical view of the connections that are not on their preferred path. For Control Plane connections, the home route represents the provisioned path for the circuit. This widget enables network operators to easily view how

many circuits are not on their provisioned path and might need to be reverted. Through a single click, users can launch to the circuit list represented by the area selected, saving time in troubleshooting those connections.



Connection State – Provides the user a graphical view of the connection states in the network. From this view, the operators can get a quick view of the connection in the network and failures of those connections. The widget provides a single click to launch the circuit list for the represented area without the user having to find and/or filter for these details.

OneControl Dashboard Summary – Alarm Summary Overview

The Alarm Summary in the dashboard provides operators of the network a view of the alarms that have been raised over the past 45 minutes (configurable to three hours). Operators often request some way to know if something occurred in the network while they were not watching or have stepped away from a terminal. The Alarm Summary indicates not only the current total of new (unacknowledged) and outstanding (all) alarms, but also provides a view of the alarms that have been raised over the last three configured time periods. In this way, the operator can “catch” if an alarm was raised and cleared before they had time to observe it. Today, operators would need to build special tools and scripts for this level of visibility into the network; With Alarm Summary, the data is easily available.

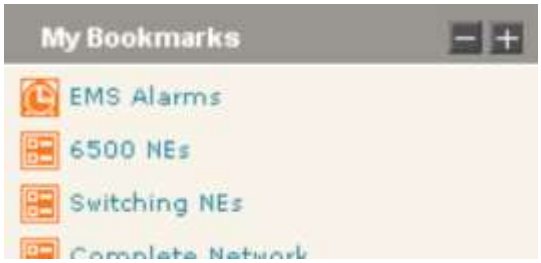
Each alarm count has a link to a filtered view of the alarms that are selected. This enables a quick way for operators to see what has just occurred in the network without having to scroll through alarm tables or build complex filters.

OneControl Dashboard Resource – Overview

The resource panel of the dashboard provides graphical widgets that are customized to the specific operator’s task. The resource area of the dashboard includes the following graphical widgets:

Recent Activities – The recent activities widget offers the user a log of activities that user has completed during their current session. This allows a user to know what they have completed over time without having to filter through event/logs.

Support Center – This widget provides hyperlinks to Ciena resources online. These resources include the customer portal, which allows users to open support tickets with Ciena. This will save the operators time and effort by opening support tickets without leaving the tool.



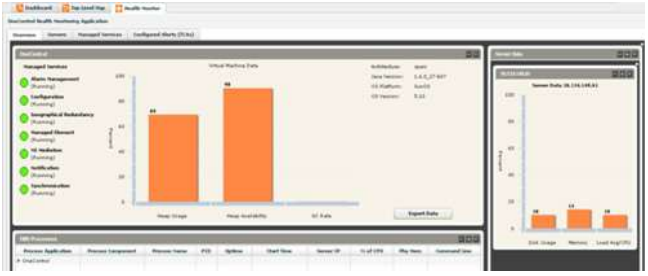
My Bookmarks – This widget provides users with the ability to bookmark or “hyperlink” applications with the associated filters so a user can launch the application quickly with the specified filter. This gives users and operators an easy way to get into applications and views of the applications they use most often.

Watch List – This is one of the most powerful tools in the OneControl Dashboard. This widget allows operators and users to set up specific filters (alarms and control plane

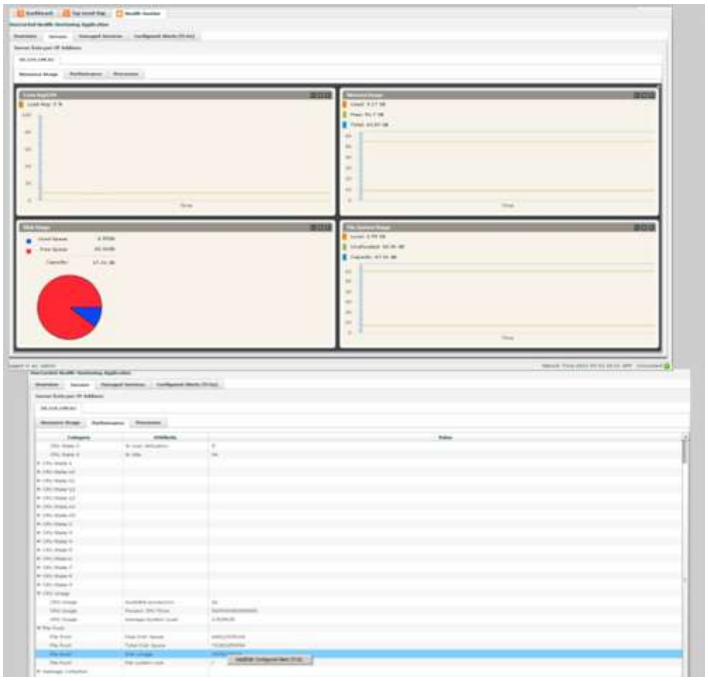
connections for OneControl R2.1) for alarms and events in the network, have OneControl watch for these events, and alert the users or operators when they occur. OneControl will put the event into the watch list until the user clears the view, not when it is cleared in the network. Operators can create an event watch without continually having to review historical alarms and events. This will save the user time and effort and will increase confidence in the network's stability and operations.

OneControl EMS Health Monitor

The OneControl base platform provides an EMS Health Monitor that monitors the status of the EMS systems and the servers on which they run. The Health Monitor provides a view of what is occurring within the OneControl platform. With previous EMS systems, this view would require a user to log into the server's underlying operating system and perform specific shell/script commands.

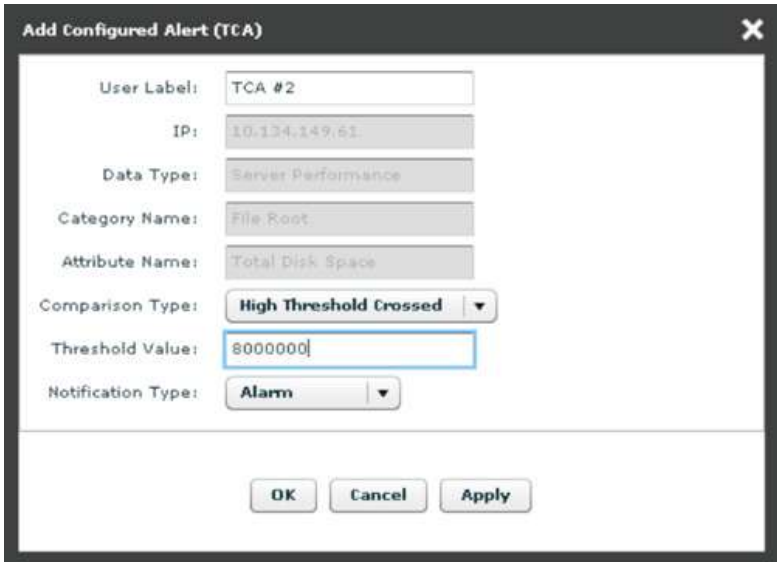


Overview Tab – Using this tab in the Health Monitor, the operator can quickly see the server's Java and physical (disk and memory) resource utilization, so any issues within the server can be identified without having to run specialized scripts and/or commands directly on the server, saving the operator time and effort.



Servers Tab – This tab offers a simple graphical timeline display of the physical aspects of each server managed by the OneControl Health Monitor, including the load/CPU, memory, disk, and file system usage.

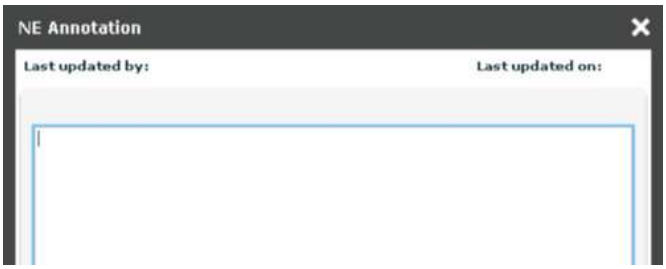
The servers tab also provides a look at the raw data of from the server. Administrators can review the data, but OneControl allows them to create an EMS TCA for each measured attribute.



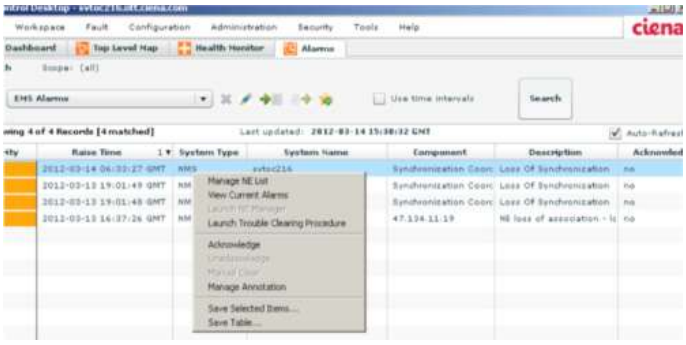
EMS TCAs – One of the unique features of OneControl is the ability to set TCAs based on measured attributes. The administrator of the network can set up alarms, events, or alerts based on whether the specified measured value exceeds or falls below a specified value. The appropriate notification will be created in OneControl, eliminating the need to watch the server's performance or create specialized scripts for notifications.

OneControl GUI Enhancements

OneControl provides many other GUI enhancements that reduce the user's need to touch the network or increase their efficiency in managing and administrating the network.



Annotation Support – OneControl offers the ability to add annotations or notes on most of the objects within the OneControl system. This provides operators with a way to add specific notes and details about the different objects in the network, and can function as a journal over time. This functionality allows operators to communicate about activities or specific objects throughout the network that may have activities associated with them.



Integrated Troubleshooting Procedures – The integrated troubleshooting procedures allow operators to open the Ciena help documentation directly to the trouble-clearing procedures for the alarm being highlighted. This drastically reduces troubleshooting time, even when operators are not familiar with the managed network.

In OneControl R2.1, operators have the ability to launch troubleshooting procedures for OneControl alarms, which will be expanded into network alarms in later OneControl releases.

Benefits of the OneControl Base Platform

The OneControl base solution offers comprehensive network and service management for end-to-end Ciena networks. The following value-added applications, functionality, and attributes are provided as part of the base solution offering:

> Increased scalability through technology refresh and a hierarchical architecture

> Unified network management for the Ciena's Packet-Optical Transport, Packet-Optical Switching, and Carrier Ethernet Solutions portfolios

> Executive dashboard with a birds-eye view of components status and all current issues/ exceptions requiring action

> Expandability platform that allows Transport (Layer 0), switching (Layer 1) and Carrier Ethernet (Layer 2) services management, control plane-enabled networks, and increased flexibility in adding new apps in the future.

5.2.4.4 IP over DWDM (IPoDWDM) — A device utilized to integrate IP Routers and Switches in the OTN (Optical Transport Network).

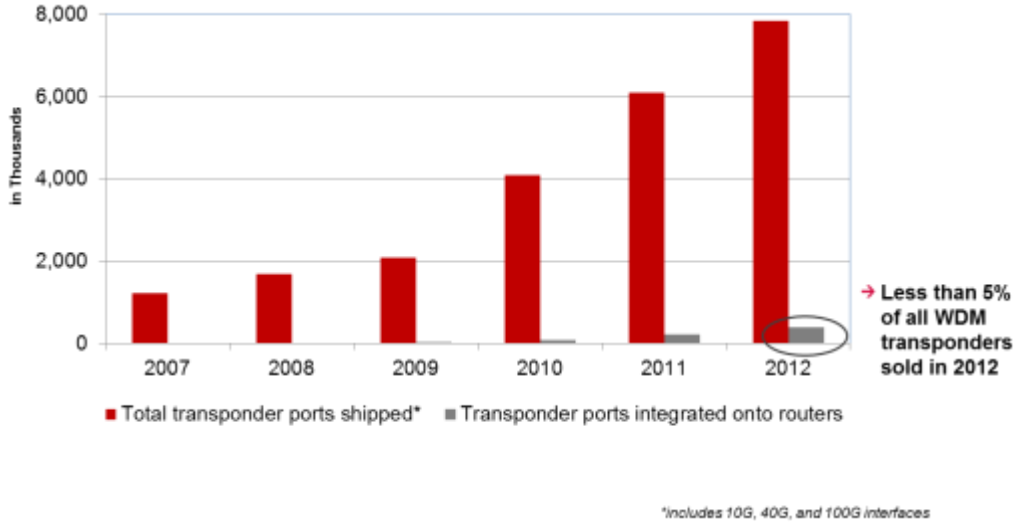
Ciena Response: Ciena believes that there should be a clear demarcation between the IP router and the OTN switch. Integrating the DWDM optics into an IP router has many disadvantages. For example:

1. Lack of Performance Monitoring data points at the OTN level to troubleshoot WAN problems.
2. Distance limitations – Ciena's OTN transponders have better performance and longer reach than typical IPoDWDM interfaces built into routers.
3. IPoDWDM wavelengths need to be regenerated more often
4. Since the transponder has been decoupled from the DWDM photonic system, troubleshooting becomes much more complex
5. Lack of electronic dispersion compensation built into the IPoDWDM optics requires the

addition of Dispersion Compensating fiber in the network. This increases span loss as well as latency, driving the need for more amplifiers and driving up cost.

6. IPoDWDM wavelengths do not support OTN switching. Bandwidth can be stranded using IPoDWDM. Cannot make best use of wavelength's capacity whereas multiple service types can be multiplexed onto Ciena's OTN muxponders.
7. Protection switching is performed at layer 3 instead of layer 1, introducing much longer switching times.
8. IPoDWDM only works when using the same vendor's Routers and Photonic systems. This eliminates any flexibility in vendor selection and potentially forcing the use of inferior technology.
9. Guard bands are required between 10G and 100G IPoDWDM wavelengths reducing the overall wavelength capacity of the system. Ciena supports 10G/40G/100G with no guard band restrictions.
10. IPoDWDM routers must be forklift upgraded to go from 10G to 100G. Ciena's 6500 supports 10G/40G/100G in the same shelf.

In summary, IPoDWDM is not a desirable approach to building DWDM networks. The industry has yet to adopt this philosophy as can be seen in the number of IPoDWDM transponders sold to date.



5.2.5 ROUTERS — A device that forwards data packets along networks. A router is connected to at least two networks, commonly two LANs or WANs or a LAN and its ISP's network. Routers are located at gateways, the places where two or more networks connect, and are the critical device that keeps data flowing between networks and keep the networks connected to the Internet.

Ciena Response: Ciena will not be responding to this section.

5.2.5.1 **Branch Routers** — A multiservice router typically used in branch offices or locations with limited numbers of users and supports flexible configurations/feature. For example: security, VoIP, wan acceleration, etc.

5.2.5.2 **Network Edge Routers** — A specialized router residing at the edge or boundary of a network. This router ensures the connectivity of its network with external

networks, a wide area network or the Internet. An edge router uses an External Border Gateway Protocol, which is used extensively over the Internet to provide connectivity with remote networks.

5.2.5.3 **Core Routers** - High performance, high speed, low latency routers that enable Enterprises to deliver a suite of data, voice, and video services to enable next-generation applications such as IPTV and Video on Demand (VoD), and Software as a Service (SaaS).

5.2.5.4 **Service Aggregation Routers** — Provides multiservice adaptation, aggregation and routing for Ethernet and IP/MPLS networks to enable service providers and enterprise edge networks simultaneously host resource-intensive integrated data, voice and video business and consumer services.

5.2.5.5 **Carrier Ethernet Routers** — High performance routers that enable service providers to deliver a suite of data, voice, and video services to enable next-generation applications such as IPTV, Video on Demand (VoD), and Software as a Service (SaaS).

5.2.6 SECURITY

Ciena Response: Ciena will not be responding to this section.

5.2.6.1 **Data Center and Virtualization Security Products and Appliances** — Products designed to protect high-value data and data center resources with threat defense and policy control.

5.2.6.2 **Intrusion Detection/Protection and Firewall Appliances** — Provide comprehensive inline network firewall security from worms, Trojans, spyware, key loggers, and other malware. This includes Next-Generation Firewalls (NGFW), which offer a wire-speed integrated network platform that performs deep inspection of traffic and blocking of attacks. Intrusion Detection/Protection and Firewall Appliances should provide:

- Non-disruptive in-line bump-in-the-wire configuration
- Standard first-generation firewall capabilities, e.g., network-address translation (NAT), stateful protocol inspection (SPI) and virtual private networking (VPN), etc.
- Application awareness, full stack visibility and granular control
- Capability to incorporate information from outside the firewall, e.g., directory-based policy, blacklists, white lists, etc.
- Upgrade path to include future information feeds and security threats
- SSL decryption to enable identifying undesirable encrypted applications (Optional)

5.2.6.3 **Logging Appliances and Analysis Tools** — Solutions utilized to collect, classify, analyze, and securely store log messages.

5.2.6.4 **Secure Edge and Branch Integrated Security Products** — Network security, VPN, and intrusion prevention for branches and the network edge. Products typically consist of appliances or routers.

5.2.6.5 **Secure Mobility Products** — Delivers secure, scalable access to corporate applications across multiple mobile devices.

5.2.6.6 **Encryption Appliances** — A network security device that applies crypto services at the network transfer layer - above the data link level, but below the application level.

5.2.6.7 **On-premise and Cloud-based services for Web and/or Email Security** — Solutions that provide threat protection, data loss prevention, message level encryption, acceptable use and application control capabilities to secure web and email communications.

5.2.6.8 **Secure Access** — Products that provide secure access to the network for any device, including personally owned mobile devices (laptops, tablets, and smart phones). Capabilities should include:

- Management visibility for device access
- Self-service on-boarding
- Centralized policy enforcement
- Differentiated access and services
- Device Management

5.2.7 STORAGE NETWORKING — High-speed network of shared storage devices connecting different types of storage devices with data servers.

Ciena Response: Ciena will not be responding to this section.

5.2.7.1 **Director Class SAN (Storage Area Network) Switches and Modules** — A scalable, high-performance, and protocol-independent designed primarily to fulfill the role of core switch in a core-edge Fibre Channel (FC), FCOE or similar SAN topology. A Fibre Channel director is, by current convention, a switch with at least 128 ports. It does not differ from a switch in core FC protocol functionality. Fibre Channel directors provide the most reliable, scalable, high-performance foundation for private cloud storage and highly virtualized environments.

5.2.7.2 **Fabric and Blade Server Switches** — A Fibre Channel switch is a network switch compatible with the Fibre Channel (FC) protocol. It allows the creation of a Fibre Channel fabric, which is currently the core component of most SANs. The fabric is a network of Fibre Channel devices, which allows many-to-many communication, device name lookup, security, and redundancy. FC switches implement zoning; a mechanism that disables unwanted traffic between certain fabric nodes.

5.2.7.3 **Enterprise and Data Center SAN and VSAN (Virtual Storage Area Network) Management** — Management tools to provisions, monitors, troubleshoot, and administers SANs and VSANs.

5.2.7.4 **SAN Optimization** — Tools to help optimize and secure SAN performance (ie. Encryption of data-at-rest, data migration, capacity optimization, data reduction, etc.

5.2.8 SWITCHES — Layer 2/3 devices that are used to connect segments of a LAN (local area network) or multiple LANs and to filter and forward packets among them.

5.2.8.1 Campus LAN – Access Switches — Provides initial connectivity for devices to the network and controls user and workgroup access to internetwork resources.

Ciena Response: Ciena proposes that this network portion be addressed with one of the following devices:

CN3902, CN3916, CN3916CR, CN3931, CN3940, CN5150, CN5142, CN5160, CN5410. All of these devices provide Service Provider level feature sets. These features provide the network operator with the following capabilities:

Service bearer plane testing and verification

Service Level assurance

The following are some of the features a campus LAN access switch should support:

- Security
  - i. SSHv2 (Secure Shell Version 2)

    Ciena Response: Comply. All Ciena Ethernet devices support SSHv2.
  - ii. 802.1X (Port Based Network Access Control)

    Ciena Response: Comply.
  - iii. Port Security

    Ciena Response: In addition to 802.1x for port security, each port can be configured for MAC based security using a static MAC definition on the port.
  - iv. DHCP (Dynamic Host Configuration Protocol) Snooping

    Ciena Response: Comply. L2 DHCP Relay can also be used to reduce DHCP broadcast traffic and spoofing attacks by utilizing trusted ports with option 82. Trusted ports are used to indicate that a port or group of ports should be trusted when analyzing client DHCP broadcasts. A list of trusted client ports and a list of trusted server ports can be configured manually using the dhcp l2-relay-agent set command.
- VLANs

Ciena Response: Comply. All proposed devices can support 4094 VLANs per port.

- Fast Ethernet/Gigabit Ethernet

Ciena Response: Comply.

- PoE (Power over Ethernet)

Ciena Response: **Partially Comply.** For PoE requirements, an adjunct PoE injector can be implemented.

- link aggregation

Ciena Response: Comply.

- 10 Gb support

Ciena Response: Comply.

- Port mirroring

Ciena Response: Comply. The transmit and receive of any port can be mirrored to any other port.

- Span Taps

Ciena Response: Comply. The transmit and receive of any port can be mirrored to any other port.

- Support of IPv6 and IPv4

Ciena Response: Comply. The Ciena devices support IPv4/6 for network management. For service offerings, IPv4 and IPv6 routing should be handled by the routing architecture defined in section 5.2.5. The Layer 2 access layer network should have minimized complexity and focus on Ethernet service delivery.

- Standards-based rapid spanning tree

Ciena Response: Comply. Comply, though not recommended. Spanning tree networks eventually result in network loops. To avoid this, Layer 2 transport requirements for vlans should be executed using G.8032 or MPLS-TP.

- Netflow Support (Optional).

Ciena Response: Netflow is a Layer 3 based service that adds complexity. Service assurance at Layer 2 of the network can be implemented using a standards based y.1564sam.

5.2.8.2 **Campus LAN – Core Switches** — Campus core switches are generally used for the campus backbone and are responsible for transporting large amounts of traffic both reliably and quickly.

Ciena Response: Ciena proposes that this network portion be addressed with one of the following devices:

CN5150, CN5160. All of these devices provide Service Provider level feature sets. These features provide the network operator with the following capabilities:

Service bearer plane testing and verification

Service Level assurance

Core switches should provide:

- High bandwidth

Ciena Response: Comply.

- Low latency

Ciena Response: Comply.

- Hot swappable power supplies and fans

Ciena Response: Comply.

- Security
  i. SSHv2

  Ciena Response: Comply.

  ii. MacSec encryption

  Ciena Response: Does not comply.

iii. Role-Based Access Control Lists (ACL)

Ciena Response: ACLs are required in Layer 3 network. These add unnecessary complexity to a Layer 2, Ethernet transport network. Carrier Ethernet service delivery focuses on service transport using standards based bandwidth profiles to transport and segregate customer's networks.

- Support of IPv6 and IPv4

Ciena Response: Comply. The Ciena devices support IPv4/6 for network management. For service offerings, IPv4 and IPv6 routing should be handled by the routing architecture defined in section 5.2.5. The Layer 2 access layer network should have minimized complexity and focus on Ethernet service delivery.

- 1/10/40/100 Gbps support

Ciena Response: Comply. The core switch family recommended supports speeds up to 10Gbps while the CN5410 supports speeds up to 100Gbps

- IGP (Interior Gateway Protocol) routing

Ciena Response: Ciena recommends that the network layers be evaluated for efficiency and optimized for service transport.

- EGP (Exterior Gateway Protocol) routing

Ciena Response: Ciena recommends that the network layers be evaluated for efficiency and optimized for service transport.

- VPLS (Virtual Private LAN Service) Support

Ciena Response: Ciena recommends that the network layers be evaluated for efficiency and optimized for service transport.

- VRRP (Virtual Router Redundancy Protocol) Support

Ciena Response: Ciena recommends that the network layers be evaluated for efficiency and optimized for service transport. Layer 2 redundancy can be supported using multi chassis lag.

- Netflow Support.

Ciena Response: Netflow is a Layer 3 based service that adds complexity. Service assurance at Layer 2 of the network can be implemented using a standards based y.1564sam.

5.2.8.3 **Campus Distribution Switches** — Collect the data from all the access layer switches and forward it to the core layer switches. Traffic that is generated at Layer 2 on a switched network needs to be managed, or segmented into Virtual Local Area Networks (VLANs), Distribution layer switches provides the inter-VLAN routing functions so that one VLAN can communicate with another on the network. Distribution layer switches provides advanced security policies that can be applied to network traffic using Access Control Lists (ACLs).

Ciena Response: Ciena proposes that this network portion be addressed with one of the following devices:

CN5150, CN5305, , CN5142, CN5160, CN5410. All of these devices provide Service Provider level feature sets.

- High bandwidth

Ciena Response: **Comply.**

- Low latency

Ciena Response: **Comply.**

- Hot swappable power supplies and fans

Ciena Response: **Comply.**

- Security (SSHv2 and/or 802.1X)

Ciena Response: **Comply.**

- Support of IPv6 and IPv4

Ciena Response: Comply. The Ciena devices support IPv4/6 for network management. For service offerings, IPv4 and IPv6 routing should be handled by the routing architecture defined in section 5.2.5. The Layer 2 access layer network should have minimized complexity and focus on Ethernet service delivery.

- Jumbo Frames Support

Ciena Response: **Comply.** All devices support a maximum frame size of 9216 bytes.

- Dynamic Trunking Protocol (DTP)

Ciena Response: DTP is a Cisco proprietary protocol that does not provide vendor interop. Ciena recommends reviewing the demands of the service offering requirements. The resulting analysis will remove the necessity of protocols like DTP that provide no value and add operational complexity.

- Per-VLAN Rapid Spanning Tree (PVRST+)

Ciena Response: PVRST is a Cisco proprietary protocol. MSTP is the standardized version that allows vendor interoperability if that type of architecture is desired. However, MSTP is not recommended in network architectures except as a corner case. The recommended network design is to remain simple while offering the most robust service offerings possible. G.8032 and MPLS-TP are both better suited for robust vlan transport.

- Switch-port auto recovery

Ciena Response: Auto recovery is a mechanism used in spanning tree networks. Spanning tree is not a recommended Ciena architecture.

- NetFlow Support or equivalent

Ciena Response: Netflow is a Layer 3 based service that adds complexity. Service assurance at Layer 2 of the network can be implemented using a standards based y.1564sam.

5.2.8.4 **Data Center Switches** — Data center switches, or Layer 2/3 switches, switch all packets in the data center by switching or routing good ones to their final destinations, and discard unwanted traffic using Access Control Lists (ACLs), all at Gigabit and 10 Gigabit speeds. High availability and modularity differentiates a typical Layer 2/3 switch from a data center switch. Capabilities should include:

Ciena Response: Ciena will not be responding to this section.

- High bandwidth
- Low latency
- Hot swappable power supplies and fans
- Ultra-low latency through wire-speed ports with nanosecond port-to-port latency and hardware-based Inter-Switch Link (ISL) trunking
- Load Balancing across Trunk group able to use packet based load balancing scheme

- Bridging of Fibre Channel SANs and Ethernet fabrics
- Jumbo Frame Support
- Plug and Play Fabric formation that allows a new switch that joins the fabric to automatically become a member
- Ability to remotely disable and enable individual ports
- Support NetFlow or equivalent

5.2.8.5 **Software Defined Networks (SDN) - Virtualized Switches and Routers** — Technology utilized to support software manipulation of hardware for specific use cases.

5.2.8.6 **Software Defined Networks (SDN)** — Controllers - is an application in software-defined networking (SDN) that manages flow control to enable intelligent networking. SDN controllers are based on protocols, such as OpenFlow, that allow servers to tell switches where to send packets. The SDN controller lies between network devices at one end and applications at the other end. Any communications between applications and devices have to go through the controller. The controller uses multiple routing protocols including OpenFlow to configure network devices and choose the optimal network path for application traffic.

Ciena Response: Ciena is actively developing standards and customer implementations for SDN. This includes implementing OpenFlow on the 5430.

5.2.8.7 **Carrier Aggregation Switches** — Carrier aggregation switches route traffic in addition to bridging (transmitted) Layer 2/Ethernet traffic. Carrier aggregation switches' major characteristics are:

Ciena Response: Ciena proposes that this network portion be addressed with one of the following devices:

CN5142, CN5150, CN5160, CN5305, CN5410. All of these devices provide Service Provider level feature sets. These features provide the network operator with the following capabilities:

Service Level assurance

Standards based service offerings (E-Line/E-LAN + MEF compliant bandwidth profile definitions)

- Designed for Metro Ethernet networks

Ciena Response: Comply.

- Designed for video and other high bandwidth applications

Ciena Response: Comply.

- Supports a variety of interface types, especially those commonly used by Service Providers

Ciena Response: Comply. Service providers are using MEF as the model for Ethernet service delivery. This model focuses on:

- Delay, frame loss, jitter measurements
- Bandwidth profiles based EVC, DSCP, CoS, VLAN and port
- Service architectures of E-Line/E-LAN/E-Access

Capabilities should include:

- Redundant Processors

Ciena Response: Comply. The following devices support redundant processors:

5305, 5410.

- Redundant Power

Ciena Response: Comply.

- IPv4 and IPv6 unicast and multicast

Ciena Response: Comply. The Ciena devices support IPv4/6 for network management. For service offerings, IPv4 and IPv6 routing should be handled by the routing. The Layer 2 aggregation network should have minimized complexity and focus on Ethernet service delivery.

- High bandwidth

Ciena Response: Comply.

- Low latency

Ciena Response: Comply.

- Hot swappable power supplies and fans

Ciena Response: Comply.

- MPLS (Multiprotocol Label Switching)

Ciena Response: Partially Comply. Ciena supports and recommends MPLS-TP.

- BGP (Border Gateway Protocol)

Ciena Response: BGP is only required to carry Layer3 services. These service offering is not necessary on a Carrier Ethernet service network.

MPLS-TP utilizes an IGP (ISIS or OSPF)

- Software router virtualization and/or multiple routing tables

Ciena Response: Ciena devices implement a Layer 2 based virtual switching architecture. This architecture segregates broadcast domains within a port and across multiple ports.

- Policy based routing

Ciena Response: Routing at this layer of the network should not be required. Ciena recommends evaluating the network architecture for the functionality and service requirements at each layer.

- Layer 2 functionality
  i. Per VLAN Spanning Tree

     Ciena Response: PVRST is a Cisco proprietary protocol. MSTP is the standardized version that allows vendor interoperability if that type of architecture is desired. However, MSTP is not recommended in network architectures except as a corner case. The recommended network design is to remain simple while offering the most robust service offerings possible. G.8032 and MPLS-TP are both better suited for robust vlan transport.

  ii. Rapid Spanning Tree

     Ciena Response: Comply, though not recommended for use at this layer of the network. Ciena recommends using G.8032 or MPLS-TP.

iii. VLAN IDs up to 4096

Ciena Response: Comply.

iv. Layer 2 Class of Service (IEEE 802.1p)

Ciena Response: Comply.

v. Link Aggregation Control Protocol (LACP)

Ciena Response: Comply.

vi. QinQ (IEEE 802.1ad)

Ciena Response: Comply.

Layer 2 Carrier Ethernet: CESD

Ciena's CESD (Carrier Ethernet Service Delivery) Portfolio is a standards based connection oriented Ethernet architecture. Ciena's CESD delivers all the advanced functionality required in a Carrier Ethernet transport network, however in a simpler manner than other solutions. This enables rapid turn-up of services and ease-of-management and troubleshooting.

CESD Features & Benefits

Ciena's Carrier Ethernet architecture has been designed to deliver cost-effective capacity, scalability, resilience and manageability for Advanced Carrier Ethernet Services.

The network can be deployed quickly and efficiently, scaling to meet new subscriber demand, and providing a highly manageable and programmable network architecture to address an ever changing telecommunications environment.

There are a number of key technology advantages that Ciena's solution has over other Industry solutions:

1. Full interworking between all major Carrier Ethernet standards – Not only is Ciena's solution a True Carrier Ethernet® Transport solution, but it also supports a full set of interworking that is certified CE 2.0 by the Metro Ethernet Forum (MEF)..

2. Highly scalable and simple solution – a combination of industry leading port and service densities, as well as the power of a unique Virtual Switching architecture allows WSCA-NASPO to maximize the number of services delivered in the network. Being a pure Layer 2 solution we provide the most efficient and simple packet-based transport architecture, alleviating scaling issues seen with other transport technologies.

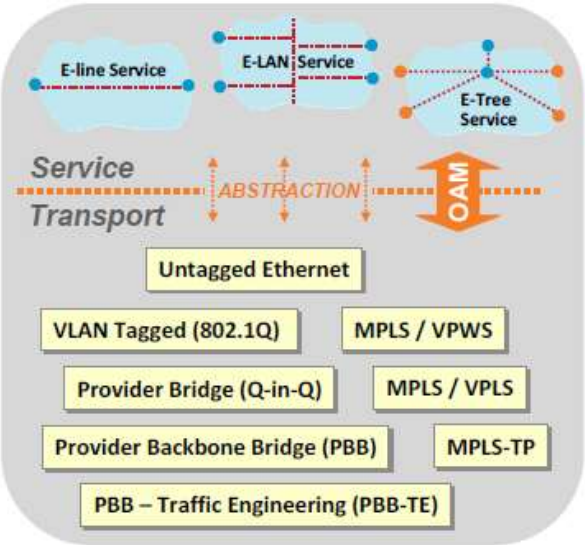
3. Seamless OSS integration and unique automation features – Ciena's Network management system, OneControl, eases the management of a Carrier Ethernet service network, enabling northbound applications to orchestrate and direct the service management process while the OneControl platform deploys, delivers and sustains Carrier Ethernet services. Coupled with the extensive experience in integrating with back-office systems (including the major tier 1 US Carriers), OneControl provides the quickest service turn-up, speeding up time to revenue and reducing overall operational costs. Both the management system and the devices have been designed to allow for extensive automation via the use of advanced service templates and configuration downloads.

4. Full set of Carrier-class OAM capabilities – Our CESD solution includes the industry's most comprehensive and proven OAM solution to not only minimize overall operational costs, but also to guarantee SLA's to provide value added services to your customers.

5. Fastest growing Ethernet Access solution vendor – HeavyReading has endorsed Ciena as the vendor with the fastest growing deployment of Carrier Ethernet for Carrier Ethernet access in the market (HeavyReading Quarterly Tracker 4 quarters to Q3'10), with a number 1 market share in Ethernet access over fiber solutions. Ciena has the industry's most expertise and experience in deploying world class, next generation Carrier Ethernet networks.

Transport and Protection Mechanisms

The unique advantage of Ciena's solution is that it will allow WSCA-NASPO to push for the standard transport and protection mechanism it prefers for their network. Ciena provides the greatest flexibility for building and deploying Ethernet networks by abstracting the services from the access or transport network technology and supporting all MEF services across any topology and different tunnel encapsulation formats, as shown below.



Below are the supported Standards and overview of their operation.

G.8032

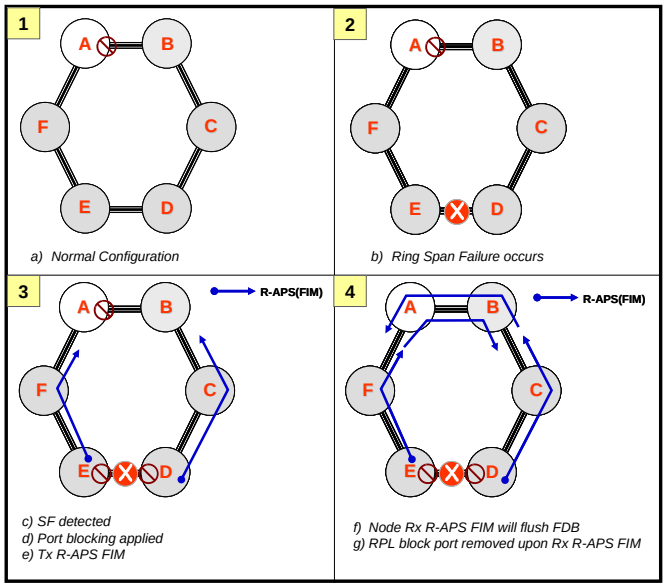
Using G.8032 Ethernet Ring Protection, all services (E-Line or E-LAN) are intrinsically protected with the ring protection mechanism provided in the standard. Protection times are achieved in less than 50ms for rings up to 24 nodes in size. It should be noted that Ciena's implementation of G.8032 allows for connection of rings over methods other than dark fiber, such as leased lines and DWDM. Failure detection in such cases is triggered by IEEE 802.1ag CCM messages.

Protection switching in G.8032 is triggered once a fault has been detected on the ring. Faults include a nodal fault, or a ring span fault (whether unidirectional or bidirectional).

Nodes adjacent to the fault point will notify the other nodes on the ring of the fault. These nodes will install an automatic protection channel block facing the fault point, and periodically transmit ring automatic protection switching (R-APS) frames indicating a fault.

Upon reception of an R-APS fault message, downstream ring nodes flush their Forwarding Database (FDB). If the downstream node had an operationally assigned channel block, it will be removed. The flushing of the ring node FDB occurs once.

The sequence of events involved G.8032 protection switching is illustrated in the below figure:



(1) shows the ring in normal ("closed") state. Ring node A is the owner of the operationally assigned channel block port. If a fault occurs between ring nodes E and D (i.e., ring span ED), as depicted in sequence (2), the ring nodes adjacent to the fault point will install a channel block facing the fault point, and start to periodically transmit a R-APS fault indication message (FIM). This is illustrated in sequence (3). When ring node A, which is the operationally assigned channel block owner receives an R-APS FIM, it will remove its channel block. The resulting ring configuration is illustrated in sequence (4). Full loop-free connectivity is restored over the ring, once a fault is detected and protection switching is triggered. Once the fault is detected, sequence (3) and (4) occurs within 50ms, thus providing deterministic sub-50ms protection switching.

PBB-TE

Provider Backbone Bridges – Traffic Engineering (PBB-TE) provides traffic-engineered tunnels through a Carrier Ethernet Network. This connection-oriented approach offers the ideal infrastructure for wireless backhaul, DSL aggregation, and Ethernet-based virtual private networks (VPN). A Ciena PBB-TE solution has the following advantages:

Scalable: PBB-TE leverages PBB which dramatically increases the maximum possible service instances in a network from 4094 (with Q-in-Q) to 16 million, thanks to the 24-bit service tag that separates the service provider's MAC address space from the end customer's.

Deterministic: PBB-TE allows service providers to create point-to-point tunnels, adding connection oriented attributes to traditionally broadcast-oriented Ethernet. These pre-configured pathways support bandwidth reservation and the provisioned QoS metrics that guarantee SLA's is met. Backup paths are also pre-configured, ensuring fast and predictable failover.

SONET-like: PBB-TE can switch from the working path to the protection path in under 50 ms, similar to the carrier-grade benchmark of SDH networks. Like a fast heartbeat, CFM (Connectivity Fault Management = 802.1ag) sends continuity check messages every 10 ms (configurable), to ensure rapid fault detection.

Simple: PBB-TE does not use or process Layer 3 address information; it is strictly a Layer 2 point-to-point technology. Based on well-established Ethernet switching principles, PBB-TE reuses the existing Ethernet forwarding tables, only changing how they are populated. .PBB-TE tunnel is “service agnostic” — it can carry any service type: Ethernet, IP-VPN, MPLS Pseudowires and more.

Manageable: Service providers' Operations staff expects robust OAM functionalities similar to other WAN technologies. CFM (802.1ag) offers loopbacks and link trace for troubleshooting, and continuity checks for fast fault detection.

MPLS-TP

MPLS has been widely deployed as a transport technology globally. Ciena’s advantage, as described earlier, is being technology agnostic. That is, while we believe PBB-TE is a far simpler solution to configure, troubleshoot and manage, we understand the flexibility and reasons for deployment of an MPLS-based network. While MPLS does not have the same connection oriented attributes as PBB-TE, it can be used as a transport technology, albeit with more complexity than a PBB-TE based solution.

The other emerging standard is MPLS-TP, which seeks to provide the simplicity and connection-oriented characteristics that MPLS has lacked. It is a viable alternative to PBB-TE. Ciena is fully committed to supporting MPLS-TP upon standardization (or when in a close to standard draft) to provide another mechanism for connection-oriented Ethernet.

5.2.8.8 **Carrier Ethernet Access Switches** — A carrier Ethernet access switch can connect directly to the customer or be utilized as a network interface on the service side to provide layer 2 services.

Ciena Response: Ciena proposes that this network portion be addressed with one of the following devices:

CN3902, CN3916, CN3916CR, CN3931, CN3940, CN3960. All of these devices provide Service Provider level feature sets. These features provide the network operator with the following capabilities:

Service bearer plane testing and verification

Service Level assurance

Standards based service offerings (E-Line/E-LAN + MEF compliant bandwidth profile definitions)

- Hot-swappable and field-replaceable integrated power supply and fan tray

Ciena Response: Comply.

- AC or DC power supply with DC input ranging from 18V to 32 VDC and 36V to 72 VDC

Ciena Response: Comply.

- Ethernet and console port for manageability

Ciena Response: Comply. All devices support console access.

- SD flash card slot for additional external storage

Ciena Response: Does not comply. Al recommended devices except the 3902 provide sufficient onboard memory to store (2) software loads.

- Stratum 3 network clock

Ciena Response:

- Line-rate performance with a minimum of 62-million packets per second (MPPS) forwarding rate

Ciena Response: Comply. PPS processing is dependent on device type. i.e.

5150: 130.95 MPPS

3960: 71.43 MPPS

Devices with fewer ports and 1Gbps line rate have lower PPS processing and should be considered where the network requires.

- Support for dying gasp on loss of power

Ciena Response: Comply.

- Support for a variety of small form factor pluggable transceiver (SFP and SFP+) with support for Device Object Model (DOM)

Ciena Response: Comply.

Ciena devices support SFP and SFP+ pluggable optics.

DDM/DOM are interchangeable terms that provide optical monitoring.

Ciena refers to this support as DDM: Digital Diagnostics Monitoring

- Timing services for a converged access network to support mobile solutions, including Radio Access Network (RAN) applications

Ciena Response: Comply. The CN3932, 3930,5142, and 5160 are the recommended platforms for timing services. They provides: SyncE support. PTP OC support for Freq and Phase (ToD available in 6.12). BITS for Frequency. GPS for Phase, Freq, and Phase/ToD @ 1PPS SMB.

System Timing – Feature Support Per Platform

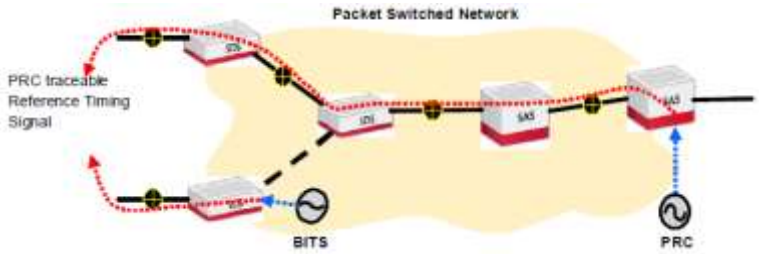
Platform	SyncE		PTP/IEEE 1588v2			External Timing Interfaces					TDM
	UNI	NNI	OC	TC	BC	BITS	GPS				
						SYNC RJ45			10MHz SMB	1PPS SMB	
	Freq		Freq/ Phase/ ToD	-	Freq/ Phase/ ToD	Freq	Phase	ToD	Freq	Phase/ ToD	Freq
5150	6.10.1	6.10.1	6.12	TBD	TBD	6.10.1[‡]	x	x	x	x	x
3930-910	6.10.2[†]	6.10.2	TBD	TBD	TBD	x	x	x	x	x	x
3931-910	6.10.2[†]	6.10.2	6.12	TBD	TBD	x	x	x	x	x	x
3930-930	6.10.1	6.10.1	6.11.0*/ 6.11.0*/ 6.12	TBD	6.12	6.10.1	6.11.0	6.12	6.11.0	6.11.0/ 6.12	x
3932◊	6.11.0	6.11.0	6.11.0*/ 6.11.0*/ 6.12	TBD	6.12	6.11.0	6.11.0	6.12	6.11.0	6.11.0/ 6.12	6.11.0
5142s◊	6.11.0	6.11.0	6.11.0*/ 6.11.0*/ 6.12	TBD	6.12	6.11.0	6.11.0	6.12	6.11.0	6.11.0/ 6.12	x
5160◊	6.11.0	6.11.0	6.11.0*/ 6.11.0*/ 6.12	TBD	6.12	6.11.0	6.11.0	6.12	6.11.0	6.11.0/ 6.12	x

- All other 39xx, 51xx platforms have no HW support for these features
- Requires *Advanced-Ethernet* license: **SyncE**, **BITS**, **GPS** & **TDM** timing
- Requires *Advanced-Sync* license: **PTP** timing

‡ Requires 5102 module
† 3930-910 ports 1-4 support SyncE output only
‡ 3931-910 ports 5-8 support SyncE output only
◊ New Platform
* OC slave only in 6.11.0

- Support for Synchronous Ethernet (SyncE) services

Ciena Response: Comply. Reference architecture:



- Supports Hierarchical Quality of Service (H-QoS) to provide granular traffic-shaping policies

Ciena Response: Comply. Ciena devices support Hierarchical Ingress Metering. With hierarchical ingress metering, frames classify to a parent traffic profile for metering, and are fed to a child traffic profile for additional metering. Hierarchical ingress metering is supported by setting the per-port traffic profiling mode.

- Supports Resilient Ethernet Protocol REP/G.8032 for rapid layer-two convergence

Ciena Response: Comply. Ciena devices support G.8032. REP is not supported and is Cisco proprietary. Ciena has tested G.8032 interoperability with Alcatel and Juniper core devices. G.8032 is a preferred method for

interconnecting core networks with access and aggregation networks. Typical failover times in campus networks are <20ms.

5.2.9 WIRELESS — Provides connectivity to wireless devices within a limited geographic area. System capabilities should include:

- Redundancy and automatic failover
- IPv6 compatibility
- NTP Support

Ciena Response: Ciena will not be responding to this section.

5.2.9.1 **Access Points** — A wireless Access Point (AP) is a device that allows wireless devices to connect to a wired network using Wi-Fi, or related standards. Capabilities should include:

- 802.11a/b/g/n
- 802.11n
- 802.11ac
- Capable of controller discovery method via DHCP (onsite controller or offsite through Cloud Architecture)
- UL2043 plenum rated for safe mounting in a variety of indoor environments
- Support AES-CCMP (128-bit)
- Provides real-time wireless intrusion monitoring and detection

5.2.9.2 **Outdoor Wireless Access Points** — Outdoor APs are rugged, with a metal cover and a DIN rail or other type of mount. During operations they can tolerate a wide temperature range, high humidity and exposure to water, dust, and oil. Capabilities should include:

- Flexible Deployment Options
- Provides real-time wireless intrusion monitoring and detection
- Capable of controller discovery method via DHCP (onsite controller or offsite through Cloud Architecture)

5.2.9.3 **Wireless LAN Controllers** — An onsite or offsite solution utilized to manage light-weight access points in large quantities by the network administrator or network operations center. The WLAN controller automatically handles the configuration of wireless access-points. Capabilities should include:

- Ability to monitor and mitigate RF interference/self-heal
- Support seamless roaming from AP to AP without requiring re-authentication
- Support configurable access control lists to filter traffic and denying wireless peer to peer traffic
- System encrypts all management layer traffic and passes it through a secure tunnel
- Policy management of users and devices provides ability to de-authorize or deny devices without denying the credentials of the user, nor disrupting other AP traffic
- Support configurable access control lists to filter traffic and denying wireless peer to peer traffic

5.2.9.4 **Wireless LAN Network Services and Management** — Enables network administrators to quickly plan, configure and deploy a wireless network, as well as provide additional WLAN services. Some examples include wireless security, asset tracking, and location services. Capabilities should include:

- Provide for redundancy and automatic failover
- Historical trend and real time performance reporting is supported
- Management access to wireless network components is secured
- SNMPv3 enabled
- RFC 1213 compliant
- Automatically discover wireless network components
- Capability to alert for outages and utilization threshold exceptions
- Capability to support Apple's Bonjour Protocol / mDNS
- QoS / Application identification capability

5.2.9.5 **Cloud-based services for Access Points** — Cloud-based management of campus-wide WiFi deployments and distributed multi-site networks. Capabilities include:

- Zero-touch access point provisioning
- Network-wide visibility and control
- RF optimization,
- Firmware updates

5.2.9.6 **Bring Your Own Device (BYOD)** — Mobile Data Management (MDM) technology utilized to allow employees to bring personally owned mobile devices (laptops, tablets, and smart phones) to their workplace, and use those devices to access privileged government information and applications in a secure manner. Capabilities should include:

- Ability to apply corporate policy to new devices accessing the network resources, whether wired or wireless
- Provide user and devices authentication to the network
- Provide secure remote access capability
- Support 802.1x
- Network optimization for performance, scalability, and user experience

5.3.0 UNIFIED COMMUNICATIONS (UC) — A set of products that provides a consistent unified user interface and user experience across multiple devices and media types. Unified Communications that is able to provide services such as session management, voice, video, messaging, mobility, and web conferencing. It can provide the foundation for advanced unified communications capabilities of IM and presence-based services and extends telephony features and capabilities to packet telephony network devices such as IP phones, media processing devices, Voice over IP (VoIP) gateways, and multimedia applications. Additional services, such as unified messaging, multimedia conferencing, collaborative contact centers, and interactive multimedia response systems, are made possible through open telephony APIs. General UC solution capabilities should include:

- High Availability for Call Processing
- Hardware Platform High Availability
- Network Connectivity High Availability
- Call Processing Redundancy

Ciena Response: Ciena will not be responding to this section.

5.3.0.1 **IP Telephony** — Solutions utilized to provide the delivery of the telephony application (for example, call setup and teardown, and telephony features) over IP, instead of using circuit-switched or other modalities. Capabilities should include:

- Support for analog, digital, and IP endpoints
- Centralized Management
- Provide basic hunt group and call queuing capabilities
- Flexibility to configure queue depth and hold time, play unique announcements and Music on Hold (MoH), log in and log out users from a queue and basic queue statistics (from the phone
- E911 Support

5.3.0.2 **Instant messaging/ Presence** — Solutions that allow communication over the Internet that offers quick transmission of text-based messages from sender to receiver. In push mode between two or more people using personal computers or other devices, along with shared clients, instant messaging basically offers real-time direct written language-based online chat. Instant messaging may also provide video calling, file sharing, PC-to-PC voice calling and PC-to-regular-phone calling.

5.3.0.3 **Unified messaging** — Integration of different electronic messaging and communications media (e-mail, SMS, Fax, voicemail, video messaging, etc.) technologies into a single interface, accessible from a variety of different devices.

- Ability to access and manage voice messages in a variety of ways, using email inbox, Web browser, desktop client, VoIP phone, or mobile phone
- Visual Voicemail Support (Optional)

5.3.0.4 **Contact Center** — A computer-based system that provides call and contact routing for high-volume telephony transactions, with specialist answering “agent” stations and a sophisticated real-time contact management system. The definition includes all contact center systems that provide inbound contact handling capabilities and automatic contact distribution, combined with a high degree of sophistication in terms of dynamic contact traffic management.

5.3.0.5 **Communications End Points and Applications**

- Attendant Consoles

- IP Phones

5.3.0.6 **UC Network Management** — Provides end-to-end service management for Unified Communications. Capabilities include testing, performance monitoring, configuration management, and business intelligence reporting.

5.3.0.7 **Collaboration** — Voice, video, and web conferencing; messaging; mobile applications; and enterprise social software.

5.3.0.8 **Collaborative Video** — A set of immersive video technologies that enable people to feel or appear as if they were present in a location that they are not physically in. Immersive video consists of a multiple codec video system, where each meeting attendee uses an immersive video room to "dial in" and can see/talk to every other member on a screen (or screens) as if they were in the same room and provides call control that enables intelligent video bandwidth management.

5.3.0.8.1 **Content Delivery Systems (CDS)** — A large distributed system of servers deployed in multiple data centers connected by the Internet. The purpose of the content delivery system is to serve content to end-users with high availability and high performance. CDSs serve content over the Internet, including web objects (text, graphics, URLs, and scripts), downloadable objects (media files, software, documents), applications (e-commerce, portals), live streaming media, on-demand streaming media, and social networks.

5.3.0.8.2 **Physical Security** — Technology utilized to restricting physical access by unauthorized people to controlled facilities. Technologies include:

a. Access control systems

b. Detection/Identification systems, such as surveillance systems, closed circuit television cameras, or IP camera networks and the associated monitoring systems.

c. Response systems such as alert systems, desktop monitoring systems, radios, mobile phones, IP phones, and digital signage

d. Building and energy controls

5.3.1 **SERVICES** — For each Category above (5.21-5.30), the following services should be available for procurement as well at the time of product purchase or anytime afterwards.

5.3.1.1 **Maintenance Services** — Capability to provide technical support, flexible hardware coverage, and smart, proactive device diagnostics for hardware.

Ciena Response: See response to Section 4.4 for detailed information on Ciena's Standard Technical Support Service.

5.3.1.2 **Professional Services**

- Deployment Services
  - Survey/ Design Services — Includes, but not limited to, discovery, design, architecture review/validation, and readiness assessment.
  - Implementation Services — Includes, but not limited to, basic installation and configuration or end-to-end integration and deployment.

- Optimization — Includes, but not limited to, assessing operational environment readiness, identify ways to increase efficiencies throughout the network, and optimize Customer's infrastructure, applications and service management.

- Remote Management Services — Includes, but not limited to, continuous monitoring, incident management, problem management, change management, and utilization and performance reporting that may be on a subscription basis.
- Consulting/Advisory Services — Includes, but not limited to, assessing the availability, reliability, security and performance of Customer's existing solutions.
- Data Communications Architectural Design Services — Developing architectural strategies and roadmaps for transforming Customer's existing network architecture and operations management.
- Statement of Work (SOW) Services — Customer-specific tasks to be accomplished and/or services to be delivered based on Customer's business and technical requirements.

Ciena Response: Ciena Specialist Services is a comprehensive services practice designed to help you maximize your network infrastructure investment. We offer an extensive team of specialists who collaborate with you to build a system of resources you can trust to achieve your critical objectives with best-of-breed solutions that optimize network efficiency and performance.

The Ciena Specialist Services portfolio provides the flexibility and level of expertise needed to address today's and tomorrow's operations requirements, so you can choose precisely how you'd like to engage with us. The portfolio is divided into four unique service suites—Consult and Design, Implement, Manage and Maintain, and Ciena Learning Solutions—that combine to provide unparalleled support throughout the entire service lifecycle. **See Appendix H - Ciena Specialist Services,** for detailed information.

5.3.1.3 **Partner Services** — Provided by Contractor's Authorized Partners/Resellers.

- Subject to Contractor's approval and the certifications held by its Partners/Resellers, many Partners/Resellers can also offer and provide some or all of the Services as listed above at competitive pricing, along with local presence and support. As the prime, Contractor is still ultimately responsible for the performance of its Partners/ Resellers. Customers can have the option to purchase the Services to be directly delivered by Contractor (OEM) or its certified Partners/Resellers.

Ciena Response: Read and Understood.

5.3.1.4 **Training** — Learning offerings for IT professionals on networking technologies, including but not limited to designing, implementing, operating, configuring, and troubleshooting network systems pertaining to items provided under the master agreement.

Ciena Response: Ciena Learning Solutions recommends the following training required for personnel who will be supporting the Ciena systems.

For OM&P training courses, Ciena offers the following delivery options.

1. At customer site accessing either local training labs if available, or access Ciena training lab remotely.

2. Dedicated training sessions at Ciena training facility in Raleigh NC or Hanover MD.
3. Online virtual sessions via WebEx.

Recommended courses for targeted audience:

1. First Line Maintenance – K506
2. Operations & Maintenance – K224 or V224
3. NOC operations – K224+K652 or V224+V652
4. Planning & Engineering – O505+X352
5. General product overview – O505

TRN-K224-NA 6500 BROADBAND AND PHOTONIC LAYER OAM&P KIT DEDICATED CLASS AT CUSTOMER SITE NORTH AMERICA [Rel 9.3 w/ RAMAN]

Delivery: Instructor Led Training (ILT) at customer site, with pre-req Web Based Training (WBT)
Duration: 4 days ILT + 2 WBT modules
Class size: 12 students
Labs: customer premise or remote access

TRN-V224-RBC 6500 BROADBAND AND PHOTONIC LAYER OAM&P KIT REMOTE BLENDED-LEARNING COURSE [Rel 9.3 w/ RAMAN]

Delivery: Virtual Instructor Led Training (VILT) via WebEx, with pre-req Web Based Training (WBT)
Duration: 4 days VILT + 2 WBT modules (includes 6500 Product Overview)
Class size: 12 students
Labs: Remote access via WebEx

TRN-K652-NA ONECONTROL 6500 MANAGEMENT OPERATIONS KIT DEDICATED CLASS AT CUSTOMER SITE NORTH AMERICA [Rel 3.0]

Delivery: Instructor Led Training (ILT) at customer site, with pre-req Web Based Training (WBT)
Duration: 2 days ILT + 2 WBT modules (includes 6500 Product Overview)
Class size: 12 students
Labs: customer premise or remote access

TRN-V652-RTC ONECONTROL 6500 MANAGEMENT OPERATIONS KIT REMOTE BLENDED-LEARNING COURSE [Rel 3.0]

Delivery: Virtual Instructor Led Training (VILT) via WebEx, with pre-req Web Based Training (WBT)
Duration: 2 days VILT + 2 WBT modules (includes OneControl product overview)
Class size: 12 students
Labs: Remote access via WebEx

TRN-X352-RTC ONEPLANNER (OP) TOOL PHTONIC MODULE OPERATIONS REMOTE BLENDED-LEARNING COURSE [Rel 1.7 for PL only]

Delivery: Virtual Instructor Led Training (VILT) via WebEx
Duration: 1 day
Class size: 12 students
Labs: Remote access via WebEx

TRN-K506-RLK PROGRAM KIT	6500 PACKET OPTICAL PLATFORM FLM REMOTE LEARNING
Delivery:	Web Based Training (WBT)
Duration:	1 LU (Learning Unit)
Class size:	1
Labs:	N/A
TRN-O505-WBT	6500 PACKET-OPTICAL PLATFORM PRODUCT OVERVIEW
Delivery:	Web Based Training (WBT)
Duration:	1 LU (Learning Unit)
Class size:	1
Labs:	N/A

5.3.2 ADDING PRODUCTS

The ability to add new equipment and services is for the convenience and benefit of WSCA-NASPO, the Participating States, and all the Authorized Purchasers. The intent of this process is to promote “one-stop shopping” and convenience for the customers and equally important, to make the contract flexible in keeping up with rapid technological advances. The option to add new product or service categories and/items will expedite the delivery and implementation of new technology solutions for the benefit of the Authorized Purchasers.

After the contracts are awarded, additional IT product categories and/or items may be added per the request of the Contractor, a Participating State, an Authorized Purchaser or WSCA-NASPO. Additions may be ad hoc and temporary in nature or permanent. All additions to an awarded Contractor or Manufacturer’s offerings must be products, services, software, or solutions that are commercially available at the time they are added to the contract award and fall within the original scope and intent of the RFP (i.e., converged technologies, value adds to manufacturer’s solution offerings, etc.).

5.3.2.1 New Product from Contractors — If Contractor, a Participating State, an Authorized Purchaser or WSCA-NASPO itself requests to add new product categories permanently, then all awarded Contractors (Manufacturers) will be notified of the proposed change and will have the opportunity to work with WSCA to determine applicability, introduction, etc. Any new products or services must be reviewed and approved by the WSCA-NASPO Contract Administrator.

Ciena Response: Read and Understood.

5.3.2.2 Ad Hoc Product Additions — A request for an ad hoc, temporary addition of a product category/item must be submitted to WSCA-NAPOS via the governmental entity’s contracting/purchasing officer. Ad hoc, temporary requests will be handled on a case-by-case basis.

Ciena Response: Read and Understood.

5.3.2.3 Pricelist Updates — As part of each Contractor’s ongoing updates to its pricelists throughout the contract term, Contractor can add new SKUs to its awarded product categories that may have been developed in-house or obtained through mergers, acquisitions or joint ventures; provided, however, that such new SKUs fall within the Contractor’s awarded product categories.

Ciena Response: Read and Understood.

Section 6: Evaluation

6.1 General Information

Proposals will be evaluated for completeness and compliance with the requirements of this RFP by a sourcing team. The sourcing team may engage additional qualified individuals during the process to assist with technical, financial, legal, or other matters.

Except at the invitation of the sourcing team, no activity or comments from Offerors regarding this RFP shall be discussed with any member of the sourcing team during the evaluation process. An Offeror who contacts a member of the sourcing team in reference to this RFP may have its proposal rejected.

Each proposal must be submitted in Microsoft Word or Excel, or PDF labeled and organized in a manner that is congruent with the section number, headings, requirements, and terminology used in this RFP. Proposal documents must be use Arial font size 10. All proposals must be submitted in electronic form.

Ciena Response: Read and Understood.

6.2 Administrative Requirements Compliance

The sourcing team will evaluate each proposal for compliance with administrative requirements. Non compliance with any of these requirements will render a proposal non-responsive. Only those proposals that pass the administrative requirements will be evaluated further.

In order to pass the Administrative Requirements, the following must be received by due date and time associated with this RFP as listed in Bid Sync.

6.2.1 References

Vendor must provide a least three current account references for which your company provides similar Data Communications services for private, state and/or large local government clients (preferably government/public entities). **Offerors are required to submit Attachment B - Reference Form, for business references. The business providing the reference must submit the Reference Form directly to the State of Utah, Division of Purchasing.** It is the offeror's responsibility to ensure that completed forms are received by the State of Utah Division of Purchasing on or before the proposal submission deadline for inclusion in the evaluation process. Business references not received, or not complete, may adversely affect the offeror's score in the evaluation process. The Purchasing Division reserves the right to contact any or all business references for validation of information submitted.

Ciena Response: Comply. Per the requirement, Ciena sent the Attachment B – Reference Form, to the following customers: 1) UMaine; 2) DIR, State of TX; 3) NIU/IFiber; 4) MREN/UNC; 5) LONI; 6) Okanogan County Public Utility District; 7) Howard County; 8) Baltimore County; 9) Sunset Digital.

6.3 Minimum Scope Requirements Compliance

The sourcing team will evaluate each proposal that passed the administrative requirements for compliance with Section 5.2 Data Communications Services – Requirements. Scope requirements are evaluated in terms of the breadth and depth of the offeror proposal for each of the section 5.2.1-5.3.0 Scope categories. Only those proposals in each section that score 70% or better will move on to cost evaluation.

Ciena Response: Read and Understood.

6.4 Evaluation Criteria

The following table details how each proposal shall be evaluated on a basis of 100 points.

An evaluation committee comprised of representatives from some WSCA-NASPO member States will be appointed by the WSCA-NASPO Contract Administrator to perform the proposal evaluation.

All Offeror's proposals will be initially reviewed for compliance with the mandatory general requirements in Section 3 and Sections 5.1.1-5.1.5 stated within the RFP. Any proposal failing to meet one or more mandatory requirement(s) will be considered non-responsive and deemed "unacceptable", and will be eliminated from further consideration.

Those proposals deemed "acceptable" or "potentially acceptable" will be evaluated against the following proposal evaluation criteria using a point-based scoring methodology. Proposal evaluation criteria are listed in relative order of importance:

Ciena Response: Read and Understood.

6.4.1 Cost – (bid sheets including discounts off list price attached) – 30%

Given that technology products generally depreciate over time and go through typical product lifecycles, it is more favorable for customers to have prime contracts be based on minimum discounts off the Offeror's' commercially published pricelists versus fixed pricing. In addition, Offerors must have the ability to update and refresh their respective price books, as long as the agreed-upon discounts are fixed. Minimum guaranteed contract discounts do not preclude an Offeror and/or its authorized resellers from providing deeper or additional, incremental discounts at there sole discretion.

6.4.1.1 Refurbished Equipment – Many IT manufacturers offer refurbished equipment at a substantially lower cost with attractive warranties that also address risk concerns some customers may have with refurbished gear. Offerors may add an optional provision for manufacturer-certified refurbished equipment to be available for procurement under this contract. This offering will not be evaluated as part of the cost scoring process.

6.4.2 Demonstrate ability to provide products and services within scope of the RFP (Section 5.2-5.31) – 25%

6.4.3 Qualifications, technical ability, maintenance, training and value added services – 10%

6.4.4 Ability to supply to WSCA / NASPO member states/geographical coverage -10%

6.4.5 Offer profile and references (i.e., financial stability, presence in marketplace, adequate staff, marketing efforts etc.) – **20%**

6.4.6 Administrative (i.e., report generating ability, e-commerce, account reps, problem resolution, customer satisfaction, website hosting and other administrative related issues) – **5%**

At the option of the evaluation committee the WSCA-NASPO Contract Administrator may initiate discussion(s) with Offerors who submit responsive or potentially responsive proposals for the purpose of clarifying aspects of the proposal(s), however, proposals may be evaluated without such discussion(s). Such discussion(s) is not to be initiated by Offerors.

Based on the competitive range of the evaluation scores, the evaluation committee may choose to make a “finalist list” of offeror’s; if opted for, all offeror’s will be notified of their status at this juncture by the Procurement Manager.

Finalist Offeror’s may be required, at the option of the evaluation committee, to present their proposals and possibly demonstrate their Internet website to the evaluation committee. The Procurement Manager will schedule the time and location for each Offeror presentation. Each Offeror presentation will be of equal duration for all offeror’s and may also include an additional amount of time reserved for questions/answers.

The sourcing team will evaluate each proposal that has passed the administrative requirements and met or exceeded the Section 3 and Section 5.1.1-5.1.5 Mandatory Requirements.

Ciena Response: Read and Understood.

WSCA-NASPO Data Communications Equipment and Associated Products #JP14001

Firm Name: _____

Section Number: _____

Evaluator: _____

Date: _____

Score will be assigned as follows:
0 = Failure, no response
1 = Poor, inadequate, fails to meet requirement
2 = Fair, only partially responsive
3 = Average, meets minimum requirement
4 = Above average, exceeds minimum requirement
5 = Superior

		Score (0-5)	Weight	Points
1. Demonstrated Ability to meet scope of requirements (25 points possible)		-------	-------	
Scope and Varity of products provided	8 points possible		X 1.6	
Experience and technical ability of manufacturer	7 points possible		X 1.4	
Maintenance Program	2 points possible		X .40	
Training Program	2 points possible		X .40	
Service Program	2 points possible		X .40	
Demonstrate Effective Reseller Program managed by the manufacturer in WSCA / NASPO States	4 points possible		X .80	
2. Demonstrate Qualifications and Technical Ability (10 points possible)		-------	---------	
Technical Staff Qualifications	2 points possible		X .40	
Maintenance Staff Qualifications	2 points possible		X .40	
Training Staff Qualifications	2 points possible		X .40	
Technical Suitability of Products	4 points possible		X .80	
3. Demonstrate ability to supply WSCA / NASPO member States (10 points possible)	10 points possible		X 2	
4. Company profile and references (20 points)		-----	--------	
Financial Statements and Records	10 points possible		X 2	
References, Reputation, Breadth and Depth of Offering	10 points possible		X 2	
5. Demonstrate ability to provide administrative support (5 points possible)	5 points possible		X 1	
6. Cost (30 points possible)* **Services (10 Points)** **Product Offering Discount Percentage (20 points)**	30 points possible	-------	--------	*** Inserted by Purchasing**
TOTAL EVALUATION POINTS	**(100 points possible)**		**Total**	

* Purchasing will use the following cost formula for the “Services”: The points assigned to each Offeror’s cost proposal will be based on the lowest proposal price. The offeror with the lowest Proposed Price will receive 100% of the price points. All other Offerors will receive a portion of the total cost points based on what percentage higher their Proposed Price is than the Lowest Proposed Price. An Offeror who’s Proposed Price is more than double (200%) the Lowest Proposed Price will receive no points. The formula to compute the points is: Cost Points x (2- Proposed Price/Lowest Proposed Price).

Purchasing will use the following cost formula for the “Product Offering Discount Percentage”: The points assigned to each Offeror’s cost proposal will be based on the highest discount percentage. The Offeror with the highest discount percentage will receive 100% of the price points. All other Offerors will receive a portion of the total cost points based on what percentage lower their discount percentage is than the highest discount percentage. An Offeror who’s Proposed percentage discount is less than double (200%) the highest discount percentage will receive no points. The formula to compute the points is: Cost Points x (2- Highest Proposed Discount/Proposed Discount).

Section 7: Master Agreement Terms and Conditions/Exceptions

7.1 WSCA-NASPO Master Agreement Terms and Conditions

7.1.1 The WSCA-NASPO Contract Administrator referred to in section 2 of the WSCA-NASPO Master Agreement Terms and Conditions is Debra Gunderson, State of Utah Division of Purchasing and General Services. This RFP represents the WSCA-NASPO Contract Administrator's written approval of the modifications, waivers, alterations, amendments, and supplements to the Master Agreement Terms and Conditions made in this RFP and this Section 7.

Ciena Response: Read and Understood.

7.1.2 Except as limited in this section or elsewhere in this RFP, Participating Entities who execute a Participating Addendum may alter, modify, supplement, or amend the WSCA-NASPO Master Agreement Terms and Conditions as necessary to comply with Participating Entity law or policy with respect to their orders under the Master Agreement. A Contractor may not deliver Products or perform services under this Master Agreement until a Participating Addendum acceptable to the Participating Entity and Contractor is executed. The WSCA-NASPO Terms and Conditions are applicable to any order by a Participating Entity, except to the extent altered, modified, supplemented or amended by a Participating Addendum. By way of illustration and not limitation, this authority may apply to unique delivery and invoicing requirements, confidentiality requirements, defaults on orders, governing law and venue relating to orders by a Participating Entity, Indemnification, and insurance requirements. Statutory or constitutional requirements relating to availability of funds may require specific language in some Participating Addenda in order to comply with applicable law. The expectation is that these alterations, modifications, supplements, or amendments will be addressed in the Participating Addendum or, with the consent of the Participating Entity and Contractor, may be included in the commitment voucher (e.g. purchase order or contract) used by the Participating Entity to place the order.

Ciena Response: Read and Understood.

7.1.3 The term Purchasing Entity and Participating Entity shall both mean "Participating Entity" as that term is defined in WSCA-NASPO Master Agreement Terms and Conditions.

Ciena Response: Read and Understood.

7.1.4 With respect to section 11, Indemnification, the terms of any Participating Addendum may alter, modify, supplement, or amend the language in section 11 and may include a limitation of liability mutually agreeable to the Participating Entity and the Contractor.

Ciena Response: Read and Understood.

7.1.5 With regard to section 20, Participants, Participating Entities who are not states may under some circumstances sign their own Participating Addendum, subject to the approval of the Chief Procurement Official of the state where the Participating Entity is located. Contractors may upon request obtain a copy of the written authorization from the WSCA-NASPO Contract Administrator.

Ciena Response: Read and Understood.

7.2 Offeror Exceptions to Terms and Conditions

7.2.1 The Lead State discourages exceptions to contract terms and conditions in the RFP, attached Participating Entity terms and conditions (if any), and the WSCA-NASPO Master Agreement Terms and Conditions. As specified in this RFP, exceptions may cause a proposal to be rejected as nonresponsive when, in the sole judgment of the Lead State (and its evaluation team), the proposal appears to be conditioned on the exception or correction of what is deemed to be a deficiency or unacceptable exception would require a substantial proposal rewrite to correct. Moreover, Offerors are cautioned that award may be made on receipt of initial proposals without clarification or an opportunity for discussion, and the nature of exceptions would be evaluated. Further, the nature of exceptions will be considered in the competitive range determination if one is conducted. Exceptions will be evaluated to determine the extent to which the alternative language or approach poses unreasonable, additional risk to the state, is judged to inhibit achieving the objectives of the RFP, or whose ambiguity makes evaluation difficult and a fair resolution (available to all vendors) impractical given the timeframe for the RFP.

Ciena Response: Read and Understood.

7.2.2 The Lead State will entertain exceptions to contract terms and conditions in this RFP, including the WSCA-NASPO Master Agreement Terms and Conditions. Offerors are strongly encouraged to be judicious in identifying exceptions.

Ciena Response: Read and Understood. Ciena requests further discussion on several sections of the Master Agreement Terms and Conditions and the Participating Addendum. By way of example, but not limited to, Ciena respectfully requests further discussion on the issues of intellectual property rights, indemnification and limitation of liability, insurance, employment verification and screening procedures, standards for network security. For proposed solution language please see Appendix I - Master Sales and License Agreement for Ciena's standard terms and conditions. Upon award Ciena looks forward to the opportunity to negotiate mutually acceptable terms and conditions.

7.2.3 Based on the market research conducted by the Lead State, the following provisions are intended to frame the contours of exceptions that may be acceptable, additional risk so long as the Offeror's exceptions are specified with sufficient particularity.

Ciena Response: Read and Understood.

7.2.4 The Lead State will consider Offeror standard terms for inspection and acceptance, so long as a reasonable time for acceptance is stated. However, the Participating Entities right to exercise revocation of acceptance under its Uniform Commercial Code must be preserved. Submit the standard terms with the offer and describe generally how commerciality in their use is established, e.g., identify publicly-available catalogs where the warranty terms are used and how long they have been in use.

Ciena Response: Read and Understood. Ciena has provided the Standard Hardware Warranty and Repair Services Statement of Work and a Standard Software Statement of Work, see Appendices C &D.

7.2.5 The Lead State will consider standard warranty and/or maintenance terms, but the alternative warranty and/or maintenance will be evaluated to determine whether they provide comparable protection to the warranty specified in section 30 of the WSCA-NASPO Master Agreement Terms and Conditions. Provide the terms of the warranty and maintenance in the offer. Also describe generally how commerciality is established for

those terms, e.g., publicly-available catalogs the warranty terms are used and how long they have been in use. Provide one reference from a customer having comparable sales volume who is using the warranty and maintenance provisions, where the warranty term has expired, and who has exercised rights under the warranty.

Ciena Response: Read and Understood. Ciena has provided the Standard Hardware Warranty and Repair Services Statement of Work and a Standard Software Statement of Work, see Appendices C &D.

7.2.6 Intellectual property. The Lead State will consider license terms and conditions that as a minimum convey to Participating Entities a nonexclusive, irrevocable, perpetual, paid-up, royalty free license to use software or other intellectual property delivered with or inherent in the commodity or service, and to transfer the license rights to third parties for government purposes. Provide the terms of the license, including any terms that cover third party intellectual property used in the Offeror's solution. Offerors should be aware that Participating Entities using federal funds may be required to negotiate additional or different terms to satisfy minimum rights requirements of their federal grants.

Ciena Response: Read and Understood. Ciena can provide a standard Right To Use License.

7.2.7 Any limitation of liability provision – including any exclusion of damages clause – proposed by an Offeror to be the default limitation of liability provision under the Master Agreement must preserve a reasonable amount of direct damages for breach of contract, additionally permit the Participating Entity to recoup amounts paid for supplies or services not finally accepted (as in the case of advance or progress payments, if used), and preserve the right of the Participating Entity to be held harmless from costs of litigation as well as ultimate liability within limits agreed by the parties.

Moreover, any limitation of liability clause proposed by an Offeror should be reciprocal, cover lost profits, and exclude claims or liability arising out of intellectual property infringement, bodily injury (including death), damage to tangible property, and data breach. Include the text of any such language if proposed. Further, provide contact information for a public entity, or private entity if no public entity exists, where the limitation of liability clause (or another clause substantially similar) operated to limit liability. If no such example exists, provide contact information for a state, or if no state exists, a higher education institution, or if none exists, a city or county represented by counsel in the negotiations who has agreed to the proposed terms and conditions.

Ciena Response: Read and Understood. Ciena can offer a negotiable, mutual limitation of liability, with IP Indemnity and Confidentiality breaches excluded from direct damages only – Ciena does not agree to exclude anything from the limitation of liability for indirect or consequential damages, but can offer a general mutual indemnity to cover things such as gross negligence or willful misconduct.

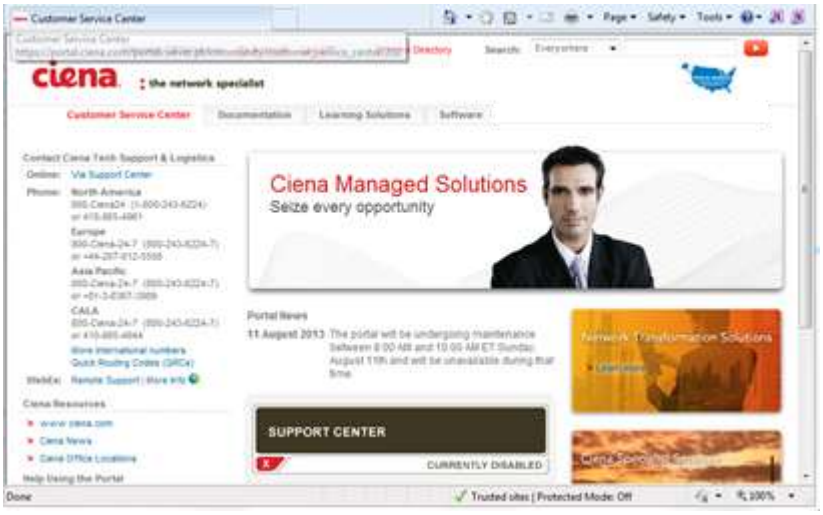
7.2.8 The enumerated examples in subsection 7.2 are not intended to limit the ability of Offerors to propose additional, reasonable exceptions. For any other exception, where the exception is based on claims of standard or normal commercial practice, provide contact information for a state, or if no state exists, a higher education institution, or if none exists, a city or county represented by counsel in the negotiations who has agreed to the proposed terms and conditions.

Ciena Response: Read and Understood. Please see **Appendix I - Master Sales and License Agreement.**

7.3 WSCA-NASPO eMarket Center

7.3.1 In July 2011, WSCA-NASPO entered into a multi-year agreement with SciQuest, Inc. whereby SciQuest will provide certain electronic catalog hosting and management services to enable eligible WSCA-NASPO entity's customers to access a central online website to view and/or shop the goods and services available from existing WSCA-NASPO Cooperative Contracts. The central online website is referred to as the WSCA-NASPO eMarket Center Contractor shall either upload a hosted catalog into the eMarket Center or integrate a punchout site with the eMarket Center.

Ciena Response: Comply. Upon PO receipt, Ciena creates and administers portals per customer. These portals are customized to the product set and deployments specific to the customer and can be used for documentation, trouble entry/tracking, etc. For the purpose of this RFP, Ciena has proactively created a WSCA portal for your consideration. At this time, the portal is available though devoid of content until we progress towards contracting. For access to the portal, please see https://portal.ciena.com, click the Register button, and create an account that references WSCA.



Supplier's Interface with the eMarket Center
There is no cost charged by SciQuest to the Contractor for loading a hosted catalog or integrating a punchout site.

At a minimum, the Contractor agrees to the following:

1. Implementation Timeline: WSCA-NASPO eMarket Center Site Admin shall provide a written request to the Contractor to begin enablement process. The Contractor shall have fifteen (15) days from receipt of written request to work with WSCA-NASPO and SciQuest to set up an enablement schedule, at which time SciQuest's technical documentation shall be provided to the Contractor. The schedule will include future calls and milestone dates related to test and go live dates. The contractor shall have a total of Ninety (90) days to deliver either a (1) hosted catalog or (2) punch-out catalog, from date of receipt of written request.

Ciena Response: Comply.

2. Definition of Hosted and Punchout: WSCA-NASPO and SciQuest will work with the Contractor, to decide which of the catalog structures (either hosted or punch-out as further described below) shall be provided by the Contractor. **Whether hosted or punch-out, the catalog must be strictly limited to the Contractor's awarded contract offering (e.g. products and/or services not authorized through the resulting cooperative contract should not be viewable by WSCA-NASPO Participating Entity users).**

    a. Hosted Catalog. By providing a hosted catalog, the Contractor is providing a list of its awarded products/services and pricing in an electronic data file in a format acceptable to SciQuest, such as Tab Delimited Text files. In this scenario, the Contractor must submit updated electronic data annually to the the eMarket Center for WSCA-NASPO Contract Administrator's approval to maintain the most up-to-date version of its product/service offering under the cooperative contract in the eMarket Center.

    b. Punch-Out Catalog. By providing a punch-out catalog, the Contractor is providing its own online catalog, which must be capable of being integrated with the eMarket Center as a. Standard punch-in via Commerce eXtensible Markup Language (cXML). In this scenario, the Contractor shall validate that its online catalog is up-to-date by providing a written update quarterly to the Contract Administrator stating they have audited the offered products/services and pricing listed on its online catalog. The site must also return detailed UNSPSC codes (as outlined in line 3) for each line item. Contractor also agrees to provide e-Quote functionality to facilitate volume discounts.

Ciena Response: Comply.

3. Revising Pricing and Product Offerings: Any revisions (whether an increase or decrease) to pricing or product/service offerings (new products, altered SKUs, etc.) must be pre-approved by the WSCA-NASPO Contract Administrator and shall be subject to any other applicable restrictions with respect to the frequency or amount of such revisions. However, no cooperative contract enabled in the eMarket Center may include price changes on a more frequent basis than once per quarter. The following conditions apply with respect to hosted catalogs:

    a. Updated pricing files are required by the 1st of the month and shall go into effect in the eMarket Center on the 1st day of the following month (i.e. file received on 1/01/14 would be effective in the eMarket Center on 2/01/14). Files received after the 1st of the month may be delayed up to a month (i.e. file received on 11/06/14 would be effect in the eMarket Center on 1/01/15).

    b. Contract Administrator-approved price changes are not effective until implemented within the eMarket Center. Errors in the Contractor's

submitted pricing files will delay the implementation of the price changes in eMarket Center.

Ciena Response: Comply.

4. Supplier Network Requirements: Contractor shall join the SciQuest Supplier Network (SQSN) and shall use the SciQuest's Supplier Portal to import the Contractor's catalog and pricing, into the SciQuest system, and view reports on catalog spend and product/pricing freshness. The Contractor can receive orders through electronic delivery (cXML) or through low-tech options such as fax. More information about the SQSN can be found at: www.sciquest.com or call the SciQuest Supplier Network Services team at 800-233-1121.

Ciena Response: Comply.

5. Minimum Requirements: Whether the Contractor is providing a hosted catalog or a punch-out catalog, the Contractor agrees to meet the following requirements:

    a. Catalog must contain the most current pricing, including all applicable administrative fees and/or discounts, as well as the most up-to-date product/service offering the Contractor is authorized to provide in accordance with the cooperative contract; and

    b. The accuracy of the catalog must be maintained by Contractor throughout the duration of the cooperative contract between the Contractor and the Contract Administrator; and

    c. The Catalog must include a Lead State contract identification number; and

    d. The Catalog must include detailed product line item descriptions; and

    e. The Catalog must include pictures when possible; and

    f. The Catalog must include any additional WSCA-NASPO and Participating Addendum requirements.*

Ciena Response: Comply.

6. Order Acceptance Requirements: Contractor must be able to accept Purchase Orders via fax or cXML.

    a. The Contractor shall provide positive confirmation via phone or email within 24 hours of the Contractor's receipt of the Purchase Order. If the Purchasing Order is received after 3pm EST on the day before a weekend or holiday, the Contractor must provide positive confirmation via phone or email on the next business day.

Ciena Response: Comply.

7. UNSPSC Requirements: Contractor shall support use of the United Nations Standard Product and Services Code (UNSPSC). UNSPSC versions that must be adhered to are driven by SciQuest for the suppliers and are upgraded every year. WSCA-NASPO reserves the right to migrate to future versions of the UNSPSC and the Contractor shall be required to support the migration effort. All line items, goods or services provided under the resulting statewide contract must be associated to a UNSPSC code. All line items must be identified at the most detailed UNSPSC level indicated by segment, family, class and commodity. More information about the UNSPSC is available at: http://www.unspsc.com and http://www.unspsc.com/FAQs.asp#howdoesunspscwork.

Ciena Response: Comply.

8. Applicability: Contractor agrees that WSCA-NASPO controls which contracts appear in the eMarket Center and that WSCA-NASPO may elect at any time to remove any supplier's offering from the eMarket Center.

Ciena Response: Comply.

9. The WSCA-NASPO Contract Administrator reserves the right to approve the pricing on the eMarket Center. This catalog review right is solely for the benefit of the WSCA-NASPO Contract Administrator and Participating Entities, and the review and approval shall not waive the requirement that products and services be offered at prices (and approved fees) required by the Master Agreement.

   * Although suppliers in the SQSN normally submit one (1) catalog, it is possible to have multiple contracts applicable to different WSCA-NASPO Participating Entities. For example, a supplier may have different pricing for state government agencies and Board of Regents institutions. Suppliers have the ability and responsibility to submit separate contract pricing for the same catalog if applicable. The system will deliver the appropriate contract pricing to the user viewing the catalog.

   Several WSCA-NASPO Participating Entities currently maintain separate SciQuest eMarketplaces, these Participating Entities do enable certain WSCA-NASPO Cooperative Contracts. In the event one of these entities elects to use this WSCA-NASPO Cooperative Contract (available through the eMarket Center) but publish to their own eMarketplace, the Contractor agrees to work in good faith with the entity and WSCA-NASPO to implement the catalog. WSCA-NASPO does not anticipate that this will require substantial additional efforts by the Contractor; however, the supplier agrees to take commercially reasonable efforts to enable such separate SciQuest catalogs.

Ciena Response: Comply.

Attachment B – Reference Form

Solicitation Number JP14001
WSCA-NASPO Data Communications RFP

Please complete the following:

_____
(Full Name of Company Requesting Reference)

_____
(Your Company Name)

This form is being submitted to your company for completion as a business reference for the company listed above. This form is to be returned to the State of Utah, Division of Purchasing, via email to teutsler@utah.gov or by fax to the attention of Tara Eutsler at 801-538-3882, no later than _____, 2011, and **must not** be returned to the company requesting the reference.

For questions or concerns regarding this form, please contact the State of Utah, Division of Purchasing, at dgundersen@utah.gov . When contacting the State, please be sure to include the solicitation number listed at the top of this page.

CONFIDENTIAL INFORMATION WHEN COMPLETED

Company providing reference:	
Contact Name and Title/Position:	
Contact Telephone Number:	
Contact Email Address:	

QUESTIONS:

1. In what capacity have you worked with this firm in the past?
COMMENTS:

2. How would you rate this firm's knowledge and expertise?
_____ (3=Excellent; 2=Satisfactory; 1=Unsatisfactory; 0=Unacceptable)
COMMENTS:

3. How would you rate this firm's flexibility relative to changes in the project scope and timelines?
_____ (3=Excellent; 2=Satisfactory; 1=Unsatisfactory; 0=Unacceptable)
COMMENTS:

4. What is your level of satisfaction with materials produced by this firm?
_____ (3=Excellent; 2=Satisfactory; 1=Unsatisfactory; 0=Unacceptable)
COMMENTS:

5. How would you rate the dynamics/interaction between firm and your staff?
_____ (3=Excellent; 2=Satisfactory; 1=Unsatisfactory; 0=Unacceptable)
COMMENTS:

6. Who were the firm's principal representatives involved in your project and how would you rate them individually? Please comment on the skills, knowledge, behavior or other factors on which you based the rating?
(3=Excellent; 2=Satisfactory; 1=Unsatisfactory; 0=Unacceptable)

Principal Representative's Name: _____
Rating:

Principal Representative's Name: _____
Rating:

Principal Representative's Name: _____
Rating:
COMMENTS:

7. How satisfied are you with the manner in which the firm handled confidential, personal, and sensitive information?
_____ (3=Excellent; 2=Satisfactory; 1=Unsatisfactory; 0=Unacceptable)
COMMENTS:

8. With what aspect(s) of this firm's services are you most satisfied?
COMMENTS:

9. With which aspect(s) of this firm's services are you least satisfied?
COMMENTS:

10. Would you recommend this firm's services to your organization again?
COMMENTS:

ATTACHMENT A
STATE OF UTAH STANDARD INFORMATION TECHNOLOGY TERMS AND CONDITIONS
(FOR WSCA CONTRACTS and DTS RELATED CONTRACTS)

Ciena requests further discussion on several sections of the Master Agreement Terms and Conditions and the Participating Addendum. By way of example, but not limited to, Ciena respectfully requests further discussion on the issues of intellectual property rights, indemnification and limitation of liability, insurance, employment verification and screening procedures, standards for network security. For proposed solution language please see Appendix I - Master Sales and License Agreement for Ciena's standard terms and conditions. Upon award Ciena looks forward to the opportunity to negotiate mutually acceptable terms and conditions.

1. **AUTHORITY:** Provisions of this contract are pursuant to the authority set forth in 63G-6, Utah Code Annotated, 1953, as amended, Utah State Procurement Rules (Utah Administrative Code Section R33), and related statutes which permit the State to purchase certain specified services, and other approved purchases for the State.

2. **CONTRACT JURISDICTION, CHOICE OF LAW, AND VENUE:** The provisions of this contract shall be governed by the laws of the State of Utah. The parties will submit to the jurisdiction of the courts of the State of Utah for any dispute arising out of this Contract or the breach thereof. Venue shall be in Salt Lake City, in the Third Judicial District Court for Salt Lake County.

3. **LAWS AND REGULATIONS:** The Contractor and any and all supplies, services, equipment, and construction furnished under this contract will comply fully with all applicable Federal and State laws and regulations, including applicable licensure and certification requirements.

4. **RECORDS ADMINISTRATION:** The Contractor shall maintain, or supervise the maintenance of all records necessary to properly account for the payments made to the Contractor for costs authorized by this contract. These records shall be retained by the Contractor for at least four years after the contract terminates, or until all audits initiated within the four years, have been completed, whichever is later. The Contractor agrees to allow State and Federal auditors, and State Agency Staff, access to all the records to this contract, for audit and inspection, and monitoring of services. Such access will be during normal business hours, or by appointment.

5. **CERTIFY REGISTRATION AND USE OF EMPLOYMENT "STATUS VERIFICATION SYSTEM":** The Status Verification System, also referred to as "E-verify", only applies to contracts issued through a Request for Proposal process, and to sole sources that are included within a Request for Proposal. It does not apply to Invitation for Bids or to the Multi-Step Process.

   1. Status Verification System
   (1) Each offeror and each person signing on behalf of any offeror certifies as to its own entity, under penalty of perjury, that the named Contractor has registered and is participating in the Status Verification System to verify the work eligibility status of the contractor's new employees that are employed in the State of Utah in accordance with applicable immigration laws including UCA Section 63G-12-302.
   (2) The Contractor shall require that the following provision be placed in each subcontract at every tier: "The subcontractor shall certify to the main (prime or general) contractor by affidavit that the subcontractor has verified through the Status Verification System the employment status of each new employee of the respective subcontractor, all in accordance with applicable immigration laws including UCA Section 63G-12-302 and to comply with all applicable employee status verification laws. Such affidavit must be provided prior to the notice to proceed for the subcontractor to perform the work."
   (3) The State will not consider a proposal for award, nor will it make any award where there has not been compliance with this Section.
   (4) Manually or electronically signing the Proposal is deemed the Contractor's certification of compliance with all provisions of this employment status verification certification required by all applicable status verification laws including UCA Section 63G-12-302.

   2. Indemnity Clause for Status Verification System
   (1) Contractor (includes, but is not limited to any Contractor, Design Professional, Designer or Consultant) shall protect, indemnify and hold harmless, the State and its officers, employees, agents, representatives and anyone that the State may be liable for, against any claim, damages or liability arising out of or resulting from violations of the above Status Verification System Section whether violated by employees, agents, or contractors of the following: (a) Contractor; (b) Subcontractor at any tier; and/or (c) any entity or person for whom the Contractor or Subcontractor may be liable.
   (2) Notwithstanding Section 1. above, Design Professionals or Designers under direct contract with the State shall only be required to indemnify the State for a liability claim that arises out of the design professional's services, unless the liability claim arises from the Design Professional's negligent act, wrongful act, error or omission, or other liability imposed by law except that the design professional shall be required to indemnify the State in regard to subcontractors or subconsultants at any tier that are under the direct or indirect control or responsibility of the Design Professional, and includes all independent contractors, agents, employees or anyone else for whom the Design Professional may be liable at any tier.

6. **CONFLICT OF INTEREST:** Contractor represents that none of its officers or employees are officers or employees of the State of Utah, unless disclosure has been made in accordance with 67-16-8, Utah Code Annotated, 1953, as amended.

7. **CONFLICT OF INTEREST WITH STATE EMPLOYEES:** In addition to the provisions of State of Utah Terms and Conditions # 6, Conflict of Interest, the Contractor certifies that no person in the State's employment, directly or through subcontract, will receive any private financial interest, direct or indirect, in the contract. The Contractor will not hire or subcontract with any person having such conflicting interest.

8. **CONTRACTOR ACCESS TO SECURE STATE FACILITIES / CRIMINAL CONVICTION INFORMATION / FORMER FELONS:** The Contractor shall provide (at its own expense) the State with sufficient personal information about its agents or employees, and the agents and employees of its subcontractors (if any) who will enter upon secure premises controlled, held, leased, or occupied by the State during the course of performing this contract so as to facilitate a criminal record check, at State expense. "Sufficient personal information" about its agents

or employees, and the agents and employees of its subcontractors (if any) means for the Contractor to provide to the State Project Manager, in advance of any on-site work, a list of the full names of the designated employees, including their social security number, driver license number and the state of issuance, and their birth date. Thereafter, on their first site visit, each contractor employee expected to work on-site shall be fingerprinted by the State, and the State is authorized to conduct a federal criminal background check based upon those fingerprints and personal information provided. Contractor, in executing any duty or exercising any right under this contract, shall not cause or permit any of its agents or employees, and the agents and employees of its subcontractors (if any) who have been convicted of a felony and misdemeanors other than minor misdemeanors to enter upon any premises controlled, held, leased, or occupied by the State. A felony and misdemeanor are defined by the jurisdiction of the State of Utah, regardless of where the conviction occurred.

9. **DRUG-FREE WORKPLACE:** The Contractor agrees to abide by the Department of Technology Services (DTS) drug-free workplace policies while on State of Utah premises. DTS will provide the Contractor with a copy of these written "drug-free workplace policies" upon request.

10. **CODE OF CONDUCT:** When Contractor employees are working on-site, the Contractor agrees to follow and enforce DTS Policy 2000-001 Code of Conduct. If Contractor is working at facilities controlled by other State agencies, Contractor agrees to follow and enforce the Code of Conduct Policy of these other State agencies when Contractor is providing services at these facilities under provisions of this contract. The Contractor will assure that each employee or volunteer under Contractor's supervision receives a copy of such Code of Conduct, and a signed statement to this effect must be in each Contractor or Subcontractor employee's/volunteer's file and is subject to inspection and review by the State's monitors. Upon request, DTS agrees to provide Contractor with a copy of any applicable codes of conduct. If a Contractor or Subcontractor is working at any State agency which has a Code of Conduct applicable to this Contract, the DTS Project Manager will provide the Contractor with a copy in advance of the Contractor's on-site contract services performance.

11. **INDEMNITY CLAUSE:** The Contractor agrees to indemnify, save harmless, and release the State of Utah, and all its officers, agents, volunteers, and employees from and against any and all loss, damages, injury, liability, suits, and proceedings arising out of the performance of this contract which are caused in whole or in part by the acts or negligence of the Contractor's officers, agents, volunteers, or employees, but not for claims arising from the State's sole negligence. The parties agree that if there are any Limitations of the Contractor's Liability, including a limitation of liability for anyone for whom the Contractor is responsible, such Limitations of Liability will not apply to injuries to persons, including death, or to damages to property.

12. **EMPLOYMENT PRACTICES CLAUSE:** The Contractor agrees to abide by the provisions of Title VI and VII of the Civil Rights Act of 1964 (42USC 2000e) which prohibits discrimination against any employee or applicant for employment or any applicant or recipient of services, on the basis of race, religion, color, or national origin; and further agrees to abide by Executive Order No. 11246, as amended, which prohibits discrimination on the basis of sex; 45 CFR 90 which prohibits discrimination on the basis of age; and Section 504 of the Rehabilitation Act of 1973, or the Americans with Disabilities Act of 1990 which prohibits discrimination on the basis of disabilities. Also, the Contractor agrees to abide by Utah's Executive Order, dated March 17, 1993, which prohibits sexual harassment in the work place.

13. **TERMINATION:** Unless otherwise stated in the Special Terms and Conditions, this contract may be terminated, with cause by either party, in advance of the specified termination date, upon written notice being given by the other party. The party in violation will be given ten (10) working days after notification to correct and cease the violations, after which the contract may be terminated for cause. This contract may be terminated without cause, in advance of the specified expiration date, by either party, upon sixty (60) days prior written notice being given the other party. On termination of this contract, all accounts and payments will be processed according to the financial arrangements set forth herein for approved services rendered to date of termination.

    In the event of such termination, and professional services apply to the contract; the Contractor shall be compensated for services properly performed under this Contract up to the effective date of the notice of termination. The Contractor agrees that in the event of such termination for cause or without cause, Contractor's sole remedy and monetary recovery from the State is limited to full payment for all work properly performed as authorized under this Contract up to the date of termination as well as any reasonable monies owed as a result of the Contractor having to terminate contracts necessarily and appropriately entered into by the Contractor pursuant to this Contract. Contractor further acknowledges that in the event of such termination, all work product, which includes but is not limited to all manuals, forms, contracts, schedules, reports, and any and all documents produced by Contractor under this Contract up to the date of termination are the property of the State and shall be promptly delivered to the State.

14. **SUSPENSION OF WORK:** Should circumstances arise which would cause the State to suspend the work, but not terminate the contract, this will be done by formal notice. The work may be reinstated upon advance formal notice from the State.

15. **NONAPPROPRIATION OF FUNDS:** The Contractor acknowledges that the State cannot contract for the payment of funds not yet appropriated by the Utah State Legislature. If funding to the State is reduced due to an order by the Legislature or the Governor, or is required by State law, or if federal funding (when applicable) is not provided, the State may terminate this contract or proportionately reduce the services and purchase obligations and the amount due from the State upon 30 days written notice. In the case that funds are not appropriated or are reduced, the State will reimburse Contractor for products delivered or services performed through the date of cancellation or reduction, and the State will not be liable for any future commitments, penalties, or liquidated damages.

16. **SALES TAX EXEMPTION:** The State of Utah's sales and use tax exemption number is 11736850-010-STC, located at http://purchasing.utah.gov/contract/documents/salestaxexemptionformsigned.pdf. The tangible personal property or services being purchased are being paid from State funds and used in the exercise of that entity's essential functions. If the items being purchased are construction materials, they will be converted into real property by employees of this government entity, unless otherwise stated in the contract.

17. **SECURE PROTECTION AND HANDLING OF DATA:**

1. **Network Security**: Contractor agrees at all times to maintain network security that - at a minimum - includes: network firewall provisioning, intrusion detection, and regular third party penetration testing. Likewise Contractor agrees to maintain network security that conforms to one of the following:

    a. Those standards the State of Utah applies to its own network, found at http://www.dts.utah.gov;

    b. Current standards set forth and maintained by the National Institute of Standards and Technology, includes those at: http://web.nvd.nist.gov/view/ncp/repository/; or

    c. Any generally recognized comparable standard that Contractor then applies to its own network and approved by DTS in writing.

2. **Data security:** Contractor agrees to protect and maintain the security of the State of Utah data with protection that is at least as good as or better than that maintained by the State of Utah. These security measures included but are not limited to maintaining secure environments that are patched and up to date with all appropriate security updates as designated, (ex. Microsoft Notification).

3. **Data Transmission**: Contractor agrees that any and all transmission or exchange of system application data with the State of Utah and/or any other parties expressly designated by the State of Utah, shall take place via secure means, (ex. HTTPS or FTPS).

4. **Data Storage**: Contractor agrees that any and all State of Utah data will be stored, processed, and maintained solely on designated target servers approved of by DTS and that no State of Utah data at any time will be processed on or transferred to any portable or laptop computing device or any portable storage medium, unless such medium is part of the Contractor's designated backup and recovery process.

5. **Data Encryption**: Contractor agrees to store all State of Utah backup data as part of its designated backup and recovery process in encrypted form, using no less than 128 bit key.

6. **Password Protection**. Contractor agrees that any portable or laptop computer that has access to a State of Utah network, or stores any non-public State of Utah data is equipped with strong and secure password protection.

7. **Data Re-Use:** Contractor agrees that any and all data exchanged shall be used expressly and solely for the purpose enumerated in this Contract. Contractor further agrees that no State of Utah data of any kind shall be transmitted, exchanged or otherwise passed to other Contractors or interested parties except on a case-by-case basis as specifically agreed to in writing by DTS.

8. **Data Destruction**: The Contractor agrees that upon termination of this Agreement it shall erase, destroy, and render unreadable all State of Utah data from all non-state computer systems and backups, and certify in writing that these actions have been completed within 30 days of the termination of this Agreement or within 7 days of the request of DTS, whichever shall come first.

18. NOTIFICATION AND DATA BREACHES: Contractor agrees to comply with all applicable laws that require the notification of individuals in the event of unauthorized release of personally-identifiable information or other events requiring notification in accordance with *DTS Policy 5000-1250-PR1 Computer Incident Reporting Procedure* (copy available upon request). In the event of a data breach of any Contractor's security obligations or other event requiring notification under applicable law (Utah Code Annotated § 13-44-101 thru 301 et al), Contractor agrees at its own expense to assume responsibility for informing all such individuals in accordance with applicable laws and to indemnify, hold harmless and defend the State of Utah against any claims, damages, or other harm related to such Notification Event.

19. CHANGE MANAGEMENT: Contractor agrees to comply with DTS Change Management Policy 4000-0004. This DTS policy requires that any work performed by the Contractor that has the potential to cause any form of outage, or modify the State's infrastructure architecture must first be reviewed by the DTS Change Management Committee, and coordinated accordingly. The DTS Project Manager will inform the Contractor if this change control requirement is applicable. Following this notification, any failure by the Contractor that causes outages or data security breaches caused by the Contractor as a direct result of failure to comply, will result in the Contractor's liability for the damages.

For reference purposes, the latest version of DTS Change Management Policy 4000-0004 is detailed at http://dts.utah.gov/policies/documents/4000-0004changemanagementpolicy.pdf.

20. PUBLIC INFORMATION: Contractor agrees that the contract, related Sales Orders, and Invoices will be public documents, and may be available for distribution. Contractor gives the State express permission to make copies of the contract, related Sales Orders, and Invoices in accordance with the State of Utah Government Records Access and Management Act (GRAMA). Except for sections identified in writing and expressly approved by the State Division of Purchasing, Contractor also agrees that the Contractor's response to the solicitation will be a public document, and copies may be given to the public under GRAMA laws. The permission to make copies as noted will take precedence over any statements of confidentiality, proprietary information, copyright information, or similar notation.

21. CREDITING STATE IN ADVERTISING / PUBLICITY: Any publicity given to the project or services provided herein shall identify the State of Utah's managing agency as the sponsoring agency and shall not be released without prior written approval by that State agency's Project Manager.

22. STATE AGENCY WEB SITE BRANDING: The Contractor agrees to use the DTS logo, or a newer version if replaced in the future, on websites produced under terms of this contract. Contractor further agrees to allow a State agency to also utilize their own web site branding and logo, if requested by that State agency.

23. ORDERING AND INVOICING: All orders will be shipped promptly in accordance with the delivery schedule. The Contractor will promptly submit invoices (within 30 days of shipment or delivery of services) to the State. The State contract number and/or the agency

purchase order number shall be listed on all invoices, freight tickets, and correspondence relating to the contract order. The prices paid by the State will be those prices listed in the contract. The State has the right to adjust or return any invoice reflecting incorrect pricing.

24. PROMPT PAYMENT DISCOUNT: Offeror may quote a prompt payment discount based upon early payment; however, discounts offered for less than 30 days will not be considered in making the award. Contractor shall list Payment Discount Terms on invoices. The prompt payment discount will apply to payments made with purchasing cards and checks. The date from which discount time is calculated will be the date a correct invoice is received or receipt of shipment, whichever is later; except that if testing is performed, the date will be the date of acceptance of the merchandise.

25. PAYMENT:

1. Payments are normally made within 30 days following the date the order is delivered or the date a correct invoice is received, whichever is later. After 60 days from the date a correct invoice is received by the appropriate State official, the Contractor may assess interest on overdue, undisputed account charges up to a maximum of the interest rate paid by the IRS on taxpayer refund claims, plus two percent, computed similarly as the requirements of Utah Code Annotated Section 15-6-3. The IRS interest rate is adjusted quarterly, and is applied on a per annum basis, on the invoice amount that is overdue.

2. The contract total may be changed only by written amendment executed by authorized personnel of the parties. Unless otherwise stated in the Contract, all payments to the Contractor will be remitted by mail, electronic funds transfer, or the State of Utah's purchasing card (major credit card). The State of Utah will not allow the Contractor to charge end users electronic payment fees of any kind.

3. The acceptance by the Contractor of final payment without a written protest filed with the State within ten (10) working days of receipt of final payment shall release the State from all claims and all liability to the Contractor for fees and costs of the performance of the services pursuant to this Contract.

4. Overpayment: The Contractor agrees that if during or subsequent to the contract performance, a CPA audit, or a State agency audit determines that payments were incorrectly reported or paid the State may adjust the payments. The Contractor shall, upon written request, immediately refund to DTS any such overpayments. The Contractor further agrees that the State shall have the right to withhold any or all-subsequent payments under this or other contracts that the Contractor may have with the State until recoupment of overpayment is made.

5. Payment withholding: the Contractor agrees that the adequate reporting, record keeping, and compliance requirements specified in this contract are a material element of performance and that if the Contractor's record keeping practices, compliance, and/or reporting to DTS are not conducted in a timely and satisfactory manner, DTS may withhold part or all payments under this or any other contract until such deficiencies have been remedied. This includes, but is not limited to, Contractors failure to provide timely invoicing, and/or other requirements described elsewhere within this contract. In the event of the payment(s) being withheld, DTS agrees to provide ten (10) day advance Notice to the Contractor of the deficiencies that must be corrected in order to bring about the release of withheld payment. Contractor shall have ten (10) days thereafter to correct the cited reporting or record keeping practice deficiencies or the contract may be terminated.

26. COPYRIGHT: The contractor agrees that any and all Deliverables prepared for the State of Utah as required by this contract, to the extent to which it is eligible under copyright law in any country, shall be deemed a work made for hire, such that all rights, title and interest in the work and Deliverables shall be exclusively owned by the State of Utah. State of Utah reserves a royalty-free, nonexclusive, and irrevocable license to reproduce, publish, or otherwise use and to authorize others to use for Federal or State Government purposes, such software, modifications and documentation. To the extent any Deliverable is deemed not to be, for any reason whatsoever, work made for hire, Contractor agrees to assign and hereby assigns all right title and interest, including but not limited to copyright patent, trademark and trade secret, to such Deliverables, and all extensions and renewals thereof, to the State of Utah. Contractor further agrees to provide all assistance reasonably requested by the State of Utah in the establishment, preservation, and enforcement of its rights in such Deliverables, without any additional compensation to Contractor. Contractor agrees to and hereby, to the extent permissible, waives all legal and equitable rights relating to the Deliverables, including without limitation any and all rights of identification of authorship and any and all rights of approval, restriction or limitation on use or subsequent modifications.

27. OWNERSHIP, PROTECTION AND USE OF RECORDS: Except for confidential medical records held by direct care providers, the State shall own exclusive title to all information gathered, reports developed, and conclusions reached in performance of this Contract. The Contractor may not use, except in meeting its obligations under this contract, information gathered, reports developed, or conclusions reached in performance of this Contract without the express written consent of the State. The improper use or disclosure of any information concerning a State of Utah client, or a State of Utah employee for any purpose not directly connected with the administration of the State, or the Contractor's responsibilities with respect to services purchased under this agreement, is prohibited except on written consent of the state agency employee, state agency client, their attorney, or their responsible parent or guardian. The Contractor will be required to sign a Confidential Information Certification form in situations where they will be given access to confidential computerized records. The Contractor agrees to maintain the confidentiality of records it holds as agent for the State as required by Government Records Access and Management Act ("GRAMA"), or other applicable federal or state law. The State of Utah shall own and retain unlimited rights to use, disclose, or duplicate all information and data (copyrighted or otherwise) developed, derived, documented, stored, or furnished by the Contractor under the Contract. The Contractor, and any subcontractors under its control, expressly agrees not to use confidential client, or confidential federal, state, or local government data, without prior written permission from the State of Utah Project Manager and appropriate officials of the State Agency.

28. OWNERSHIP, PROTECTION, AND USE OF CONFIDENTIAL FEDERAL, STATE, OR LOCAL GOVERNMENT INTERNAL BUSINESS PROCESSES AND PROCEDURES: The improper use or disclosure by any party of protected internal Federal or State business processes, polices, procedures, or practices is prohibited. Confidential federal or state business processes, policies, procedures, or practices shall not be divulged by the Contractor, Contractor's employees, or their Subcontractors, unless prior written consent has been obtained in advance from the State of Utah Project Manager.

29. OWNERSHIP, PROTECTION, AND RETURN OF DOCUMENTS AND DATA UPON CONTRACT TERMINATION OR COMPLETION: All documents and data pertaining to work required by this contract will be the property of the State and must be delivered to the State within 30 working days after termination or completion of the contract, regardless of the reason for contract termination, and without restriction or limitation to their future use. Any State data that may be returned under provisions of this clause must either be in the format as originally provided, or in a format that is readily usable by the State or that can be formatted in a way that it can be used. Costs for all of these described items will be considered as included in the basic contract compensation of the work described used by the State.

30. CONFIDENTIALITY: Contractor, and anyone for whom the Contractor may be liable, must maintain the confidentiality of any non-public personal information. Personal information includes, but is not limited to, names, social security numbers, birth dates, address, credit card numbers and financial account numbers. The State reserves the right to identify additional reasonable types or categories of information that must be kept confidential by the Contractor and anyone for whom the Contractor may be liable. This duty of confidentiality shall be ongoing and survive the term of this contract.

31. TERMINATION UPON DEFAULT: In the event this contract is terminated as a result of a default by the Contractor, the State may procure or otherwise obtain, upon such terms and conditions as the State deems appropriate, services similar to those terminated, and Contractor shall be liable to the State for any and all damages arising there from, including, but not limited to, attorneys' fees and excess costs incurred by the State in obtaining similar services.

32. PROCUREMENT ETHICS: The Contractor understands that a person who is interested in any way in the sale of any supplies, services, construction, or insurance to the State of Utah is violating the law if the person gives or offers to give any compensation, gratuity, contribution, loan or reward, or any promise thereof to any person acting as a procurement officer on behalf of the State, or who in any official capacity participates in the procurement of such supplies, services, construction, or insurance, whether it is given for their own use or for the use or benefit of any other person or organization (63G-6-1002, Utah Code Annotated, 1953, as amended).

33. WORKERS' COMPENSATION: The Contractor shall furnish proof to the State, upon request and maintain during the life of this contract, workers' compensation insurance for all its employees as well as any subcontractor employees related to this contract.

34. LIABILITY INSURANCE: The Contractor agrees to provide and to maintain during the performance of the contract, at its sole expense, a policy of liability insurance. The limits of the policy shall be no less than $1,000,000.00 for each occurrence and $3,000,000.00 aggregate.

It shall be the responsibility of the Contractor to require any of their Subcontractor(s) to secure the same insurance coverage as prescribed herein for the Contractor.

35. ENTIRE AGREEMENT: This Agreement, including all Attachments, and documents incorporated hereunder, and the related State Solicitation constitutes the entire agreement between the parties with respect to the subject matter, and supersedes any and all other prior and contemporaneous agreements and understandings between the parties, whether oral or written. The terms of this Agreement shall supersede any additional or conflicting terms or provisions that may be set forth or printed on the Contractor's work plans, cost estimate forms, receiving tickets, invoices, or any other related standard forms or documents of the Contractor that may subsequently be used to implement, record, or invoice services hereunder from time to time, even if such standard forms or documents have been signed or initialed by a representative of the State. The parties agree that the terms of this Agreement shall prevail in any dispute between the terms of this Agreement and the terms printed on any such standard forms or documents, and such standard forms or documents shall not be considered written amendments of this Agreement.

36. SURVIVORSHIP: This paragraph defines the specific contractual provisions that will remain in effect after the completion of or termination of this contract, for whatever reason: (a) State of Utah Standard IT Terms and Conditions # 2, Contract Jurisdiction, Choice of Law, and Venue; (b) State of Utah Standard IT Terms and Conditions # 17, Secure Protection and Handling of Data; (c) State of Utah Standard IT Terms and Conditions # 18, Notification and Data Breaches; (d) State of Utah Standard IT Terms and Conditions # 26, Copyright; (e) State of Utah Standard IT Terms and Conditions #27, Ownership, Protection, and Use of Records, including Residuals of such records; and (f) State of Utah Standard IT Terms and Conditions # 28, Ownership, Protection, and Use of Confidential Federal, State, or Local Government Internal Business Processes, including Residuals of such confidential business processes; (g) State of Utah Standard IT Terms and Conditions # 29, Ownership, Protection, and Return of Documents and Data Upon Contract Termination or Completion; and (h) State of Utah Standard IT Terms and Conditions # 30, Confidentiality.

37. WAIVER: The waiver by either party of any provision, term, covenant or condition of this Contract shall not be deemed to be a waiver of any other provision, term, covenant or condition of this Contract nor any subsequent breach of the same or any other provision, term, covenant or condition of this Contract.

If professional services are applicable to this solicitation/contract, the following terms and conditions apply:

38. TIME: The Contractor shall complete the scope of services work in a manner to achieve any milestones identified in the procurement documents related to this Contract and the attachments to this Contract. The full scope of services work shall be completed by any applicable deadline stated in the solicitation.

39. TIME IS OF THE ESSENCE: For all work and services under this Contract, time is of the essence and Contractor shall be liable for all damages to the State of Utah and anyone for whom the State of Utah may be liable, as a result of the failure to timely complete the scope of work required under this Contract.

40. CHANGES IN SCOPE: Any changes in the scope of the services to be performed under this Contract shall be in the form of a written amendment to this Contract, mutually agreed to and signed by duly authorized representatives of both parties, specifying any such changes, fee adjustments, any adjustment in time of performance, or any other significant factors arising from the changes in the scope of services.

41. PERFORMANCE EVALUATION: The State of Utah may conduct a performance evaluation of the Contractor's services, including specific personnel of the Contractor. References in the Contract to Contractor shall include Contractor, Contractor's subcontractors, or subconsultants at any tier, if any. Results of any evaluation will be made available to the Contractor.

42. WAIVERS: No waiver by the State or Contractor of any default shall constitute a waiver of the same default at a later time or of a different default.

43. INSURANCE:

1. To protect against liability, loss and/or expense in connection with the performance of services described under this Contract, the Contractor shall obtain and maintain in force during the entire period of this Contract without interruption, at its own expense, insurance as listed below from insurance companies authorized to do business in the State of Utah and with an A.M. Best rating as approved by the State of Utah Division of Risk Management.

2. The following are minimum coverages that may be supplemented by additional requirements contained in the solicitation for this Contract or provided in an Attachment to this Contract; if no insurance limits are identified in the solicitation, insurance minimums will default to Section 44. Liability Insurance Requirements:
(1) Worker's Compensation Insurance and Employers' Liability Insurance. Worker's compensation insurance shall cover full liability under the worker's compensation laws of the jurisdiction in which the service is performed at the statutory limits required by said jurisdiction.
(2) Professional liability insurance in the amount as described in the solicitation for this Contract, if applicable.
(3) Any other insurance described in the solicitation for this Contract, if applicable.

3. Any type of insurance or any increase of limits of liability not described in this Contract which the Contractor requires for its own protection or on account of any statute, rule, or regulation shall be its own responsibility, and shall be provided at Contractor's own expense.

4. The carrying of insurance required by this Contract shall not be interpreted as relieving the Contractor of any other responsibility or liability under this Contract or any applicable law, statute, rule, regulation, or order.

44. STANDARD OF CARE: The services of Contractor and its subcontractors and subconsultants at any tier, if any, shall be performed in accordance with the standard of care exercised by licensed members of their respective professions having substantial experience providing similar services which similarities include the type, magnitude and complexity of the services that are the subject of this Contract. The Contractor shall be liable to the State of Utah for claims, liabilities, additional burdens, penalties, damages or third party claims (i.e. another Contractor's claim against the State of Utah), to the extent caused by wrongful acts, errors or omissions that do not meet this standard of care.

45. STATE REVIEWS, LIMITATIONS: The right of the State to perform plan checks, plan reviews, other reviews and/or comment upon the services of the Contractor, as well as any approval by the State, shall not be construed as relieving the Contractor from its professional and legal responsibility for services required under this Contract. No review by the State or any entity/user, approval or acceptance, or payment for any of the services required under this Contract shall be construed to operate as a waiver by the State of any right under this Contract or of any cause of action arising out of the performance or nonperformance of this Contract, and the Contractor shall be and remain liable to the State in accordance with applicable law for all damages to the State caused by the wrongful acts, errors and/or omissions of the Contractor or its subcontractors or subconsultants at any tier, if any.

(Revised July 1, 2013)

WSCA-NASPO Master Agreement Terms and Conditions

Ciena requests further discussion on several sections of the Master Agreement Terms and Conditions and the Participating Addendum. By way of example, but not limited to, Ciena respectfully requests further discussion on the issues of intellectual property rights, indemnification and limitation of liability, insurance, employment verification and screening procedures, standards for network security. For proposed solution language please see Appendix I - Master Sales and License Agreement for Ciena's standard terms and conditions. Upon award Ciena looks forward to the opportunity to negotiate mutually acceptable terms and conditions.

1. AGREEMENT ORDER OF PRECEDENCE:
The Master Agreement shall consist of the following documents:
1. A Participating Entity's Participating Addendum ("PA");
2. WSCA-NASPO Master Agreement Terms and Conditions;
3. The Statement of Work;
4. The Solicitation; and
5. Contractor's response to the Solicitation.

These documents shall be read to be consistent and complementary. Any conflict among these documents shall be resolved by giving priority to these documents in the order listed above. Contractor terms and conditions that apply to this Master Agreement are only those that are expressly accepted by the Lead State and must be in writing and attached to this Master Agreement as an Exhibit or Attachment. No other terms and conditions shall apply, including terms and conditions listed in the Contractor's response to the Solicitation, or terms listed or referenced on the Contractor's website, in the Contractor quotation/sales order or in similar documents subsequently provided by the Contractor.

2. AMENDMENTS The terms of this Master Agreement shall not be waived, altered, modified, supplemented or amended in any manner whatsoever without prior written approval of the WSCA-NASPO Contract Administrator.

3. ASSIGNMENT/SUBCONTRACT Contractor shall not assign, sell, transfer, subcontract or sublet rights, or delegate responsibilities under this contract, in whole or in part, without the prior written approval of the WSCA-NASPO Contract Administrator.

4. CANCELLATION Unless otherwise stated in the special terms and conditions, any Master Agreement may be canceled by either party upon 60 days notice, in writing, prior to the effective date of the cancellation. Further, any Participating State may cancel its participation upon 30 days written notice, unless otherwise limited or stated in the special terms and conditions of this solicitation. Cancellation may be in whole or in part. Any cancellation under this provision shall not effect the rights and obligations attending orders outstanding at the time of cancellation, including any right of and Purchasing Entity to indemnification by the Contractor, rights of payment for goods/services delivered and accepted, and rights attending any warranty or default in performance in association with any order. Cancellation of the Master Agreement due to Contractor default may be immediate.

5. CONFIDENTIALITY, NON-DISCLOSURE AND INJUNCTIVE RELIEF

5.1 Confidentiality. Contractor acknowledges that it and its employees or agents may, in the course of providing the Product under this Master Agreement, be exposed to or acquire information that is confidential to Participating Entity or Participating Entity's clients. Any and all information of any form that is marked as confidential or would by its nature be deemed confidential obtained by Contractor or its employees or agents in the performance of this Master Agreement, including, but not necessarily limited to (a) any Participating Entity records, (b) personnel records, and (c) information concerning individuals, is confidential information of Participating Entity ("Confidential Information"). Any reports or other documents or items (including software) that result from the use of the Confidential Information by Contractor shall be treated in the same manner as the Confidential Information. Confidential Information does not include information that (a) is or becomes (other than by disclosure by Contractor) publicly known; (b) is furnished by Participating Entity to others without restrictions similar to those imposed by this Master Agreement; (c) is rightfully in Contractor's possession without the obligation of nondisclosure prior to the time of its disclosure under this Master Agreement; (d) is obtained from a source other than Participating Entity without the obligation of confidentiality, (e) is disclosed with the written consent of Participating Entity or; (f) is independently developed by employees, agents or subcontractors of Contractor who can be shown to have had no access to the Confidential Information.

5.2 Non-Disclosure. Contractor shall hold Confidential Information in confidence, using at least the industry standard of confidentiality, and not to copy, reproduce, sell, assign, license, market, transfer or otherwise dispose of, give, or disclose Confidential Information to third parties or use Confidential Information for any purposes whatsoever other than the performance of this Master Agreement to Participating Entity hereunder, and to advise each of its employees and agents of their obligations to keep Confidential Information confidential. Contractor shall use commercially reasonable efforts to assist Participating Entity in identifying and preventing any unauthorized use or disclosure of any Confidential Information. Without limiting the generality of the foregoing, Contractor shall advise Participating Entity immediately if Contractor learns or has reason to believe that any person who has had access to Confidential Information has violated or intends to violate the terms of this Master Agreement and Contractor shall at its expense cooperate with Participating Entity in seeking

injunctive or other equitable relief in the name of Participating Entity or Contractor against any such person. Except as directed by Participating Entity, Contractor will not at any time during or after the term of this Master Agreement disclose, directly or indirectly, any Confidential Information to any person, except in accordance with this Master Agreement, and that upon termination of this Master Agreement or at Participating Entity's request, Contractor shall turn over to Participating Entity all documents, papers, and other matter in Contractor's possession that embody Confidential Information. Notwithstanding the foregoing, Contractor may keep one copy of such Confidential Information necessary for quality assurance, audits and evidence of the performance of this Master Agreement.
5.3 Injunctive Relief. Contractor acknowledges that breach of this Section, including disclosure of any Confidential Information, will cause irreparable injury to Participating Entity that is inadequately compensable in damages. Accordingly, Participating Entity may seek and obtain injunctive relief against the breach or threatened breach of the foregoing undertakings, in addition to any other legal remedies that may be available. Contractor acknowledges and agrees that the covenants contained herein are necessary for the protection of the legitimate business interests of Participating Entity and are reasonable in scope and content.

6. DEBARMENT The contractor certifies that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction (contract) by any governmental department or agency. If the contractor cannot certify this statement, attach a written explanation for review by WSCA-NASPO.

7. DEFAULTS & REMEDIES
a. The occurrence of any of the following events shall be an event of default under this Master Agreement:

i. Nonperformance of contractual requirements; or
ii. A material breach of any term or condition of this Master Agreement; or
iii. Any representation or warranty by Contractor in response to the solicitation or in this Master Agreement proves to be untrue or materially misleading; or
iv. Institution of proceedings under any bankruptcy, insolvency, reorganization or similar law, by or against Contractor, or the appointment of a receiver or similar officer for Contractor or any of its property, which is not vacated or fully stayed within thirty (30) calendar days after the institution or occurrence thereof; or
v. Any default specified in another section of this Master Agreement.

b. Upon the occurrence of an event of default, Lead State shall issue a written notice of default, identifying the nature of the default, and providing a period of 15 calendar days in which Contractor shall have an opportunity to cure the default. The Lead State shall not be required to provide advance written notice or a cure period and may immediately terminate this Master Agreement in whole or in part if the Lead State, in its sole discretion, determines that it is reasonably necessary to preserve public safety or prevent immediate public crisis. Time allowed for cure shall not diminish or eliminate Contractor's liability for damages, including liquidated damages to the extent provided for under this Master Agreement.
c. If Contractor is afforded an opportunity to cure and fails to cure the default within the period specified in the written notice of default, Contractor shall be in breach of its

obligations under this Master Agreement and Lead State shall have the right to exercise any or all of the following remedies:

i. Exercise any remedy provided by law; and
ii. Terminate this Master Agreement and any related Contracts or portions thereof; and
iii. Impose liquidated damages as provided in this Master Agreement; and
iv. Suspend Contractor from receiving future bid solicitations; and
v. Suspend Contractor's performance; and
vi. Withhold payment until the default is remedied.

d. In the event of a default under a Participating Addendum, a Participating Entity shall provide a written notice of default as described in this section and have all of the rights and remedies under this paragraph regarding its participation in the Master Agreement, in addition to those set forth in its Participating Addendum.

8. DELIVERY Unless otherwise indicated in the Master Agreement, the prices are the delivered price to any Participating State agency or political subdivision. All deliveries shall be F.O.B. destination with all transportation and handling charges paid by the contractor. Responsibility and liability for loss or damage shall remain the Contractor until final inspection and acceptance when responsibility shall pass to the Buyer except as to latent defects, fraud and Contractor's warranty obligations. The minimum shipment amount will be found in the special terms and conditions. Any order for less than the specified amount is to be shipped with the freight prepaid and added as a separate item on the invoice. Any portion of an order to be shipped without transportation charges that is back ordered shall be shipped without charge.

9. FORCE MAJEURE Neither party to this Master Agreement shall be held responsible for delay or default caused by fire, riot, acts of God and/or war which is beyond that party's reasonable control. WSCA-NASPO may terminate this Master Agreement after determining such delay or default will reasonably prevent successful performance of the Master Agreement.

10.GOVERNING LAW This procurement and the resulting agreement shall be governed by and construed in accordance with the laws of the state sponsoring and administering the procurement. The construction and effect of any Participating Addendum or order against the Master Agreement(s) shall be governed by and construed in accordance with the laws of the Participating Entity's State. Venue for any claim, dispute or action concerning an order placed against the Master Agreement(s) or the effect of an Participating Addendum shall be in the Purchasing Entity's State.

11. INDEMNIFICATION The Contractor shall defend, indemnify and hold harmless WSCA-NASPO, the Lead State and Participating Entities along with their officers, agencies, and employees as well as any person or entity for which they may be liable from and against claims, damages or causes of action including reasonable attorneys' fees and related costs for any death, injury, or damage to property arising from act(s), error(s), or omission(s) of the Contractor, its employees or subcontractors or volunteers, at any tier, relating to the performance under the Master Agreement. This section is not subject to any limitations of

liability in this Master Agreement or in any other document executed in conjunction with this Master Agreement

12. INDEMNIFICATION – INTELLECTUAL PROPERTY The Contractor shall defend, indemnify and hold harmless WSCA-NASPO, the Lead State and Participating Entities along with their officers, agencies, and employees as well as any person or entity for which they may be liable ("Indemnified Party") from and against claims, damages or causes of action including reasonable attorneys' fees and related costs arising out of the claim that the Product or its use, infringes Intellectual Property rights *("*Intellectual Property Claim*")*. The Contractor's obligations under this section shall not extend to any combination of the Product with any other product, system or method, unless:
(1) the Product, system or method is:
(a) provided by the Contractor or the Contractor's subsidiaries or affiliates;
(b) specified by the Contractor to work with the Product; or
(c) reasonably required, in order to use the Product in its intended manner, and the infringement could not have been avoided by substituting another reasonably available product, system or method capable of performing the same function; or
(2) it would be reasonably expected to use the Product in combination with such product, system or method.

The Indemnified Party shall notify the Contractor within a reasonable time after receiving notice of an Intellectual Property Claim. Even if the Indemnified Party fails to provide reasonable notice, the Contractor shall not be relieved from its obligations unless the Contractor can demonstrate that it was prejudiced in defending the Intellectual Property Claim resulting in increased expenses or loss to the Contractor. If the Contractor promptly and reasonably investigates and defends any Intellectual Property Claim, it shall have control over the defense and settlement of it. However, the Indemnified Party must consent in writing for any money damages or obligations for which it may be responsible. The Indemnified Party shall furnish, at the Contractor's reasonable request and expense, information and assistance necessary for such defense. If the Contractor fails to vigorously pursue the defense or settlement of the Intellectual Property Claim, the Indemnified Party may assume the defense or settlement of it and the Contractor shall be liable for all costs and expenses, including reasonable attorneys' fees and related costs, incurred by the Indemnified Party in the pursuit of the Intellectual Property Claim. This section is not subject to any limitations of liability in this Master Agreement or in any other document executed in conjunction with this Master Agreement.

13. INDEPENDENT CONTRACTOR The contractor shall be an independent contractor, and as such shall have no authorization, express or implied to bind WSCA-NASPO or the respective states to any agreements, settlements, liability or understanding whatsoever, and agrees not to perform any acts as agent for WSCA-NASPO or the states, except as expressly set forth herein.

14. INDIVIDUAL CUSTOMER Except to the extent modified by a Participating Addendum, each Participating Entity shall follow the terms and conditions of the Master Agreement and applicable Participating Addendum and will have the same rights and responsibilities for their purchases as the Lead State has in the Master Agreement, including but not limited to, any indemnity or to recover any costs allowed in the Master Agreement and applicable Participating Addendum for their purchases. Each Participating Entity will be responsible for its own charges, fees, and liabilities. The Contractor will apply the charges and invoice each Participating Entity individually.

15. INSURANCE Contractor shall, during the term of this Master Agreement, maintain in full force and effect, the insurance described in this section. Contractor shall acquire such insurance from an insurance carrier or carriers licensed to conduct business in the Participating Entity's state and having a rating of A-, Class VII or better, in the most recently published edition of Best's Reports. Failure to buy and maintain the required insurance may result in this Master Agreement's termination or at a Participating Entity's option, result in termination of its Participating Addendum.

Coverage shall be written on an occurrence basis. The minimum acceptable limits shall be as indicated below, with no deductible for each of the following categories:
a) Commercial General Liability covering the risks of bodily injury (including death), property damage and personal injury, including coverage for contractual liability, with a limit of not less than $1 million per occurrence/$2 million general aggregate;
b) Contractor must comply with any applicable State Workers Compensation or Employers Liability Insurance requirements.

Contractor shall pay premiums on all insurance policies. Such policies shall also reference this Master Agreement and shall have a condition that they not be revoked by the insurer until thirty (30) calendar days after notice of intended revocation thereof shall have been given to Participating Entity by the Contractor.

Prior to commencement of the work, Contractor shall provide to the Participating Entity a written endorsement to the Contractor's general liability insurance policy that (i) names the Participating Entity as an additional insured, (ii) provides that no material alteration, cancellation, non-renewal, or expiration of the coverage contained in such policy shall have effect unless the named Participating Entity has been given at least thirty (30) days prior written notice, and (iii) provides that the Contractor's liability insurance policy shall be primary, with any liability insurance of the Participating Entity as secondary and noncontributory.

Contractor shall furnish to Participating Entity copies of certificates of all required insurance within thirty (30) calendar days of the Participating Addendum's effective date and prior to performing any work. Copies of renewal certificates of all required insurance shall be furnished within thirty (30) days after renewal date. These certificates of insurance must expressly indicate compliance with each and every insurance requirement specified in this

section. Failure to provide evidence of coverage may, at State's sole option, result in this Master Agreement's termination.

Coverage and limits shall not limit Contractor's liability and obligations under this Master Agreement.

16. LAWS AND REGULATIONS Any and all supplies, services and equipment offered and furnished shall comply fully with all applicable Federal and State laws and regulations.

17. LICENSE OF PRE-EXISTING INTELLECTUAL PROPERTY Contractor grants to the Participating Entity a nonexclusive, perpetual, royalty-free, irrevocable, unlimited license to publish, translate, reproduce, modify, deliver, perform, display, and dispose of the Intellectual Property, and its derivatives, used or delivered under this Master Agreement, but not created under it ("Pre-existing Intellectual Property"). The license shall be subject to any third party rights in the Pre-existing Intellectual Property. Contractor shall obtain, at its own expense, on behalf of the Participating Entity, written consent of the owner for the licensed Pre-existing Intellectual Property.

18. NO WAIVER OF SOVEREIGN IMMUNITY In no event shall this Master Agreement, any Participating Addendum or any contract or any purchase order issued thereunder, or any act of a Lead State or a Participating Entity, be a waiver by the Participating Entity of any form of defense or immunity, whether sovereign immunity, governmental immunity, immunity based on the Eleventh Amendment to the Constitution of the United States or otherwise, from any claim or from the jurisdiction of any court.

If a claim must be brought in a federal forum, then it must be brought and adjudicated solely and exclusively within the United States District Court for the Participating State. This section applies to a claim brought against the Participating State only to the extent Congress has appropriately abrogated the Participating State's sovereign immunity and is not consent by the Participating State to be sued in federal court. This section is also not a waiver by the Participating State of any form of immunity, including but not limited to sovereign immunity and immunity based on the Eleventh Amendment to the Constitution of the United States.

19. ORDER NUMBERS Master Agreement order and purchase order numbers shall be clearly shown on all acknowledgments, shipping labels, packing slips, invoices, and on all correspondence.

20. PARTICIPANTS WSCA-NASPO is the cooperative purchasing arm of the National Association of State Procurement Officials. It is a cooperative group contracting consortium for state government departments, institutions, agencies and political subdivisions (e.g., colleges, school districts, counties, cities, etc.,) for all 50 states, the District of Columbia and the organized US territories. Obligations under this Master Agreement are limited to those Participating States who have signed a Participating Addendum where contemplated by the

solicitation. Financial obligations of Participating States are limited to the orders placed by the departments or other state agencies and institutions having available funds. Participating States incur no financial obligations on behalf of political subdivisions. Unless otherwise specified in the solicitation, the resulting award(s) will be permissive.

21. ENTITY PARTICIPATION Use of specific WSCA-NASPO cooperative Master Agreements by state agencies, political subdivisions and other entities (including cooperatives) authorized by individual state's statutes to use state contracts are subject to the approval of the respective State Chief Procurement Official. Issues of interpretation and eligibility for participation are solely within the authority of the respective State Chief Procurement Official.

22.PAYMENT Payment for completion of a contract order is normally made within 30 days following the date the entire order is delivered or the date a correct invoice is received, whichever is later. After 45 days the Contractor may assess overdue account charges up to a maximum rate of one percent per month on the outstanding balance. Payments will be remitted by mail. Payments may be made via a State or political subdivision "Purchasing Card" with no additional charge.

23. PUBLIC INFORMATION This Master Agreement and all related documents are subject to disclosure pursuant to the Participating Entity's public information laws.

24. RECORDS ADMINISTRATION AND AUDIT The contractor will maintain, or supervise the maintenance of all records necessary to properly account for the payments made to the contractor for costs authorized by this Master Agreement. These records will be retained by the contractor for at least four years after the Master Agreement terminates, or until all audits initiated within the four years have been completed, whichever is later. The contractor agrees to allow WSCA-NASPO, State and Federal auditors, and state agency staff access to all the records of this Master Agreement and any order placed under this Master Agreement, for audit and inspection, and monitoring of services. Such access will be during normal business hours, or by appointment.

25.REPORTS and ADMINISTRATIVE FEES The contractor shall submit quarterly reports to the WSCA-NASPO Contract Administrator showing the quantities and dollar volume of purchases by each participating entity.

The contractor must pay a WSCA-NASPO administrative fee of one quarter of one percent (.25%) in accordance with the terms and conditions of the Master Agreement. The WSCA-NASPO administrative fee shall be submitted quarterly and is based on sales of products and services. The WSCA-NASPO administration fee is not negotiable. This fee is to be included as part of the pricing submitted with proposal.

Additionally, some States may require that an additional fee be paid directly to the State on purchases made by procuring entities within that State. For all such requests, the fee level, payment method and schedule for such reports and payments will be incorporated in a

Participating Addendum that is made a part of the Master Agreement. The contractor may adjust the Master Agreement pricing accordingly for purchases made by procuring agencies within the jurisdiction of the State. All such agreements may not affect the WSCA-NASPO administrative fee or the prices paid by the procuring agencies outside the jurisdiction of the State requesting the additional fee.

26. STANDARD OF PERFORMANCE AND ACCEPTANCE The Standard of Performance applies to all Product(s) purchased under this Master Agreement, including any additional, replacement, or substitute Product(s) and any Product(s) which are modified by or with the written approval of Contractor after Acceptance by the Participating Entity. The Acceptance Testing period shall be thirty (30) calendar days or other time period identified in the solicitation or the Participating Addendum, starting from the day after the Product is installed and Contractor certifies that the Product is ready for Acceptance Testing. If the Product does not meet the Standard of Performance during the initial period of Acceptance Testing, Participating Entity may, at its discretion, continue Acceptance Testing on a day-to-day basis until the Standard of Performance is met. Upon rejection, the Contractor will have fifteen (15) calendar days to cure the Standard of Performance issue(s). If after the cure period, the Product still has not met the Standard of Performance Participating Entity may, at its option: (1) declare Contractor to be in breach and terminate the Order; (2) demand replacement Product from Contractor at no additional cost to Participating Entity; or, (3) continue the cure period for an additional time period agreed upon by the Participating Entity and the Contractor. Contractor shall pay all costs related to the preparation and shipping of Product returned pursuant to the section. No Product shall be accepted and no charges shall be paid until the Standard of Performance is met. The warranty period will begin upon Acceptance.

27. SYSTEM FAILURE OR DAMAGE In the event of system failure or damage caused by the Contractor or its Product, the Contractor agrees to use its best efforts to restore or assist in restoring the system to operational capacity.

28. TITLE OF PRODUCT Upon Acceptance by the Participating Entity, Contractor shall convey to Participating Entity title to the Product free and clear of all liens, encumbrances, or other security interests.Transfer of title to the Product shall include an irrevocable and perpetual license to use the Embedded Software in the Product. If Participating Entity subsequently transfers title of the Product to another entity, Participating Entity shall have the right to transfer the license to use the Embedded Software with the transfer of Product title. A subsequent transfer of this software license shall be at no additional cost or charge to either Participating Entity or Participating Entity's transferee.

29. WAIVER OF BREACH Failure of Lead State or Participating Entity to declare a default or enforce any rights and remedies shall not operate as a waiver under this Master Agreement or Participating Addendum. Any waiver by the Lead State or Participating Entity must be in writing. Waiver by the Lead State or Participating Entity of any default, right or remedy under this Master Agreement or Participating Addendum, or breach of any terms or requirements shall not be construed or operate as a waiver of any subsequent default or

breach of such term or requirement, or of any other term or requirement under this Master Agreement or Participating Addendum.

30. WARRANTY The Contractor warrants for a period of one year from the date of Acceptance that: (a) the Product performs according to all specific claims that the Contractor made in its response to the solicitation, (b) the Product is suitable for the ordinary purposes for which such Product is used, (c) the Product is suitable for any special purposes identified in the solicitation or for which the Participating Entity has relied on the Contractor's skill or judgment, (d) the Product is designed and manufactured in a commercially reasonable manner, and (e) the Product is free of defects. Upon breach of the warranty, the Contractor will repair or replace (at no charge to the Participating Entity) the Product whose nonconformance is discovered and made known to the Contractor. If the repaired and/or replaced Product proves to be inadequate, or fails of its essential purpose, the Contractor will refund the full amount of any payments that have been made. The rights and remedies of the parties under this warranty are in addition to any other rights and remedies of the parties provided by law or equity, including, without limitation, actual damages, and, as applicable and awarded under the law, to a prevailing party, reasonable attorneys' fees and costs.

31. ASSIGNMENT OF ANTITRUST RIGHTS Contractor irrevocably assigns to a Participating Entity any claim for relief or cause of action which the Contractor now has or which may accrue to the Contractor in the future by reason of any violation of state or federal antitrust laws (15 U.S.C. § 1-15 or a Participating Entity's state antitrust provisions), as now in effect and as may be amended from time to time, in connection with any goods or services provided to the Contractor for the purpose of carrying out the Contractor's obligations under this Master Agreement or Participating Addendum, including, at a Participating Entity's option, the right to control any such litigation on such claim for relief or cause of action.

Contractor shall require any subcontractors hired to perform any of Contractor's obligations, under this Master Agreement or Participating Addendum, to irrevocably assign to a Participating Entity, as third party beneficiary, any right, title or interest that has accrued or which may accrue in the future by reason of any violation of state or federal antitrust laws (15 U.S.C. § 1-15 or a Participating Entity's state antitrust provisions), as now in effect and as may be amended from time to time, in connection with any goods or services provided to the subcontractor for the purpose of carrying out the subcontractor's obligations to the Contractor in pursuance of this Master Agreement or Participating Addendum, including, at a Participating Entity's option, the right to control any such litigation on such claim for relief or cause of action.

32. **WSCA-NASPO eMARKET CENTER** Awarded responders are required to participate in the WSCA-NASPO eMarket Center and, working through WSCA-NASPO's contractor (SciQuest), connect with the eMarket Center. The ideal situation would be to use either a hosted (by SciQuest) or Punchout Level 2 catalog configurations, but actual requirements will be determined by the Lead State Contract Administrator, WSCA-NASPO, WSCA-NASPO's contractor (SciQuest) and the awarded contractor, after award. Participation does not

require an awarded responder to have any special level of technology or technological understanding.

Definitions

Acceptance - means a written notice from a purchasing entity to contractor advising Contractor that the Product has passed its Acceptance Testing. Acceptance of a product for which acceptance testing is not required shall occur following the completion of delivery, installation, if required, and a reasonable time for inspection of the product, unless the Purchasing Entity provides a written notice of rejection to contractor.

Acceptance Testing - means the process for ascertaining that the Product meets the standards set forth in the section titled Standard of Performance and Acceptance, prior to Acceptance by the Purchasing Entity.

Contractor - means the person or entity delivering Products or performing services under the terms and conditions set forth in this Master Agreement.

Intellectual Property – means any and all patents, copyrights, service marks, trademarks, trade secrets, trade names, patentable inventions, or other similar proprietary rights, in tangible or intangible form, and all rights, title, and interest therein.

Lead State - means the State conducting this cooperative solicitation and centrally administering any resulting Master Agreement with the permission of the Signatory States.

Master Agreement – means the underlying agreement executed by and between the Lead State, as WSCA-NASPO contract administrator, acting on behalf of WSCA-NASPO, and the Contractor, as now or hereafter amended.

Order - means any purchase order, sales order, or other document used by a Participating Entity to order the Products.

Participating Addendum - means a bilateral agreement executed by a Contractor and a Participating Entity incorporating this Master Agreement and any other additional Participating Entity specific language or other requirements ,e.g. ordering procedures specific to the Participating Entity, other terms and conditions.

Participating Entity - means a state, or other legal entity, properly authorized by a state to enter into the Master Agreement or Participating Addendum or who is authorized to order under the Master Agreement or Participating Addendum.

Product - Any equipment, software (including embedded software), documentation, or deliverable supplied or created by the Contractor pursuant to this Master Agreement.

WSCA-NASPO -is a cooperative group contracting consortium for state procurement officials, representing departments, institutions, agencies, and political subdivisions (i.e., colleges, school districts, counties, cities, etc.) for all states and the District of Columbia. WSCA-

NASPO is a cooperative purchasing arm of the National Association of State Procurement Officials (NASPO).

Additional Definitions and Alternative Terms for Consideration

Below are additional definitions and alternative terms for consideration by the sourcing teams depending upon the nature of the solicitation and negotiations between the Contractor and Vendor.

Embedded Software - means one or more software applications which permanently reside on a computing device.

Machine Code – means microcode, basic input/output system code, utility programs, device drivers, diagnostics, and another code delivered with a computing device for the purpose of enabling the function of the computing device, as stated in its published specifications.

(revised March 2013)

13

HEAVY READING

SNAP SHOT

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KEY FINDINGS

Pricing is paramount in metro packet-optical transport

Other important differentiators include integration with Layer 2/3 packet networks and superior OAM/ management abilities

The Sonet/SDH MSPP era has clearly and abruptly ended

The primary drivers for metro P-OTS are converged services transport, P2P Ethernet services delivery and mobile backhaul

IP/MPLS is a serious contender for metro network architectures of the future

Operators worldwide most associate Ciena with metro P-OTS leadership, followed by Cisco, Alcatel-Lucent and Huawei

Operator interest in OTN in the metro is real, but uptake will likely be less than some suppliers predict

VOL. 11, NO. 3, MARCH 2013

Metro Packet-Optical Transport 2.0: A *Heavy Reading* Survey Analysis

The metro packet-optical transport systems (P-OTS) product segment has grown from nothing in 2007 to more than $1.2 billion in equipment sales in 2012. However, because these systems were not truly best-of-breed in both packet and TDM functionality, and because packet technology itself was not ready as a true replacement for TDM transport, the P-OTS market has failed to live up to expectations thus far.

We are now entering a new "P-OTS 2.0" era that seeks to build on the packet shortcomings of the first generation. As we enter this new phase, P-OTS is finally poised to make the crossover and unseat Sonet/SDH as the dominant form of optical transport and metro and aggregation networks. In this new era, we expect to see: 1) the focus of packet-optical shifts from TDM functions to packet functions; 2) pure-packet implementations of P-OTS begin to ramp and, ultimately, dominate; 3) switched OTN enters the metro, removing the need for Sonet/SDH fabrics in new elements; and 4) 100G takes hold in the metro.

As we enter this new metro P-OTS 2.0 phase, *Heavy Reading* issued a global operator survey to get a better understanding of operator plans, strategies, and perceptions regarding the present state and future of packet-optical transport. This survey forms the basis of this report.

AUTHOR: STERLING PERRIN, SENIOR ANALYST, *HEAVY READING*

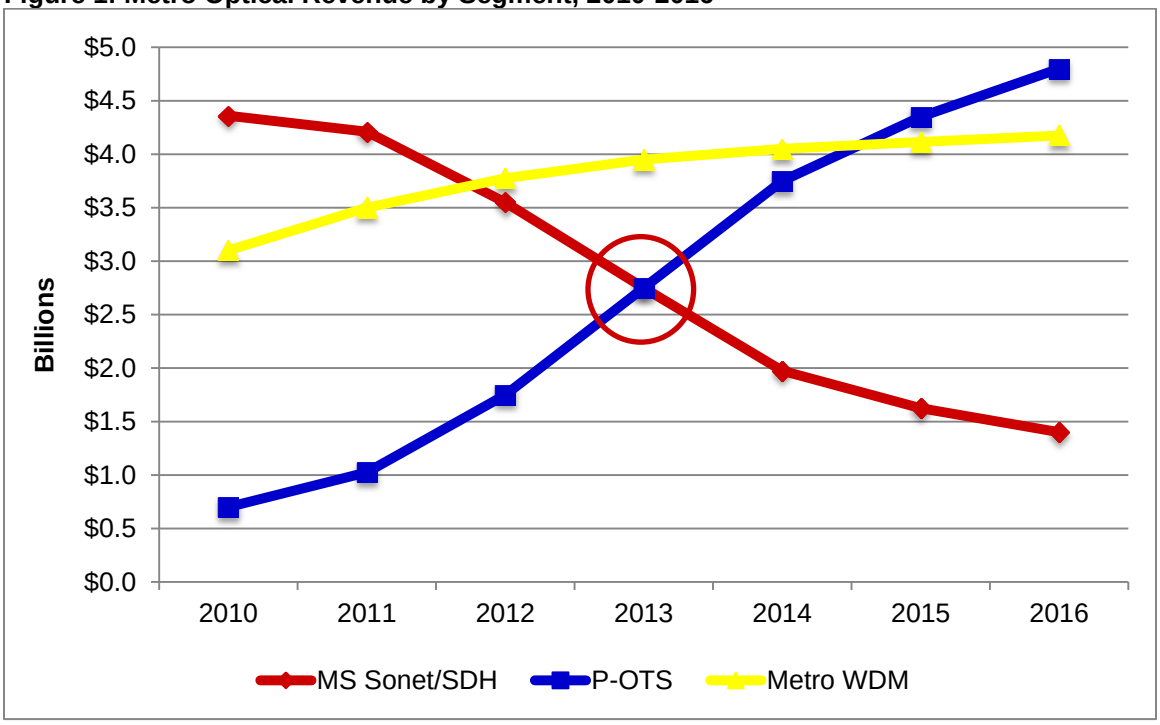
© HEAVY READING | VOL. 11, NO. 3, MARCH 2013 | METRO PACKET-OPTICAL TRANSPORT 2.0: A HEAVY READING SURVEY ANALYSIS

Introduction & Key Findings

Heavy Reading has been tracking metro packet-optical transport systems (P-OTS) since 2007. Since that time, the product segment (as defined by *Heavy Reading*) has grown from nothing to more than $1.2 billion in equipment sales in 2012.

Heavy Reading believes that we are entering a new era of P-OTS, which we'll call P-OTS 2.0, which seeks to build on the packet shortcomings of the first generation. **Figure 1** shows that, as we enter this new phase, P-OTS is finally poised to make the crossover and unseat Sonet/SDH as the dominant form optical transport and metro and aggregation networks.

Figure 1: Metro Optical Revenue by Segment, 2010-2016



Source: Heavy Reading

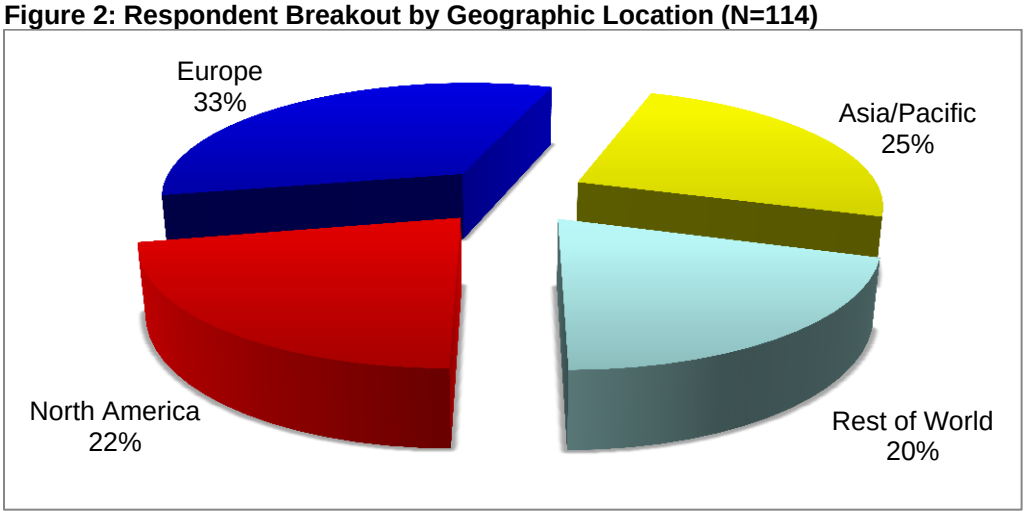
In this new era, we expect to see the following:

- The focus of packet-optical shifts from TDM functions to packet functions
- Pure packet implementations of P-OTS begin to ramp and, ultimately, dominate
- Switched OTN enters the metro, removing the need for Sonet/SDH fabrics in new elements
- 100Gbit/s (100G) takes hold in the metro

Heavy Reading conducted a global operator survey to get a better understanding of operator plans, strategies and perceptions regarding the present state and future of packet-optical transport. The survey was conducted in November 2012. Respondents were drawn from the network operator list of the *Light Reading* readership database. A total of 114 service provider respondents participated in the survey.

Figure 2 shows the breakdown of the 114 qualified respondents by the geographic location of the company's headquarters.

Figure 2: Respondent Breakout by Geographic Location (N=114)



Key findings of this report include the following:

Pricing is paramount in metro packet-optical transport. Few equipment suppliers lead with this differentiating feature, but overall system pricing topped the list of differentiating features in our survey – by a significant margin. *Heavy Reading* has been saying for years that the fundamental mission of transport innovation is to reduce the cost per bit, and this survey finding underscores that message.

In addition to overall pricing/cost, two other differentiating features rose to the top: integration with Layer 2/3 packet networks and superior OAM/management abilities. The emphasis on Layer 2/3 integration is consistent with the overall trend seen throughout this survey that the future of P-OTS is in packets, not TDM. We note that the three lowest-scoring differentiators were all about Sonet/SDH and TDM. Interestingly, OAM/management features scored significantly higher than the "speeds and feeds" features by which optical suppliers typically describe and market their products.

Converged services transport, point-to-point Ethernet services delivery (or E-LINE) and mobile backhaul are the three primary drivers for metro packet-optical transport. In our survey, switched Ethernet services, or E-LAN services, also scored high (3.84) and should also be included as a significant driver, based on survey results.

IP/MPLS is a serious contender for metro network architectures of the future. Based on the results, we cannot deny that IP/MPLS is set to play a major role in metro transport architectures in the future. The definition of transport has broadened beyond OSI Layers 0 (WDM) and 1 (Sonet/SDH and OTN). As a result, carrier "transport" capex will increasingly be spent throughout Layers 0-3. Equipment suppliers with little expertise in IP/MPLS must adjust to this reality – either by building IP/MPLS products of their own or by conceding a sizeable portion of the metro packet-optical market to IP/MPLS competitors.

Operators globally most associate Ciena with metro packet-optical innovation and leadership, followed by Cisco, Alcatel-Lucent and Huawei. Among North American operators in particular, Ciena's leadership perception is extremely strong. In Europe, Cisco led the voting, followed by a three-way tie for second among Alcatel-Lucent, Ciena and Huawei. Asia/Pacific voting was led by Cisco and Huawei, followed by Alcatel-Lucent. In the rest of the world, Ciena and Huawei tied for first, followed by a two-way tie between Cisco and Alcatel-Lucent. Notably absent from the top rankings (even in North America) was Fujitsu, whose Flashwave 9500 system is the worldwide (and North American) metro P-OTS leader based on revenue.

Survey Analysis

***Heavy Reading*'s Fall 2012 Metro Packet-Optical Transport Survey** is organized in five subsections: Drivers and Applications; Features and Functions; Adoption Timelines; Packet-Optical Control Plane; and Vendor Leadership. This special report focuses on survey results related to vendor leadership.

We make one important note on scope and definitions before delving into the results and findings. While *Heavy Reading* has a specific definition for metro packet-optical transport systems (P-OTS), we did not provide a packet-optical transport definition to operator respondents or restrict them to any specific definition in responding to their questions. As a result, the survey reflects a broader scope than metro P-OTS as covered in *Heavy Reading*'s **Packet-Enabled Optical Networking Quarterly Market Tracker**. Specifically, some operators view carrier Ethernet switch/routers (CESRs) and multiservice edge/Ethernet Service Edge (MSE/ESE) platforms as packet-optical transport, and some responses reflect these views.

As optical transport-centric products add more packet functionality and as packet-centric products add more optical transport functionality (such as integrated DWDM optics) the lines between previously distinct categories of products blur. This blurring is beginning to happen in packet-optical transport and is reflected, to a degree, in our survey results.

Heavy Reading's metro P-OTS and CESR definitions are as follows:

P-OTS

These products converge DWDM transport, Sonet/SDH, large-scale packet switching and connection-oriented Ethernet in a single chassis/device. *Heavy Reading* has created detailed definitions for metro core/regional, edge/aggregation, access and core/backbone P-OTS. P-OTS is alternatively referred to as packet-optical networking platform (P-ONP) or packet-optical transport platform (P-OTP).

CESR

CESRs are platforms that meet two basic criteria: (1) they offer a comprehensive, or nearly comprehensive, set of carrier-grade features required to support high-performance enterprise Ethernet services, triple-play services and/or mobile-backhaul applications; and (2) their primary purpose is to aggregate and/or transport Ethernet traffic. This category includes all carrier-class Ethernet switches, some carrier Ethernet transport switches and some products described as carrier Ethernet routers. We include certain Ethernet transport switches in our CESR category if they have a packet-based fabric, provide multiple QoS options, offer full support of MEF-defined services, include Ethernet OAM features, aren't based on a DWDM/ROADM platform and lack full Sonet/SDH ADM features (e.g., UPSR/BLSR functionality).

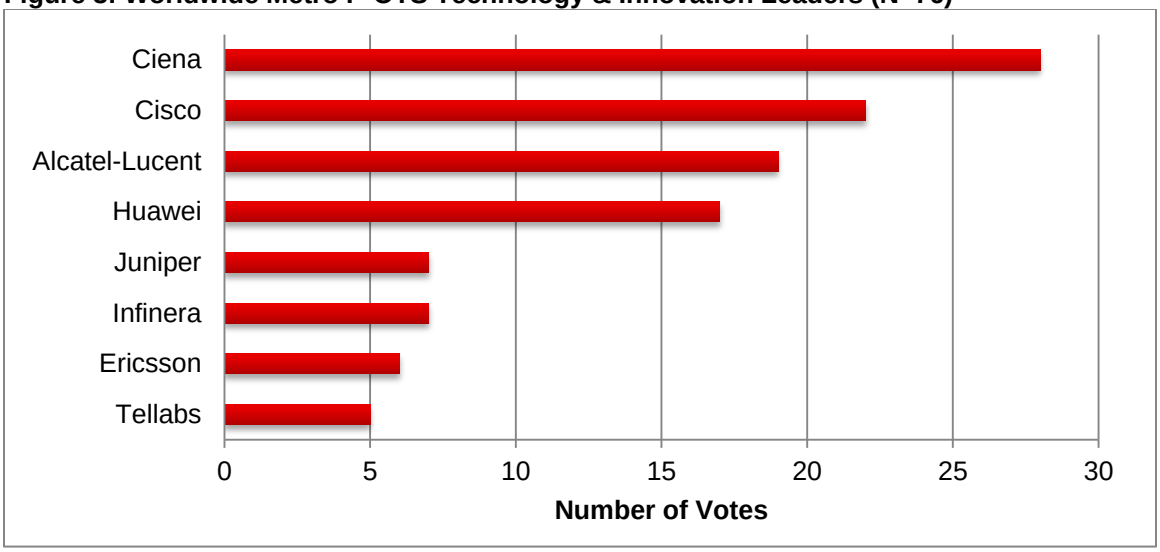
Carrier Ethernet routers have the customer-facing characteristics of a carrier Ethernet switch and some of the network characteristics of a service router. They use a combination of IP and MPLS protocols (e.g., IS-IS, RSVP-TE and LDP) to create full mesh connectivity and then tunnel Ethernet traffic through the MPLS network. But, like the carrier Ethernet switch, the primary (if not sole) purpose of these platforms is to handle Ethernet traffic for enterprise, residential or mobile backhaul applications.

Vendor Leadership

We asked operators about supplier leadership in metro packet-optical transport. To get a comprehensive and candid gauge of supplier leadership, we asked the following question in a free-response format – meaning that respondents could write in any company they wished, and as

many companies as they wanted. The survey question was: "Which supplier(s) do you believe deliver the highest technological superiority and innovation in metro packet-optical transport products?" In total, 76 respondents answered the question, and 18 different suppliers were named. **Figure 3** shows the results for the top scorers.

Figure 3: Worldwide Metro P-OTS Technology & Innovation Leaders (N=76)

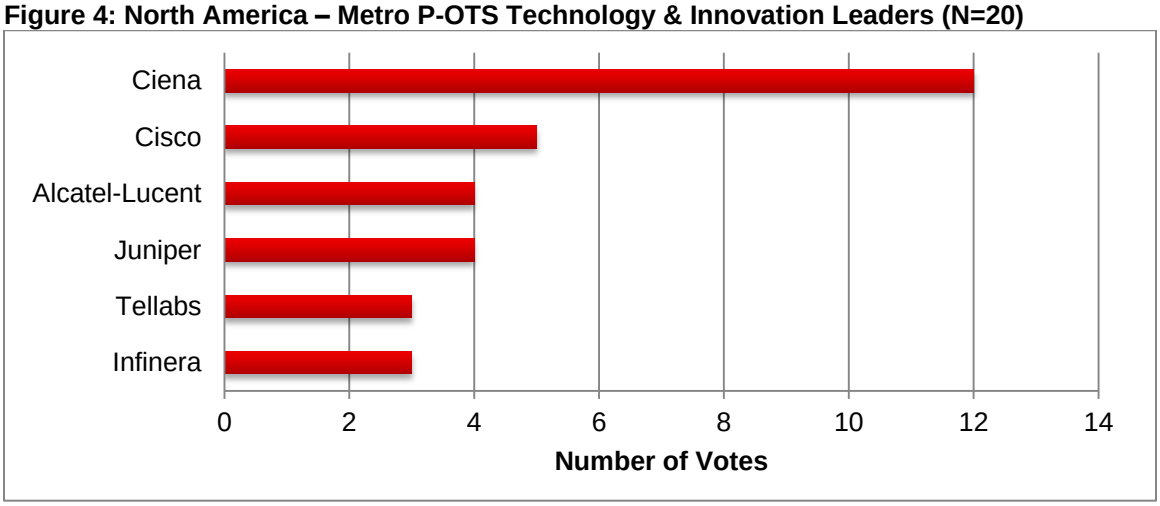


Ciena led the voting with 28 votes, followed by Cisco at 22, Alcatel-Lucent at 19 and Huawei at 17. Infinera and Juniper tied for fifth, followed closely by Ericsson and Tellabs. Ten additional suppliers were named, typically with one or two votes each.

There were a few surprises in the ranking. Ciena's leadership here is one surprise, as the company is much smaller than Cisco, Alcatel-Lucent and Huawei. While Ciena is a market-share leader in core networks, including 100G, the company is not at the top of the pack when measuring metro market shares, including metro WDM. The supplier is focusing on metro packet-optical integration and its messaging and innovation are clearly resonating with operators, even if this is not yet reflected in market shares.

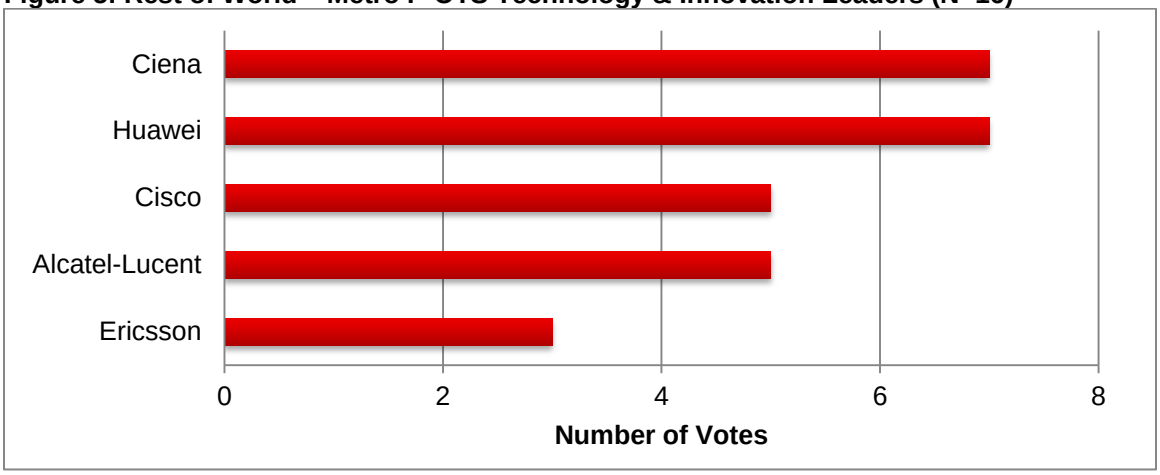
Looking at North America only, Ciena topped the list (by a large margin); 60 percent of all North American respondents who answered this question cited Ciena as a leader. The North American technology and innovation leadership ranking is shown in **Figure 4**.

Figure 4: North America – Metro P-OTS Technology & Innovation Leaders (N=20)



Ciena also led leadership scores among "Rest of World" respondents, which includes responses from Latin America, the Middle East and Africa. Results are shown in **Figure 5**.

Figure 5: Rest of World – Metro P-OTS Technology & Innovation Leaders (N=16)



Vendor Profile: Ciena

Ciena is one of several vendors targeting packet-optical transport with multiple product lines. Ciena's packet portfolio includes pure packet devices and P-OTS systems, scalable from 30G transponder-based switching to terabit-scale centralized switching, managed via the single cross-layer OneControl Unified Management system.

The 6500 comes to Ciena from the Nortel assets acquisition. Announced in late 2004, the 6500 made Nortel the first vendor to introduce a product into what became the P-OTS segment. (Alcatel-Lucent's 1850 TSS line debuted in late 2005.) The product differs from Nortel's older MSPP lines in many ways, including VT switching fabric size (80G on the 6500 vs. 10G on the 3500), the combination of Sonet and SDH in a single box and integration of DWDM transport. In addition, the 6500 has added significant packet innovation over time since its initial offering of MSPP-based packet aggregation.

Key to the 6500 P-OTS configuration is the Layer 2 Muxponder (L2 MOTR) card, scalable from 30G-60G, which was introduced in 2009. This module integrates packet switching and transport functions in one blade. MEF-9 and -14 compliant, the L2 MOTR supports E-LINE, E-LAN and EPL with failure state propagation. It also features G.8032 Ethernet Ring Protection, which offers 50ms resiliency in a packet-switched transport network. Traffic management capabilities include policing, traffic shaping and class-of-service-based queuing and scheduling. Another aspect is the ability to mate cards to offer higher capacity as well as protection options. Integrated capabilities include transport-compatible OTN protection schemes, as well as OTN mapping onto integrated photonics for extended reach applications. For 2013, the company is planning a next-gen version of the card that will boost capacity 10x (120G-300G).

OTN was introduced across the 6500 line in 2011 (announced in June). Fabric-based OTN addresses regional and metro core network applications in the 14-slot and 32-slot 6500 chassis. Card-based OTN extends OTN to metro edge applications, in the seven-slot and two-slot chassis version of the 6500. Included as part of the OTN introduction was the addition of Ciena's One-Connect Intelligent Control Plane on the 6500 line (based on the software developed for the 5400 and legacy CoreDirector lines).

The fabric that supports OTN switching is a single packet/OTN fabric, operating at 600G in the 14-slot 6500 chassis and at 1.6 Tbit/s in the 32-slot chassis. Centralized packet switching was introduced in early 2013. Looking further into 2013, Ciena plans to double the 6500 fabric capacities to 1.2 Tbit/s and 3.2 Tbit/s per system, complementing Ciena's core switching products that scale up to 15 Tbit/s.

Ciena's packet networking portfolio includes more than a dozen CESR and CEAP devices. Its CESR portfolio consists of multiple service aggregation switches in the 5000 family, including: the 5410, which supports 1 Tbit/s of full-duplex switching capacity with future plans to scale to 4Tbit/s – announced in September 2009; the 5305, which supports copper and fiber 1G/10G for metro-edge deployments – generally available since June 2007; the compact 5140, which fits in outdoor cabinets – available since April 2009; and the compact 5150, which supports PBB-TE, MPLS, 48 GE ports, up to four 10GE ports, and is optimized for mobile backhaul and business services – introduced in May 2010.

Ciena's CEAP portfolio consists of the widely deployed 3000 family of service delivery switches, with highlights including the 3930/3931, which is built for LTE backhaul, with two NNI SFP+ ports that support 1GE or 10GE, four 100M/1GE SFP UNI ports and four dual-mode UNI ports; the 3916, with two NNI SFP ports that support 1GE, two 100M/1GE SFP UNI ports and two dual-mode UNI ports; the 3940, with 24 1G user ports; the 3960, with four 10G and eight 1G ports; and the 3902 single-port 1GE demarcation platform targeted for small businesses.

DELL'ORO GROUP

Excerpt

Optical Transport Quarterly Report 1Q13

Republished July 2013

Technology Segments

Optical Packet Platform
Optical Packet-Transport
Optical Packet-Switch
Optical Packet-Core Switch

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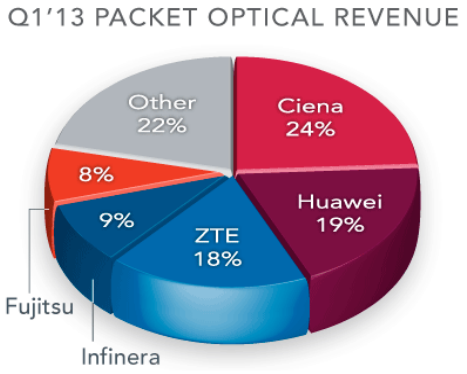
Optical Packet Platform – Market Overview

Optical Packet Platform revenue grew 23% Y/Y to a little over $1.1 B in 1Q13 (Figure 3). Approximately 42% of the total Optical market revenue is now derived from Optical Packet Platform sales. [For 1Q13, the lead vendors were Ciena (24%), Huawei (19%), and ZTE (18%)]. On a trailing four-quarter basis, the lead vendors were Ciena (22%), Huawei (22%) and ZTE (18%). We forecast Optical Packet Platform revenue to grow 25% in 2013 to $5.5 B.



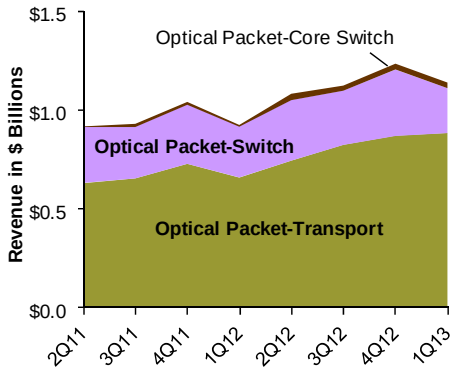
Optical Packet Platform systems consist of three technology segments—Optical Packet-Transport, Optical Packet-Switch, and Optical Packet-Core Switch.

Optical Packet-Transport

Of the three segments in Optical Packet, the largest was Optical Packet-Transport, which is used for high capacity bandwidth management and DWDM transport. Packet-Transport revenues increased 34% Y/Y to $886 M in 1Q13. We forecast the Packet-Transport market to grow 28% to $4.0 B in 2013.

The market leaders in the quarter were Ciena (28%), Huawei (23%), ZTE (12%), and Infinera (12%). Among the top four vendors, ZTE grabbed a significant amount of share as their revenue for the ZXONE 8000 increased $93 M Y/Y with a number of significant deployments in Asia Pacific.

Figure 3: Optical Packet Platform



We attribute the success of all four vendors to their earlier development of DWDM platforms with an integrated cross-connect, allowing SPs to optimally use 40 Gbps and 100 Gbps wavelengths even when they are fed by lower port speeds such as 10 Gbps. In addition, we attribute both Ciena's and Huawei's strong share position to their offering of various 40/100 Gbps DWDM line cards set to match the price-to-performance requirements of differing applications from metro to submarine spans. Both Ciena and Huawei offer a minimum of four line cards for each of their 40 Gbps and 100 Gbps wavelengths.

Optical Packet-Switch

The second largest segment in Optical Packet was Optical Packet-Switch, which was primarily deployed in Asia Pacific for wireless backhaul. Packet-Switch revenues declined 12% Y/Y by about $32 M in 1Q13 due to a reduced number of wireless backhaul contracts in China. As a result, the two primary vendors to Chinese service providers (SPs), Huawei and ZTE, experienced lower revenues; their combined revenue in Packet-Switch was $42 M lower in the quarter compared to a year ago. The market leaders in the quarter were ZTE (39%), Fujitsu (13%), Ericsson (9%) and Alcatel-Lucent (8%).

We forecast the Packet-Switch market to grow about 10% to $1.3 B in 2013. We believe the two main applications that will drive continued demand for Packet-Switch products are wireless backhaul and business services, where connection-oriented Ethernet continue to be a requirement. One method for delivering connection-oriented Ethernet, packet aggregation, and switching is with MPLS-TP. While it is still an early period for the adoption of MPLS-TP, we find that the number of products adding MPLS-TP in their feature sets is growing, with some vendors also adding full MPLS.

Optical Packet-Core Switch

The third segment in Optical Packet was Optical Packet-Core Switch, which is used for high-capacity mesh networking and protection. Packet-Core Switch revenue still remains below $30 M a quarter as the adoption of OTN based switches has taken a considerable amount of time. We also attribute the slow start for Packet-Core Switch deployments to the poor economic environment restraining SPs from installing new core networks. The market leaders in the quarter were Ciena (68%), Alcatel-Lucent (14%), ZTE (14%), and Nokia Siemens (4%).

We believe the market environment will improve this year as SPs add switching capacity in their metro core and long haul networks. We forecast the Packet-Core Switch market to grow about 130% to $220 M in 2013.

Optical Packet Platforms – Defined

Optical transport equipment products are evolving along two directions. The first is converging network products to drive higher efficiency and lower network complexity. The second is to handle and deliver Ethernet with better quality and higher efficiency in a deterministic approach that service providers have learned to expect from circuit based systems such as SONET/SDH Multiplexers. Dell'Oro Group refers to this set of Packet-Optical type products as a Optical Packet Platforms.

There are three subsets of Optical Packet Platforms that is categorized by the primary function of the platform: wavelength multiplexing and data switching.

- Optical Packet-Transport
- Optical Packet-Switch
- Optical Packet-Core Switch

Optical Packet-Transport is a platform that adds Multiservice Multiplexer functions in a platform on top of the DWDM transport function. The DWDM functions are the most pronounced and used as the transport mechanism so that more than one wavelength is carried per fiber strand. The DWDM features include wavelength combining, ROADM, and optical amplification. The multiservice functions are delivered through the addition of a centralized electrical cross-connect or switch fabric (Ethernet and/or OTN) and variety of client port types.

Manufacturers in Optical Packet-Transport

- Alcatel-Lucent – 1830 PSS-36
- Ciena – 6500, 4200

- ECI Telecom – XDM family
- Fujitsu – Flashwave 9500
- Huawei – OSN 8800 family
- Infinera – DTN, DTN-X
- Tellabs – 7100
- ZTE – ZXONE 8300, 8500
- Others include BTI and Cyan Optics

Optical Packet-Switch is a platform that performs all the functions of a Multiservice SONET/SDH, such as aggregation, cross-connection, protection, and transport, with the addition of richer Ethernet functionality by means of an Ethernet transport profile, such as MPLS-TP and PBB-TE. In many cases, DWDM could be an option on these platforms, but we believe that the key attribute of a Optical Packet-Switch will be to provision and deliver deterministic native Ethernet transport services. Additional characteristics include:

- Employs strong operations, administration, and maintenance (OAM) functions similar to Multiservice SONET/SDH.
- Is capable of delivering connection-oriented Ethernet transport in a native Ethernet frame.
- Includes clock synchronization provided by an internal stratum clock or a protocol such as 1588v2 or SyncE.
- Generally uses the same or identical network management system (NMS) that vendors currently use for their optical transport platforms.

Optical Packet-Switch platforms have at times been referred to as PTN (Packet Transport Network) in Dell'Oro Group reports.

<u>Manufacturers in Optical Packet-Switch</u>

- ADVA – FSP 150EG-X
- Alcatel-Lucent – 1850 TSS
- Cisco Systems – CPT series
- ECI Telecom – Apollo 9600 family
- Ericsson – OMS 1400 series
- Fujitsu – Flashwave 4100ES
- Huawei – PTN series, OSN 500, 1500, 3500
- Tejas – TJ1600, TJ1400
- ZTE – PTN ZXCTN series
- Others include Orckit, FiberHome, and UT Starcom

Optical Packet-Core Switch is a platform that delivers a control plane, manages bandwidth for optimal network utilization, functions as a core network cross-connection point, and provides network resiliency. The Optical Packet-Core Switch will have a switch capacity of greater than 2 Tbps in a single rack. The switch fabric (TDM, Ethernet, and/or OTN) will be OEO and capable of switching both TDM and packet. DWDM could be an option on these platforms as well as OOO switching, but we believe the primary purpose will be to deliver a control plane, service protection and restoration.

Manufacturers in Optical Packet-Core Switch

- Alcatel-Lucent – 1830 PSS-64 (1870 TTS)
- Ciena – 5410, 5430
- Nokia Siemens – hiT 7100
- ZTE – ZXONE 8500

About the Report

The Dell'Oro Group Optical Transport Quarterly Report offers complete, in-depth coverage of the market with tables covering manufacturers' revenue, average selling prices, unit shipments (by speed up to 100 Gbps). The report tracks DWDM long haul terrestrial, WDM metro, multiservice multiplexers (SONET/SDH), optical switch, and optical packet platforms. If you would like to obtain additional information about this report, please contact:

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About Dell'Oro Group

As the trusted source for market information about the networking and telecommunications industries, Dell'Oro Group provides in-depth, objective research and analysis that enables component manufacturers, equipment vendors, and investment firms to make fact-based, strategic decisions. Dell'Oro Group specializes in the following technology areas: Access, Carrier Ethernet, Carrier IP Telephony, Controller & Adapter, Data Center Appliance, Enterprise Edge, Enterprise Telephony, Ethernet Switch, Mobile Backhaul, Mobile RAN, Microwave Transmission, Optical Transport, Routers, Small Cell, Storage Area Networking, Wireless LAN, and Wireless Packet Core. For more information, contact Dell'Oro Group at +1.650.622.9400 or visit www.DellOro.com.

ciena. : the network specialist

Ciena Specialist Services

Standard Hardware Warranty and Repair Services

STATEMENT OF WORK

1 Introduction

1.1 This Statement of Work (SOW) describes the service entitlements, deliverables, Ciena assumptions, Buyer's responsibilities and exclusions related to the provision of the Standard Hardware Repair Services (Service) offered by Ciena Global Support Services (GSS). Provision of this Service is governed by and subject to the terms and conditions set forth in the applicable agreement to which this SOW is attached. In the event of a conflict between the terms of this SOW and the applicable agreement, the terms of this SOW shall prevail.

1.2 This Service is provided at no additional charge following initial hardware purchase and during the applicable warranty period set forth in the applicable agreement. As described below, upon the expiration of the warranty period, Buyer may purchase an annual extension of this Service. The products covered by this Service are referred to as "Covered Products" and the period of support, whether related to an applicable warranty or the subsequent purchase of this Service, is referred to as the "Coverage Period."

2 Description of Service

2.1 This Service provides Buyer with the following service entitlements for the Covered Products during the Coverage Period:

- 30 Day Repair and Return: In the event of hardware failure, Ciena will repair or replace a defective Field Replaceable Unit (FRU) with an equivalent FRU. Ciena will ship the repaired or replacement FRU within 30 calendar days following receipt of the defective hardware.
  - Buyer must return the defective hardware in accordance with Ciena's standard parts exchange procedures, and Ciena will ship the repaired or replacement FRU in accordance with Buyer's instructions.
  - For CESD hardware, Ciena will repair or return a defective FRU with an equivalent FRU. Ciena will ship the repaired or replacement FRU within 10 calendar days following receipt of the defective hardware.
  - Excluded Jurisdictions: For Brazil, Ciena will repair or return a defective FRU with an equivalent FRU. Ciena will ship the repaired or replacement FRU within 120 calendar days following receipt of the defective hardware.
- NBD -- Dead on Arrival (90 Days): For up to 90 calendar days after initial shipment, Ciena will provide Next Business Day replacement of hardware that is found to be Dead on Arrival ("DoA") (i.e., hardware that is not immediately capable of performing in accordance with the product warranty).
  - Ciena will ship a replacement for DoA hardware by the next business day, provided that the Return Material Authorization (RMA) number is issued by 3 PM ET. Any RMA number issued after 3 PM ET will be processed the next business day and shipped by the following business day thereafter.
  - Ciena does not require DoA hardware to be returned before it ships a replacement. However, Buyer must return DoA hardware within 30 days after receipt of the replacement hardware. If the hardware is not returned within 30 days, Buyer will be invoiced for the replacement hardware at Buyer's then-current purchase price.

3 Assumptions

3.1 Upon expiration of the Coverage Period, Ciena shall not be obligated to provide the Service until after Buyer issues and Ciena accepts a purchase order for the Service in accordance with the applicable agreement.

3.2 Ciena will incur the expense of shipping the repaired (or replacement) FRU to the Buyer using a method and carrier selected by Ciena. Ciena will be responsible for loss of or damage to a FRU while it is in possession by Ciena or in transit to the Buyer.

3.3 Unless required for operational reasons and agreed upon with Ciena, the repaired (or replacement) FRU will be at the then-current minimum hardware, firmware, and software release levels, as they are made Generally Available (GA) by Ciena.

3.4 Ciena warrants the repaired (or replacement) FRU will remain free from material defects in materials and workmanship under normal use and service and will substantially conform in all material respects to Ciena's applicable specifications for a period of 90 days from the repaired (or replacement) date or the end of the original warranty period, which ever is longer. Replacements shall become the property of Buyer upon delivery to Buyer, at which time the item replaced shall become the property of Ciena.

3.5 Ciena reserves the right to reject the return of any FRU that does not clearly display the specific part request number (RMA number).

3.6 As part of the Service, Ciena will monitor all faulty circuit pack returns for No Fault Found (NFF) from the Buyer. The term NFF refers to a pack that upon receipt by Ciena is tested and found to comply with applicable specifications. If returns classified as NFF are greater than 10% of the total circuit pack return volume in any calendar quarter, Buyer will be subject to Ciena's published per-incidence repair service fees.

3.7 In the case of a multi-year Service term (beyond the applicable warranty period), the availability of Service after year one is subject to Ciena End of Life (EOL) and Manufacturer Discontinued (MD) notification and the status of the Covered Products included within the Buyer's installed base. After year one, Service for any discontinued products beyond the effective date of discontinuance will be provided on a reasonable basis, as determined by Ciena.

3.8 This Service covers only Ciena products purchased either from Ciena or an authorized reseller. Ciena is not responsible for supporting third-party product(s) not supplied by Ciena or its agents. Any Ciena products purchased from unauthorized sources (i.e.; secondary or grey market material) must be certified by Ciena before becoming Covered Products under this Service.

3.9 If Buyer is using a third party logistics or repair provider to raise RMA requests or submit hardware returns in Buyer's name, Ciena requires a letter of agency from Buyer specifying such, and Buyer bears responsibility for ensuring such third party returns only the applicable Covered Products' hardware purchased by Buyer.

4 Buyer Responsibilities

4.1 Buyer shall:

- Provide Ciena with a complete listing of all Covered Products, including serial numbers, in order to properly establish and track service entitlement. Ciena reserves the right to perform a network inventory audit prior to finalizing a support contract agreement and as necessary, request assistance from Buyer to support the audit. If there has been a lapse in Coverage Period, a network inventory audit is mandatory and will be charged to Buyer at Ciena's then current rates for time and expense. The network inventory audit may be performed either remotely or by Ciena resources travelling to Buyer site.
- Provide a site ID or contact number.

- Ensure that authorized staff for operation and maintenance is available during the entire support period to provide Ciena with information (e.g., model, serial number, current failure symptoms, etc.) upon request.
- Ship the defective hardware unit prepaid and suitably packaged to a location Ciena designates.
- Notify Ciena of any additions, relocations or changes to Covered Products by Change Order Request forms, which should be emailed to Ciena at ciena24@ciena.com.
- Except as otherwise provided in the applicable purchase agreement, pay all applicable duties, taxes, and other charges associated with the importation of the replacement (or repaired) FRU into the country of destination.
- Provide Ciena with prompt notice of defective hardware, via the Ciena RMA process, during the Coverage Period for such hardware.
- Follow Ciena's problem determination, problem analysis, and warranty services request procedures and secure all data contained in hardware prior to any return.

5 Exclusions

5.1 This Services ***does not*** include:

a) Coverage where Ciena determines that the FRU has been damaged by misuse, accident, modification, failure to maintain proper physical or operating environment or improper maintenance by Buyer.

b) Provision or installation of hardware upgrades or reprogramming to add additional capabilities or functionality to the Covered Products;

c) Design changes to hardware or software, if such design changes are ***not*** required to resolve problems with the Covered Products;

d) Performing preventive maintenance for the Covered Products;

e) Integration services and custom modifications for and installation of Software (unless deemed necessary in Ciena's discretion);

f) Support for custom Software features, i.e., any features not included in the generally available (GA) version of the Covered Product;

g) Coverage for: (i) consumable items and supplies that are "used up" during normal product operation (such as fiber jumpers, interconnection cables, attenuators, fuses, light bulbs, fuses, blanks, filters, etc.), (ii) original equipment manufacturer (OEM) products/vendor equipment and the Buyer's third-party equipment not furnished by Ciena, (iii) cable plant, (iv) miscellaneous network hardware furnished by Ciena (such as monitors, printers, modems, etc.), (v) power equipment (such as fuse panel, batteries, power supplies (unless specified), miscellaneous hardware, racks, cabling, etc.), and (vi) major system assemblies (such as frames, bays, shelves, line drawers, etc.);

h) On-site repair or replacement and any associated labor, travel, and living expenses;

i) Making corrections to user-defined reports;

j) Hardware root-cause analysis, fault reports, or performance metrics;

k) Making specification changes or performing services connected with relocation of Covered Products;

l) Work external to the Covered Products, whether or not on the designated processor used in conjunction with the Covered Products; or

m) Support for problems caused by third-party hardware, software or systems (including systems that interface with the Covered Products).

5.2 At the request of Buyer, and at Ciena's option, Ciena may perform services for excluded problems as an enhanced service or service enhancement, at a mutually agreed upon fee or, if no fee is specifically agreed, at Ciena's then current fees.

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Standard Software Warranty

STATEMENT OF WORK

Standard Software Warranty Service SOW

1 Introduction

1.1 This Statement of Work (SOW) describes the services, deliverables, Ciena assumptions, buyer's (Buyer's) responsibilities and exclusions related to the provision of Standard Software Warranty Service offered by Ciena Provision of this Service is governed by and subject to the terms and conditions set forth in the applicable agreement to which this SOW is attached. In the event of a conflict between the terms of this SOW and the applicable agreement, the terms of this SOW shall prevail.

2 Description of Service

2.1 Standard Software Warranty Service is provided, at no additional charge, during the warranty period of software licensed by Buyer ("Covered Software"), in accordance with the warranty terms set forth in the applicable agreement. The Standard Software Warranty Service covers software warranty defect issues. Time spent resolving issues that are not related to warranty defects in Ciena's software or hardware are billable at Ciena's then current rates for technical support.

2.2 Standard Software Warranty Service provides Buyer with the following:

- 7 x 24 x 365 Technical Support: Access to the Ciena Technical Support hotline 7 days a week, 24 hours a day, 365 days a year (7x24x365) for assistance with questions or issues related to Covered Software, via the telephone numbers and email addresses located on www.ciena.com.
  - Ciena will assist in isolating the problem and determining the proper resolution, including: verify the trouble description with Buyer; review active alarms and alarm history; diagnose reported trouble and alarms using available test equipment and tools; and, if necessary, issuance of an Equipment Return (ER) number.
- Web Enabled Service: Using a secure user login and password, Buyer may retrieve online product documentation, updated trouble ticket information and Ciena contact information through Ciena's extranet web portal.
- Software Fixes: Ciena will, at its sole discretion, provide a suitable fix, patch or workaround for warranty problems, which may be included in a future software release, or provide a replacement version of the applicable software that conforms to published software release documentation.

3 Assumptions

3.1 As new software loads are released for Ciena products, support for previous software releases is normally reduced and may eventually be discontinued by Ciena. For equipment operating on an unsupported software release, technical support may be limited as provided in the Life Cycle Support matrix at the end of this document.

4 Buyer Responsibilities

4.1 Buyer shall:

- Provide Ciena with a complete listing of all Covered Software in order to properly establish and track service entitlement. With respect to network management products, provide Ciena with a listing of all such Covered Software and licensed capabilities (e.g., OMEA, NSV, OSP, WSP, ON-Center CSM/SNM, ON-Center

CTM/TNM, ON-Center INM, ESM) deployed by Buyer in its network with appropriate server identification i.e. Server Name (SystemID) with product installed. Provide a site ID or contact number.

- Ensure that authorized staff for operation and maintenance is available during the entire support period to provide Ciena with information (e.g., model, current failure symptoms, etc.) upon request. If Buyer's personnel are not able to maintain constant contact during the problem resolution of critical cases (an outage condition, or where the system is significantly compromised) Ciena reserves the right to defer support until customer personnel are available.
- Maintain a procedure external to the software programs for reconstruction of lost or altered files, data and/or programs. Ciena will make reasonable efforts to permit data to be saved / retrievable when feasible; however, Ciena will not be responsible for the loss of any data nor for the cost of reconstructing data stored on disk files, tapes, memories, etc. lost during the performance of technical support.
- Notify Ciena of any additions, relocations or changes to Covered Software by Change Order Request forms, which should be emailed to Ciena at ciena24@ciena.com.
- A purchase order needs to be provided to Ciena to facilitate the billing of services that are not specifically identified as part of this Standard Software Warranty Service.

4.2 For technical support regarding issues that are unrelated to warranty defects, Ciena's Standard Technical Support Service is available both as a recommended service uplift during warranty, and upon expiration of the applicable software warranty period.

5 Exclusions

5.1 Standard Software Warranty Service ***does not*** include:

a) Design changes to software, if such design changes are ***not*** required to resolve problems with the Covered Software;

b) Performing preventive maintenance for the Covered Software;

c) Integration services and custom modifications for and installation of software (unless deemed necessary in Ciena's discretion);

d) Support for custom software features, i.e., any features not included in the generally available (GA) version of the Covered Software;

e) Support for third-party software not licensed to Buyer by Ciena;

f) Making corrections to user-defined reports;

g) Support for problems caused by third-party hardware, software or systems (including systems that interface with the Covered Software).

5.2 At the request of Buyer, and at Ciena's option, Ciena may perform services for excluded problems as an enhanced service, at a mutually agreed upon fee or, if no fee is specifically agreed, at Ciena's then-current rates subject to any applicable per incident and/or minimum hourly billing requirements.

5.3 If Buyer is operating a non-supported (EOL) software release, and the reported problem has been corrected in a supported software release, then Buyer is required to upgrade, at its expense, to a then currently supported software release in order to acquire rights to any known fix. If Buyer is operating a non-supported software release and if there is no fix, Ciena may not provide a permanent fix to the software, but may provide a workaround or other temporary fix.

6 Support Level for Software Loads by Life Cycle

Ciena recognizes three lifecycle status designations for software loads: Generally Available (GA), End-of-Sale (EOS), and End of Life (EOL). The following table indicates technical support availability at each lifecycle stage.

Software life cycle milestone	Software availability	Technical support availability
GA/EOS (End of Sale) Period	GA – Orderable EOS – Replacement media only	Technical support is provided for cases of all classifications. Root-Cause Analysis (RCA) is performed where appropriate.
EOL	Not Orderable	Technical support is limited to the following; 1. Assistance in system recovery and restoration of service 2. Clarifications of previously published material 3. Software upgrade migration support (problem resolution) Root Cause Analysis is not performed.

Further information on software lifecycle status can be found on Ciena's customer service portal at www.ciena.com.

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Standard Technical Support Service

STATEMENT OF WORK

Standard Technical Support Service SOW

1 Introduction

1.1 This Statement of Work (SOW) describes the service entitlements, deliverables, Ciena assumptions, buyer's (Buyer's) responsibilities and exclusions related to the provision of Standard Technical Support Service (Service) offered by Ciena Specialist Services (CSS). Provision of this Service is governed by and subject to the terms and conditions set forth in the applicable agreement to which this SOW is attached or that governs Buyer's accepted purchase order for the Service. In the event of a conflict between the terms of this SOW and the applicable agreement, the terms of this SOW shall prevail.

1.2 This Service is available both as a recommended purchasable service uplift during the applicable product warranty period to cover non-defect related support issues or upon expiration of the applicable product warranty period. The products covered by this Service are referred to as "Covered Products" and the applicable support period is referred to as "Coverage Period."

2 Description of Service

2.1 This Service covers technical support requests related to Ciena products and, during the warranty period, is a supplement to the Standard Software Warranty Service which covers defect related issues only. This Service provides Buyer with the following service entitlements for the Covered Products during the Coverage Period:

- 7 x 24 x 365 Technical Support: Access to the Ciena Technical Support hotline 7 days a week, 24 hours a day, 365 days a year (7x24x365) for assistance with questions or issues related to Covered Products, via the telephone numbers and email addresses located on www.ciena.com.
    - Ciena will assist in isolating the problem and determining the proper resolution, including: verify the trouble description with Buyer; review active alarms and alarm history; diagnose reported trouble and alarms using available test equipment and tools; and, if necessary, issuance of an Equipment Return (ER) number.
- Web Enabled Service: Using a secure user login and password, Buyer may retrieve online product documentation, updated trouble ticket information and Ciena contact information through Ciena's extranet web portal.

3 Service Level Targets

Classification	Recovery Target	Resolution Target	Availability
Outage (Loss of traffic)	Continuous until recovered; service restored 50% of the time within 4 hours of Ciena being notified, service restored 90% of the time within 12 hours of Ciena being notified**	50% resolved in 3 business days, 90% resolved in 30 calendar days	24x7
System Compromised (Loss of redundancy, element visibility or management. Further failure in the system may lead to a loss of traffic.)	Continuous until system restored; system restored 50% of the time within 24 hours of Ciena being notified, system restored 90% of the time within 15 days*	50% resolved in 3 business days, 90% resolved in 30 calendar days	24x7
Business Critical (Seriously impacts Buyer's business.)	–	50% resolved within 1 business day*, 95% resolved in 30 calendar days	Ciena will match Buyer's availability
Major (Product is usable, but a condition exists that seriously degrades the production operation, maintenance or administration, and requires attention during pre-defined standard hours to resolve the situation)	–	50% resolved in 3 business days*, 90% resolved in 30 calendar days	Buyer Local Business Hours
Minor (Other problems of a lesser severity that have little or no impairment on system function.)	–	50% resolved in 3 business days*, 90% resolved in 30 calendar days	Buyer Local Business Hours

*EXCLUDES time spent waiting on Buyer response or action.

** INCLUDES time spent waiting on Buyer response or action. Buyer is expected to remain engaged with Ciena Technical Support throughout the recovery process.

4 Assumptions

4.1 Upon expiration of the Coverage Period, Ciena shall not be obligated to provide the Service until after Buyer issues, and Ciena accepts, a purchase order for Technical Support Service in accordance with the applicable agreement.

4.2 Either as a purchased Service uplift during warranty, or as purchased post-warranty Service, in the event Buyer wishes to purchase or renew the Service upon expiration of the Coverage Period, it must purchase Technical Support Service coverage for all Ciena products of the same type in the same network.

4.3 This Service covers only Ciena products purchased either from Ciena or an authorized reseller. Ciena is not responsible for supporting third-party product(s) not supplied by Ciena or its agents. Any Ciena products purchased from unauthorized sources (i.e., secondary or grey market material) must be certified by Ciena before becoming Covered Products under this Service.

4.4 For software releases that have achieved End-of-Life (EOL) status, Service is limited to Critical Issue recovery (i.e., case classifications of Outage, System Compromised, or Business Critical), in accordance with the Life Cycle Support matrix at the end of this SOW.

5 Buyer Responsibilities

5.1 Buyer shall:

- Provide Ciena with a complete listing of all Covered Products, including serial numbers, in order to properly establish and track service entitlement. With respect to network management products, provide Ciena with a listing of all such Covered Products and licensed capabilities (e.g., OMEA, NSV, OSP, WSP, ON-Center CSM/SNM, ON-Center CTM/TNM, ON-Center INM, ESM) deployed by Buyer in its network with appropriate server identification i.e. Server Name (SystemID) with product installed. Ciena reserves the right to perform a network inventory audit prior to finalizing a support contract agreement and, as necessary, request assistance from Buyer to support the audit. If there has been a lapse in Coverage Period, a network inventory audit is mandatory and will be charged to Buyer at Ciena's then current rates for time and expense. The network inventory audit may be performed either remotely or by Ciena resources travelling to Buyer's site.
- Provide a site ID or contact number.
- Ensure that authorized staff for operation and maintenance is available during the entire support period to provide Ciena with information (e.g., model, serial number, current failure symptoms, etc.) upon request. If Buyer's personnel are not able to maintain constant contact during the problem resolution of Critical cases (i.e., classifications of Outage, System Compromised, and Business Critical), Ciena reserves the right to downgrade the category assignment of the case.
- Maintain a procedure external to the software programs for reconstruction of lost or altered files, data and/or programs. Ciena will make reasonable efforts to permit data to be saved/retrievable when feasible; however, Ciena will not be responsible for the loss of any data nor for the cost of reconstructing data stored on disk files, tapes, memories, etc. lost during the performance of technical support.

- Notify Ciena of any additions, relocations or changes to Covered Products by Change Order Request forms, which should be emailed to Ciena at ciena24@ciena.com.

6 Exclusions

6.1 This Service ***does not*** include:

a) Provision or installation of hardware upgrades or reprogramming to add additional capabilities or functionality to the Covered Products;

b) Design changes to hardware or software, if such design changes are ***not*** required to resolve problems with the Covered Products;

c) Performing preventive maintenance for the Covered Products;

d) Integration services and custom modifications for and installation of Software (unless deemed necessary in Ciena's discretion);

e) Support for custom Software features, i.e., any features not included in the generally available (GA) version of the Covered Product;

f) Support for third-party software not licensed to Buyer by Ciena;

g) Making corrections to user-defined reports;

h) Making specification changes or performing services connected with relocation of Covered Products;

i) On-site support. In extreme circumstances where telephone support, remote diagnosis and all other remote means of restoring product operation fail, Ciena, at the request of Buyer and provided that Ciena determines that on-site support is necessary and appropriate, will dispatch a trained and qualified technical support engineer to Buyer's premises in order to facilitate Ciena's diagnosis. If Ciena diagnoses that the reported problem is caused by reasons not attributable to Ciena, Ciena will invoice Buyer at the then-current Ciena time-and-material fees plus associated travel and living expenses;

j) Work external to the Covered Products, whether or not on the designated processor used in conjunction with the Covered Products; or

k) Support for problems caused by third-party hardware, software or systems (including systems that interface with the Covered Products).

6.2 At the request of Buyer, and at Ciena's option, Ciena may perform services for excluded problems as an enhanced service, at a mutually agreed upon fee or, if no fee is specifically agreed, at Ciena's then-current fees.

6.3 For software releases that have achieved EOL status, if the reported problem has been corrected in a GA software release, then Buyer is required to upgrade, at its expense, to the current minimum GA software release in order to acquire rights to any known fix.

7 Support Level for Software Loads by Life Cycle

Ciena recognizes three lifecycle status designations for software loads: Generally Available (GA), End-of-Sale (EOS), and End of Life (EOL). The following table indicates Service availability at each stage for customers who have purchased a Technical Support Service contract.

Software life cycle milestone	Software availability	Technical support availability
GA/EOS (End of Sale) Period	GA – Orderable EOS – Replacement media only	Service is provided for cases of all classifications. Root-Cause Analysis (RCA) is performed where appropriate.
EOL	Not Orderable	Service is limited to the following; 1. Assistance in system recovery and restoration of service 2. Clarifications of previously published material 3. Software upgrade migration support (problem resolution) Root Cause Analysis is not performed. Service Level Recovery and Resolution targets do not apply.

Further information on software lifecycle status can be found on Ciena's customer service portal at www.ciena.com.

gaining momentum

our 20th year

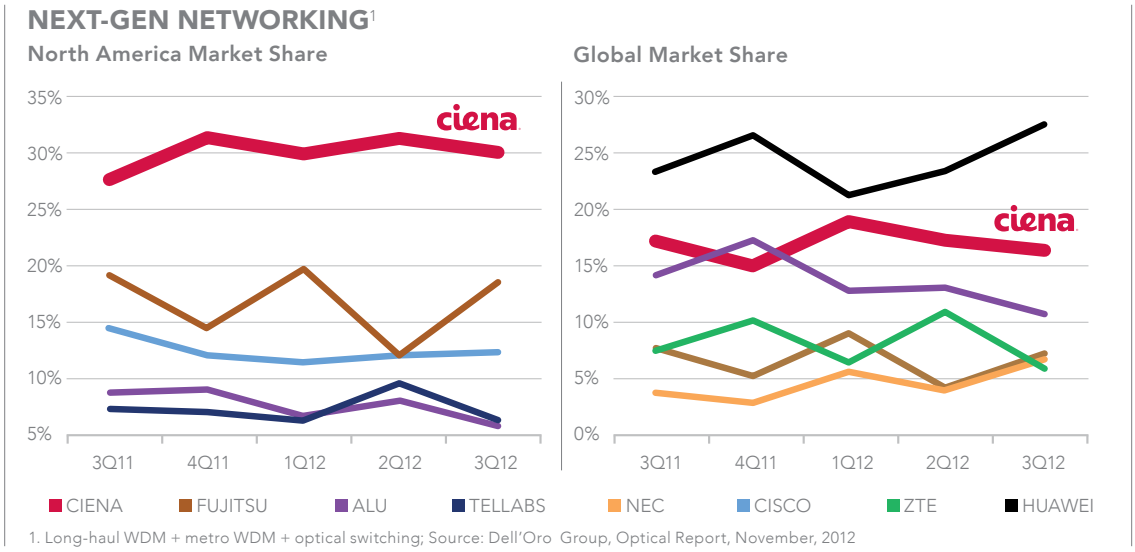
annual report 2012

ciena : the network specialist

momentum

Ciena is the network specialist. Ciena Corporation specializes in helping our customers transition their networks so they can better serve their customers in a rapidly evolving industry landscape. We offer leading network infrastructure solutions, intelligent software and a comprehensive services practice to help our customers use their networks to fundamentally change the way they compete. With a global presence, Ciena leverages its heritage of practical innovation to deliver maximum performance and economic value in communications networks worldwide.

Ciena's portfolio of software-centric optical and Ethernet platforms combine network element programmability, network automation and comprehensive network management to create a next-generation network on which new services and applications can be delivered. Our solutions form the foundation of many of the largest, most reliable and sophisticated service provider, enterprise, government, and research and education networks across the globe.



different by design

A letter from Gary B. Smith, President & Chief Executive Officer

2012 represented another year of substantial progress for Ciena. We gained market share, had record order flow and year-end backlog, generated steady profitability and revenue growth, and strengthened our balance sheet—all amidst a challenging macroeconomic and industry environment. And with the market embracing our OP^n Architecture for building next-generation networks for an app-centric world, we believe Ciena's momentum is only beginning.

Early in 2012, we identified several strategic objectives for the Company. Specifically, we set out to further differentiate ourselves in a crowded market; to expand our market reach; and to deliver greater operating efficiency. We have made great progress against each of these objectives.

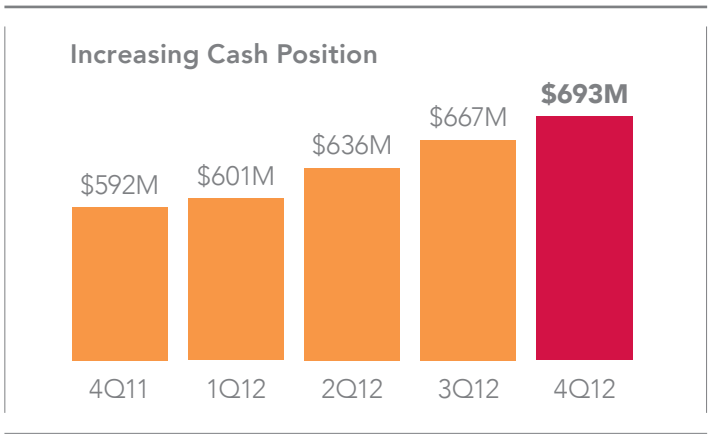
Ciena's technology and thought leadership is stronger than ever, serving to differentiate the Company, while translating into stronger win rates and share gains across multiple applications and around the world. Our OP^n architecture allows all types of network operators to quickly and easily adapt their networks to changing end-user requirements by building a programmable network infrastructure on which software applications can rapidly create new services. And it is because of Ciena's 'specialist-with-scale' positioning that we can offer this architectural approach. As a result, we have grown our global footprint with successes beyond

Gary B. Smith
President & Chief Executive Officer

our traditional customer segments and markets. For example, Ciena has approximately 25 percent market share in the submarine upgrade market, a space in which we had virtually no presence only two years ago. At the same time, we have pushed more deeply into additional vertical markets such as financial services, utilities, research and education, and state and local government. Consequently, we have been able to complement our consistent #1 market position in next-generation networking in North America with growth in a number of regions globally, resulting in a strengthened #2 position worldwide.

To advance our unique market position as the network specialist, we have focused our investment on technology convergence across our portfolio by uniting platforms with a common control plane and by sharing more software across those platforms. By optimizing and integrating our hardware and software portfolios to better address customer needs, we are better positioned in fast-emerging applications such as packet networking, cloud-based services and network virtualization—all of which represent growth areas for Ciena. To complement our hardware and software solutions we offer services-led Network Transformation Solutions designed to help customers migrate to next-generation technologies and fully leverage these new architectures. This specialized consulting practice will allow Ciena to become an even more strategic partner to our customers, deepening our relationships and increasing our opportunities over time.

Of course, expanding our technology and thought leadership as well as our market positioning is important but doing so profitability was also a primary driver for us in 2012. We continued the transformation of our supply chain and operations by leveraging increased volume across a smaller set of suppliers, building some of our own components and subsystems, and increasingly adopting a "direct order fulfillment" model for particular products. We also launched cost reduced versions of some of our newer products, most notably WaveLogic 3, our third generation coherent optical processor, which began shipping in December 2012. Additionally, we continued to generate efficiencies within our own operations. By establishing strategic partnerships for specific business functions, redesigning and streamlining a number of processes, and controlling operating expenses



tightly, we showed improved profitability. All of these initiatives helped us deliver improvements across a variety of financial metrics such as Days Sales Outstanding and Ciena's cash position, which grew by $100 million in fiscal 2012. And finally, to end the calendar year 2012, we strengthened our balance sheet further by extending the maturity of half of the outstanding 2015 convertible notes to 2020, enhancing our financial flexibility without increasing our annual cash interest expense or adding incremental share dilution.

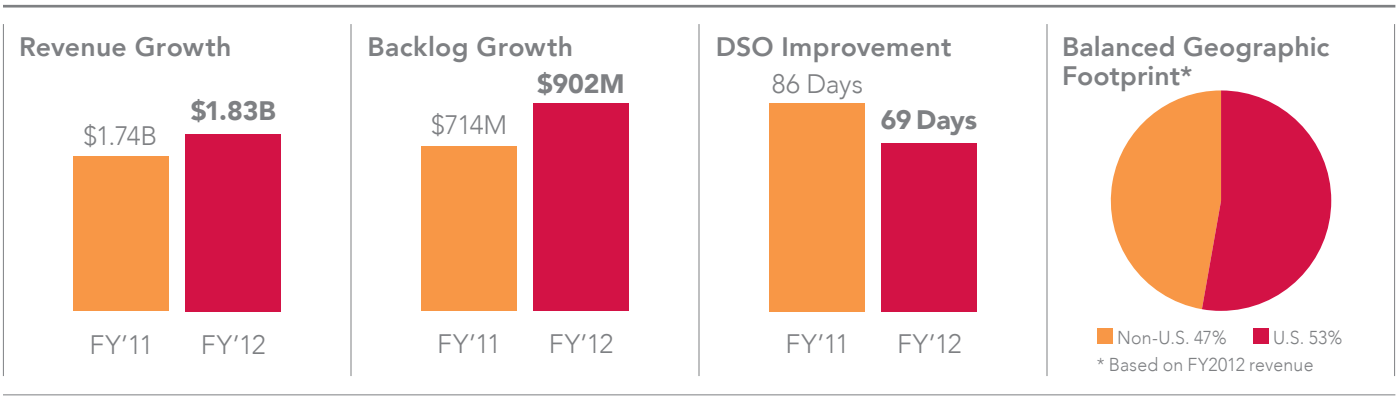
Simply put, Ciena outperformed in 2012. Our revenue grew 5 percent, from $1.74 billion in fiscal 2011 to $1.83 billion in fiscal 2012, in a market that declined approximately 7 percent. We believe our performance illustrates the degree by which Ciena is distancing itself from legacy and niche vendors in terms of wins, growth, market share, technology leadership and capabilities, and overall business performance. But we have more to do in 2013.

Looking Ahead with OP^n

As we look ahead, we see an environment where we can further extend our leadership and increase our momentum. We believe the distinctive platform we have created, our architectural vision, and the network deployments we have won will translate into greater separation between us and our competitors. We achieved notable design wins and began next generation deployments with some customers in 2012. In 2013, we expect to see the benefits of our 2012 momentum while continuing to accumulate new wins and applications.

Guiding these next generation deployments is Ciena's OP^n Architecture, which is designed to address the critical need to scale networks economically and to enable them to support new applications. OP^n allows customers to converge network functions and layers, particularly the integration of transport OTN switching and packet switching. Notably, this upgrade cycle is not simply about capacity but also the need to aggregate and manage multiple types of services, as well as the need to intelligently allocate and manage capacity.

OP^n also considers emerging concepts like OpenFlow and SDN, which would represent an increase in demand for software-based programmability of network



infrastructure. OP^n combines optical and packet networking with software programmability and open interfaces, all areas where Ciena offers industry-leading expertise and technology. Ciena's approach leverages convergence to create exponential network scale while reducing costs, implementing control plan across multiple platforms. It also uses network level apps to direct the behavior of that programmable network area, while leveraging open interfaces to orchestrate network resources alongside computing and storage resources in a virtualized environment. As a result, OP^n directly aligns with the needs of both service providers and nontraditional Ciena customers like enterprises and cloud- service providers. We believe OP^n is the most effective approach to address market needs and, as such, the portfolio developments I discussed earlier as well as those we plan for 2013 directly support this architecture. The number of key design wins and the high level of engagement across multiple geographies and customer segments is evidence that our network vision is resonating. In short, we expect OP^n to be a key contributor to our 2013 results and long-term growth.

Ciena's Journey

We have built a unique company capable of delivering a unique vision. And the hard work of our employees and the strong support of our customers and partners continues to yield impressive progress. Consequently, fiscal 2012 was a year in which Ciena truly outpaced the market in an environment where many others struggled.

Our focus in 2013 will be extending our momentum. Leveraging the foundation we have built, we expect new volume deployments from recent wins and additional awards to result in further market share gains. We believe these successes validate our OP^n architecture and when combined with our increased thought leadership, our expanded market position, and improvements in our operations, Ciena will drive additional operating leverage over time.

As always, thanks also goes to all our stakeholders who have continued to support Ciena through our journey.

Gary B. Smith
President and Chief Executive Officer

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

(Mark One)

☑ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d)OF THE SECURITIES EXCHANGE ACT OF 1934**
For the fiscal year ended October 31, 2012

OR

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d)OF THE SECURITIES EXCHANGE ACT OF 1934**
For the transition period from_____to_____

Commission file number 0-21969

Ciena Corporation
(Exact name of registrant as specified in its charter)

Delaware	**23-2725311**
(State or other jurisdiction of Incorporation or organization)	(I.R.S. Employer Identification No.)
7035 Ridge Road, Hanover, MD	**21076**
(Address of principal executive offices)	(Zip Code)

(410) 694-5700
(Registrant's telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act:

Title of Each Class	Name of Each Exchange on Which Registered
Common Stock, $0.01 par value	**The NASDAQ Stock Market**

Securities registered pursuant to Section 12(g) of the Act: **None**

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. YES ☑ NO ☐

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. YES ☐ NO ☑

Indicate by check mark whether the registrant: (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. YES ☑ NO ☐

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.4-5 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). YES ☑ NO ☐

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ☑

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Act. (Check one):

Large accelerated filer ☑ Accelerated filer ☐ Non-accelerated filer ☐ Smaller reporting company ☐
(Do not check if a smaller reporting company)

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act) YES ☐ NO ☑

The aggregate market value of the Registrant's Common Stock held by non-affiliates of the Registrant was approximately $1.0 billion based on the closing price of the Common Stock on the NASDAQ Global Select Market on April 27, 2012.

The number of shares of Registrant's Common Stock outstanding as of December 13, 2012 was 100,610,686.

DOCUMENTS INCORPORATED BY REFERENCE

Part III of the Form 10-K incorporates by reference certain portions of the Registrant's definitive proxy statement for its 2013 Annual Meeting of Stockholders to be filed with the Commission not later than 120 days after the end of the fiscal year covered by this report.

CIENA CORPORATION
ANNUAL REPORT ON FORM 10-K
FOR FISCAL YEAR ENDED OCTOBER 31, 2012

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PART I

The information in this annual report contains certain forward-looking statements, including statements related to our business prospects and strategies, the markets for our products and services, and trends in our business and markets that involve risks and uncertainties. Our actual results may differ materially from the results discussed in these forward-looking statements. Factors that might cause such a difference include those discussed in "Risk Factors," "Management's Discussion and Analysis of Financial Condition and Results of Operations," "Business" and elsewhere in this annual report.

Item 1. Business

Overview

We are a provider of equipment, software and services that support the transport, switching, aggregation and management of voice, video and data traffic on communications networks. Our Packet-Optical Transport, Packet-Optical Switching and Carrier-Ethernet Solutions products are used, individually or as part of an integrated solution, in communications networks operated by service providers, cable operators, governments, enterprises, research and education institutions and other network operators around the globe. We are a network specialist focused on solutions that enable converged, next-generation architectures, optimized to handle a broader mix of high-bandwidth communications services. Our products allow network operators to scale capacity and increase transmission speeds, efficiently allocate network traffic, and deliver services to business and consumer end users. Our network solutions also include our integrated Ciena One software suite that provides network management capabilities that unify our product portfolio and provide automation and management features that enable efficient service delivery. To complement our hardware and software portfolio, we offer a broad range of consulting and support services that help our customers design, optimize, deploy, manage and maintain their networks. We believe that the close, collaborative engagement with customers enabled by our services offering is an important component of our network specialist approach and a significant differentiator with customers.

Network operators face a challenging and rapidly changing environment that requires their networks to be robust enough to address increasing capacity needs and flexible enough to adapt quickly to emerging applications and evolving consumer and business use of communications services. At the same time, network operators are competing to distinguish their service offerings and add revenue-generating services while managing the cost to implement and maintain their networks. To address these business, infrastructure and service delivery challenges, we offer a comprehensive, solutions-oriented portfolio that builds upon the principles of our OP^n Architecture for next-generation networks. Our OP^n Architecture, which underpins our solutions offering and guides our research and development strategy, leverages the convergence of optical and packet networking technologies to increase network scale cost effectively, while emphasizing software-enabled programmability, automation and open interfaces. Through this network approach, we seek to enable high-capacity, configurable infrastructures that can be managed and adapted by network-level applications, and to provide flexible interfaces for the integration of computing, storage and network resources. By increasing network flexibility for service delivery, reducing required network elements and enabling increased scale at reduced cost, our communications networking solutions create business and operational value for our customers.

Certain Financial Information and Segment Data

We generated revenue of $1.8 billion in fiscal 2012, as compared to $1.7 billion in fiscal 2011. For more information regarding our results of operations, see "Management's Discussion and Analysis of Financial Condition and Results of Operations" in Item 7 of Part II of this annual report. We currently organize our operations into four separate operating segments: "Packet-Optical Transport," "Packet-Optical Switching," "Carrier Ethernet Solutions," and "Software and Services." The matters discussed in this "Business" section should be read in conjunction with the Consolidated Financial Statements found under Item 8 of Part II of this annual report, which include additional financial information about our operating segments, total assets, revenue, measures of profit and loss, and financial information about geographic areas and customers representing greater than 10% of revenue.

Corporate Information and Access to SEC Reports

We were incorporated in Delaware in November 1992 and completed our initial public offering on February 7, 1997. Our principal executive offices are located at 7035 Ridge Road, Hanover, Maryland 21076. Our telephone number is (410) 694-5700, and our web site address is www.ciena.com. We make our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and amendments to those reports, available free of charge on the "Investors" page of our web site as soon as reasonably practicable after we file these reports with the Securities and Exchange Commission (SEC). We routinely post the reports above, recent news and announcements, financial results and other important information about our business on our website at www.ciena.com. Information contained on our web site is not a part of this annual report.

Industry Background

The markets in which we sell our communications networking solutions have been subject to significant changes in recent years, including rapid growth in network traffic, expanded service offerings, and evolving technologies and end user demands. These conditions have created market opportunities and business challenges, and they have changed competitive landscapes. Existing and emerging network operators are competing to distinguish their service offerings and rapidly introduce differentiated, revenue-generating services. At the same time, network operators continue to seek to manage network expense and operate their businesses profitably. These dynamics continue to drive technology convergence of network features, functions and layers, as well as demand for software-based programmability. We believe these market dynamics will cause network operators to adopt communications network infrastructures that are increasingly more automated, robust and configurable.

Network Traffic Growth Driving Increased Capacity Requirements and Transmission Speeds

Optical networks, which carry voice, video and data traffic using multiple wavelengths of light across fiber optic cables, have experienced a multi-year period of strong traffic growth, and industry analysts project continued growth for the foreseeable future. Increasing network traffic is being driven by growing use of and reliance upon a broad range of communications services by consumer and business end users, as well as the expansion of bandwidth intensive wireline and wireless service offerings. Expanding mobile applications, including Internet, video and data services from the proliferation of smartphones, tablets and other devices with wireless access, are further increasing network traffic. Business customers seeking to improve automation, efficiency and productivity are increasingly dependent upon bandwidth-intensive, enterprise-oriented communications services that facilitate global operations, employee mobility and seamless access to critical business applications and data. Enterprise technology trends such as virtualization, cloud computing and machine-to-machine connections are placing new capacity and service requirements on networks. At the same time, an increasing portion of network traffic is being driven by growth of consumer-oriented applications and adoption of mobile and broadband technologies. These include peer-to-peer Internet applications, residential video services, multimedia downloads, cloud-based consumer services and online gaming. This traffic growth requires that network operators add capacity or transition to higher capacity networks with increased transmission speeds.

Multiservice Traffic and Transition to Software-Defined Programmable Network Architectures

We expect that the broadening mix of high-bandwidth, data and video communications services, together with growing mobility and expanding wireless applications, will require upgrades to existing network infrastructure, including mobile backhaul and traditional wireline networks. We believe that this mix of high-bandwidth and latency-sensitive data traffic, and an increased focus on controlling network costs, are driving a transition from multiple, disparate SONET/SDH-based networks to more efficient, converged, multi-purpose optical transport network (OTN)/Ethernet packet-based network architectures. The industry has previously experienced such network technology transitions and these upgrade and investment cycles tend to happen over multi-year periods. For instance, from the mid 1980s to the mid 1990s, service providers focused network upgrades on the transition required to digitize voice traffic. From the mid 1990s to the mid 2000s, service providers focused network upgrades on the transition to SONET/SDH networks designed to reliably handle substantially more network traffic. We believe that the industry is currently experiencing a network transition to flexible, multi-purpose OTN/Ethernet packet-based network architectures that more efficiently handle a growing mix of high-bandwidth communications services and a greater concentration of data traffic.

Emerging Drivers for Network Modernization

Enterprise and consumer end users historically perceived value simply from their network connectivity. Today, however, end users are increasingly focused upon the value that they receive from the services, applications and performance delivered by the underlying network. As a result, network operators seek to create, market, and profitably sell services, as opposed to simply selling connectivity. This shift fundamentally changes how communications networks are designed and managed. Some of the areas that network operators are pursuing to better compete and drive end user value include:

- *Mobility.* The emergence of smart mobile devices that deliver integrated voice, audio, photo, video, email and mobile Internet capabilities, like Apple's iPhone™ and iPad™, and Android™-based smart phones and tablets, is rapidly changing the service type and magnitude of data traffic carried by wireless networks. The increase in availability and improved ease of use of mobile web-based applications expands the reach of virtualized services beyond a wireline connection. For instance, consumer-driven video and gaming are being virtualized, allowing broad access, regardless

of the device or the network used. Because most wireless traffic ultimately travels over a wireline network in order to reach its destination, growth in mobile communications continues to place demands upon wireline networks.

- *"Cloud" Services.* Cloud services are characterized by the sharing of computing, storage and network resources to improve economics through higher utilization of network elements. IT and network service providers are centralizing these resources in order to offer usage-based and metered services that are hosted remotely across a network. Prevalent cloud-based services include Platform as a Service (PaaS), Software as a Service (SaaS) and Infrastructure as a Service (IaaS). As a result, smaller enterprises and consumers can subscribe to an expanding range of cloud services to replace local computing and storage requirements. Larger enterprises and data center operators may use private clouds to consolidate their own resources and public clouds to accommodate peak demand situations, often in combination.

- *Network Virtualization*. Virtualization is the process of decoupling physical IT or communications assets from the logical services or capabilities they can provide. This approach has many appealing attributes such as minimizing expensive resources while adding flexibility and scale. The virtualization of computing, storage and network resources elevates the value of connectivity and drives demand for network infrastructures that offer greater programmability, scale, and flexibility.

- *Machine-to-Machine (M2M) Applications.* In the past, communications services largely related to the connection of people-to-people or people with content. Today, the number of networked connections between devices and servers is growing rapidly with M2M-related traffic expected to represent an increasing portion of Internet traffic. These connections allow the sharing of data that can be monitored and analyzed by applications residing on those devices in order to provide value-added services to users. We expect service traffic relating to the interconnection of machines or devices to grow as Internet and cloud content delivery, smartgrid applications, health care and safety monitoring, resource/inventory management, home entertainment, consumer appliances and other mobile data applications become more widely adopted.

Market Conditions and Effect on Network Investment

We believe that these dynamics, together with multiservice traffic growth, are driving a shift in network priorities and spending toward high-capacity, converged network architectures. However, during fiscal 2012 our market experienced a challenging environment, including declining growth rates in spending in the packet-optical networking markets our solutions address. We believe that this reflects the macroeconomic conditions and competitive landscape encountered in our market during the year. The sustained period of macroeconomic weakness and volatility in the global economy resulted in heightened uncertainty and cautious customer spending in our industry. These market dynamics have caused increased customer scrutiny and more rigid prioritization of network investment, resulting in protracted sales cycles, lengthier network deployments, and revenue recognition delays. In addition, our market is intensely competitive and fragmented and securing new opportunities, particularly for international sales, can often require less favorable pricing and less favorable commercial terms that can elongate the revenue recognition cycle and contribute to fluctuations in operating results. In spite of these macroeconomic and competitive conditions, we grew our business in fiscal 2012 and believe we are well positioned for the longer-term opportunities presented by multiservice traffic growth. By offering a solution that converges network functions and layers, particularly the integration of transport, OTN switching and packet-switching, we believe we offer a more robust, efficient and differentiated network architecture that allows network operators to create and rapidly deliver new service offerings and derive increased value from their network investment.

Strategy

We believe that a number of underlying drivers in the marketplace represent significant, long-term opportunities for our business. We believe that market trends, including the proliferation of smartphones, tablets and similar devices running mobile web applications, the prevalence of video applications, and the shift of enterprise and consumer applications to cloud-based or virtualized network environments, are indicative of increasing use and dependence by consumers and enterprises upon a growing variety of broadband applications and services. We expect that these services will continue to add significant multiservice network traffic, requiring network operators to invest in next-generation, high-capacity network infrastructures that are more efficient, robust and programmable.

Our corporate strategy to capitalize on these market dynamics, promote operational efficiency and drive profitable growth of our business includes the following initiatives:

Promote our OP^{n} A*rchitecture for Next-Generation Networks.* The services and applications running on communications networks require that more of the traffic on these networks be packet-oriented. The traditional approach to this problem has

been to add IP routing capability at various points in the network. As capacity needs grow, this approach becomes unnecessarily complex and costly. We reduce the cost and complexity of growing these networks with a programmable infrastructure that we believe brings together the reliability and capacity of optical networking with the flexibility and economics of packet networking technologies. Combining these attributes with network level applications creates an approach we call our OP^n Architecture. Our OP^n Architecture leverages the convergence of optical and packet networking to enable network scale, applies advanced control plane software for network programmability and enables network-level applications to integrate and optimize network, computing and storage resources in a virtualized environment. We intend to promote the scalability, programmability, flexibility and cost effectiveness advantages of our OP^n Architecture, and we see opportunities in offering a portfolio of carrier-class solutions that facilitate the transition to converged, next-generation networks.

Alignment of Research and Development Investment with Growth Opportunities. We seek to ensure that our product development initiatives and investments are closely aligned with market growth opportunities and reflect the changing dynamics faced by network operators. We are investing in our OP^n Architecture, which combines a cost-optimized, programmable network platform with open interfaces and network-level software applications. Our current development efforts are focused upon expanding packet capabilities on our Carrier Ethernet Solutions and Packet-Optical Transport products for metro and service aggregation applications, optimizing our core network solutions for application in metro networks, and investing in new vectors for growth. Research and development efforts are focused on extending our WaveLogic coherent optical processor for 40G and 100G optical transport across our portfolio and introducing 400G transmission products. We are also focused upon enhancing our software applications, extending our OneConnect control plane across the 5400 and 6500 platform families, and developing network level applications that automate network functions and support new service introduction.

Evolve Go-to-Market Model. We seek to evolve our go-to-market selling model, both from a coverage and an engagement perspective.

Coverage. Our coverage model is focused on penetrating high-growth geographic markets, selling into key customer segments and addressing additional network applications with our solutions. We seek to enhance our brand internationally, expand our geographic reach and capture market share in international markets, including Brazil, the Middle East, Russia, Japan and India. We intend to pursue opportunities to diversify our customer base beyond our traditional customer base. We are expanding our sales efforts to capture opportunities arising from enterprise migration to, and increased reliance upon, cloud-based services, and targeting government agencies, and research and educational institutions. We are also targeting Internet content providers and other network operators emerging as a result of network modernization drivers and the adoption of new communication services. We seek to expand the application of our solutions, including in metro aggregation, submarine networks, and in support of cloud-based services, business Ethernet services and mobile backhaul. We intend to pursue selling initiatives and strategic channel opportunities, including relationships with key resellers, and carrier-managed sales to end users through our service provider customers, in order to complement our direct sales force and penetrate more deeply our targeted geographic markets, customer segments and additional applications for our solutions.

Engagement. Our strategy is to leverage our close relationship with customers in the design, development, implementation and support of their networks and to promote a close alignment of our solutions with customer network priorities. This engagement model is a key differentiator for our business and provides us with unique insight into the business and network needs of our customers. We seek to expand our Network Transformation Solutions offering to address the network modernization and service delivery demands of our customers, as well as their desire to drive additional value from their network infrastructure. We believe this services-oriented solutions offering shifts our value proposition beyond the sale of our next-generation communications networking products and allows us to play a key role in the design and evolution of our customers' networks to support their strategic business objectives. By understanding and addressing their network infrastructure needs and the evolving markets in which our customers compete, we believe this customized solutions offering creates additional business and operational value for our customers, enabling them to better compete in a challenging environment.

Business optimization to yield operating leverage. We seek to improve the operational efficiencies in our business and gain additional operating leverage. We are focused on the transformation and redesign of certain business processes, systems, and resources. These initiatives include additional investments, re-engineering and automation of certain key business processes, including the engagement of strategic partners or resources to assist with select business functions. In addition, we are focused on optimizing our supply chain structure in order to increase efficiency, reduce overhead and cost-reduce our product solutions. These initiatives include the rationalization and consolidation of third party manufacturers, distribution facilities and logistics providers, direct order fulfillment of additional products, and the consideration of select vertical integration within our supply chain. We seek to leverage these opportunities to promote the profitable growth of our business.

Customers and Markets

Our customer base, and the geographic markets and customer segments into which we sell our products and services, have expanded in recent years. As a result of industry dynamics above, additional network operators supporting new communications services and applications continue to emerge. The network infrastructure needs of our customers vary, depending upon their size, location, the nature of their end users and the services that they deliver and support. We sell our product and service solutions through our direct sales force and third party channel partners to end user network operators in the following customer segments:

Communications Service Providers

Our service provider customers include regional, national and international wireline and wireless carriers, as well as service provider consortia offering services over submarine networks. Our customers include AAPT, Allstream, AT&T, Australia Japan Cable, Bell Canada, BT, Cable & Wireless, CenturyLink, France Telecom, Japan-US Cable, Korea Telecom, PLDT, Reliance, SEA-ME-WE 4, SingTel, Southern Cross, Sprint, Tata Communications, Telefonica, Telmex, Telus, Verizon, Vimpelcom, Vodafone and XO Communications. Communications service providers are our historical customer base and continue to represent a significant majority of our revenue. We provide service providers with products from the network core to its edge where end users gain access. Our service provider solutions address growing bandwidth demand from multiservice traffic growth and support key service provider offerings, including carrier-managed services, wide area network (WAN) consolidation, data center and inter-site connectivity, wireless backhaul and business Ethernet services.

Cable & Multiservice Operators (MSO)

Our customers include leading cable and multiservice operators in the U.S. and internationally. These customers include Cogeco, Comcast, Cox, RCN, Rogers and Time Warner. Our cable and multiservice operator customers rely upon us for carrier-grade, Ethernet transport and switching products and high-capacity coherent optical transport to support enterprise-oriented services. Our platforms allow cable operators to integrate voice, video and data applications over a converged infrastructure and to scale their networking infrastructure to keep ahead of the bandwidth and application demands of their subscribers. Our products support key cable applications including business Ethernet services, wireless backhaul, broadcast and digital video, voice over IP, and video on demand.

Enterprise

Our enterprise customers include large, multi-site commercial organizations, including participants in the financial, health care, transportation, utilities and retail industries. Our solutions enable enterprises to leverage network resources to achieve operational improvements, increased automation and information technology cost reductions. Our products enable inter-site connectivity between data centers, sales offices, manufacturing plants, retail stores and research and development centers, using an owned or leased private fiber network or a carrier-managed service. Our products facilitate key enterprise applications including IT virtualization, cloud computing, business Ethernet services, business continuity, online collaboration, video conferencing, low latency networking and WAN encryption. Our products also enable our enterprise customers to prevent unexpected network downtime and ensure the safety, security and availability of their data.

Internet Content Providers

Our customers include global providers of a diverse range of Internet content services and applications such as search, social media, video, real-time communications and cloud-based offerings to consumers and enterprises. Our customers require massive scale, low latency, and proven reliability and performance to connect end-users to network resources and to interconnect critical data centers. Our customers leverage high-capacity coherent optics, packet switching, automated service provisioning and software-based network control to deliver flexible, high-performance connectivity services on demand in a virtualized network environment.

Government, Research and Education

Our government customers include federal and state agencies in the U.S. as well as international government entities. Our government and research and education customers seek to take advantage of technology innovation, improve their information infrastructure, and facilitate increased collaboration. Our solutions feature ultra-high capacity, reconfigurability and service flexibility to meet the requirements of supercomputing systems. Our solutions offering promotes network assurance, security and reliability while improving network performance, capacity, and flexibility. We collaborate with leading institutions to

provide government and research and education communities with optimized networks that minimize cost and complexity, through initiatives that support intelligent control plane technologies, interoperability and scalability.

Products and Services

Our product portfolio consists of our Packet-Optical Transport, Packet-Optical Switching and Carrier Ethernet Solutions products. These products, together with our unified network management software, network transformation solutions and support services offerings, allow us to offer customers comprehensive solutions to address their communications network priorities.

Packet-Optical Transport

Our Packet-Optical Transport platforms include flexible, scalable wavelength division multiplexing (WDM) solutions that add capacity to core, regional and metro networks and enable cost-effective and efficient transport of voice, video and data traffic at high transmission speeds. We offer scalable Packet-Optical Transport platforms, including several chassis sizes and a comprehensive set of line cards, that can be utilized from the customer premises, where space and power are limited, to the metropolitan/regional core, where the need for high capacity and carrier-class performance is essential. By automating optical infrastructures, our Packet-Optical Transport products support the efficient delivery of a wide variety of consumer-oriented network services, as well as key managed service and enterprise applications. Our Packet-Optical Transport portfolio includes the following products:

- 6500 Packet-Optical Platform;
- 4200® Advanced Services Platform;
- 5100/5200 Advanced Services Platform;
- Corestream® Agility Optical Transport System;
- Common Photonic Layer (CPL); and
- 6100 Multiservice Optical Platform.

Our Packet-Optical Transport portfolio, including our 6500 Packet-Optical Platform, features coherent, 40G and 100G optical transport technology and our WaveLogic coherent optical processors. We are currently shipping our third generation of these proprietary silicon chips that facilitate deployment of our transport technology over existing customer fiber plant (terrestrial and submarine), enable our optical transmission systems to scale capacity to 40G and 100G, and yield additional economic benefits through the reduction or elimination of network equipment, such as amplifiers, regenerators and dispersion compensating devices. Our 6500 Packet-Optical Platform includes certain integrated switching elements addressing market demand for converged network features, functions and layers to drive more robust and cost-effective network infrastructures. Our Packet-Optical Transport solutions also include our traditional SONET/SDH products and data networking products, as well as certain enterprise-oriented transport solutions that support storage and local area network (LAN) extension, interconnection of data centers, and virtual private networks.

Packet-Optical Switching

Our Packet-Optical Switching family of products provides time division multiplexing (TDM) switching and packet switching capability to allocate efficiently network capacity and to enable service delivery. Our principal Packet-Optical Switching products are our CoreDirector® Multiservice Optical Switch, our 5430 Reconfigurable Switching System and our OTN configuration for the 5410 Reconfigurable Switching System. This product segment includes multiservice, multi-protocol switching systems that consolidate the functionality of an add/drop multiplexer, digital cross-connect and packet switch into a single, high-capacity intelligent switching system. These products address both core and metro segments of communications networks and support key managed services, including Ethernet/TDM Private Line and IP services. Our Packet-Optical Switching solutions include a family of multi-terabit reconfigurable switching systems that utilize intelligent mesh networking to provide resiliency and feature an integrated optical control plane to automate the provisioning and bandwidth control of high-capacity services. Our Packet-Optical Switching systems flexibly support a mix of Carrier Ethernet/MPLS, OTN, WDM, and SONET/SDH switching to facilitate the transition to a service-enabling infrastructure.

Carrier Ethernet Solutions

Our Carrier Ethernet Solutions allow customers to utilize the automation and capacity created by our Packet-Optical Transport products in core and metro networks and to deliver new, revenue-generating services to consumers and enterprises. These products have applications from the edge of metro and core networks, where they aggregate traffic, to the access tiers of networks where they can be deployed to support wireless backhaul infrastructures and deliver business data services.

Employing sophisticated Carrier Ethernet switching technology, these products deliver quality of service capabilities, virtual local area networking and switching functions, and carrier-grade operations, administration, and maintenance features.

Our Carrier Ethernet Solutions offering primarily consists of our 3000 family of service delivery switches and service aggregation switches, our 5000 series of service aggregation switches, and our Carrier Ethernet configuration for the 5410 Service Aggregation Switch. Our service delivery and packet aggregation switches provide a more reliable and feature-rich Ethernet technologies that can support a wider variety of services. Service delivery products are often used at customer premises locations while aggregation platforms are used to combine services to improve network resource utilization. This segment also includes our legacy broadband products that transition voice networks to support IP telephony, video services and DSL.

Unified Software and Service Management Tools

Our integrated software offering, the Ciena One software suite, includes OneControl, our integrated network management software that unifies our product portfolio and provides the automation and management features that enable efficient service delivery. Our network management tools offer a comprehensive set of functions, from monitoring network performance and provisioning the network to full service level management across a variety of network layers and domains. Our Ciena One software suite is a robust, service aware framework that improves network utilization and availability, while delivering enhanced performance monitoring and reliability. By increasing network automation, minimizing network downtime and monitoring network performance and service metrics, our software tools enable customers to improve cost effectiveness, while increasing the performance and functionality of their network operations. This software suite also includes Ciena OnePlanner, a suite of planning tools that help network operators utilize their networks more efficiently, and our ON-Center® Network & Service Management Suite.

Network Transformation Solutions and Support Services

To complement our product portfolio, we offer a broad range of consulting and support services that help our customers design, optimize, deploy, manage and maintain their communications networks. We believe that our broad set of service offerings is an important component of our network specialist approach and a significant differentiator from our competitors. We believe that our services offering and our close collaborative engagement with customers provide us with valued insight into network and business challenges faced by our customers, enabling them to modernize and gain value from their network infrastructures. Our network transformation solutions offering enables us to work closely with our customers in the assessment, planning, deployment, and transformation of their networks. We believe that customers place significant value on the strategic, consultative engagements afforded by our services offering, and our ability to partner with them through services-oriented solutions that address their network and business needs.

Our services and support portfolio includes the following offerings:

- Network transformation solutions, including:
  - Network analysis, planning and design; and
  - Network optimization, modernization and assurance services.
- Maintenance and support services, including:
  - helpdesk and technical assistance;
  - training;
  - spares and logistics management;
  - engineering dispatch and on-site professional services;
  - equipment repair and replacement; and
  - software maintenance and updates.
- Deployment services, including turnkey installation and turn-up and test services; and
- Project management services, including staging, site preparation and installation support activities.

We provide these services using a combination of internal resources and qualified third party service partners.

Product Development

Our industry is subject to rapid technological developments, evolving service delivery requirements, standards and protocols, and shifts in customer and end user network demand. To remain competitive, we must continually enhance existing product platforms by adding new features and functionality, increasing transmission speeds and capacity, and introducing new network solutions that address multiservice traffic growth and enable new service offerings. Our research and development

strategy has been to pursue technology convergence, which allows us to consolidate network features, functionalities and layers onto a single platform, helping network operators architect robust, feature-rich networks that reduce required network elements and address cost, space and power limitations. We believe these converged, next-generation networking solutions promote rapid service delivery and allow network operators to derive business and operational value from their network infrastructures.

We are investing in our OP^n Architecture for designing next-generation network. Our OP^n Architecture, which underpins our solutions offering and guides our research and development strategy, leverages the convergence of optical and packet technologies to increase network scale cost effectively, while emphasizing software-enabled programmability, automation and open interfaces. Through this network approach, we seek to enable high-capacity, configurable infrastructures that can be managed and adapted by network-level applications, and to provide flexible interfaces for the integration of computing and storage resources in a unified network. Our product development initiatives also include design and development work intended to address growing opportunities, such as metropolitan network applications, enterprise networking, cloud infrastructure and packet-based infrastructure solutions for next-generation, high-capacity networks. To address these opportunities and realize our network vision, our current development efforts are focused upon:

- Extending our leadership in 40G and 100G long-haul transport, and making metropolitan network applications more cost effective for network operators;
- Continued development of our high-capacity optical transport technology and our WaveLogic coherent optical processor to further improve network capacity, transmission speed, spectral efficiency and reach;
- Expanding packet networking capabilities and features for our high-capacity Ethernet aggregation switches, for metro and service aggregation applications, mobile backhaul and business Ethernet services;
- Enhancing our data-optimized, switching solutions to enable an end-to-end Optical Transport Network (OTN) architecture that offers improved cost per bit, flexibility and reliability;
- Interoperability and enhancing our control plane and integrated network management software platform to enable service level management across our solutions; and
- Development of network level applications that automate various network functions and support new service introduction.

Our research and development efforts are also geared toward engineering changes intended to drive cost reductions across our platforms.

To ensure that our product development investments and solutions offering are closely aligned with market demand, we continually seek input from customers and promote collaboration among our product development, marketing and global field organizations. In some cases, we work with third parties pursuant to technology licenses, original equipment manufacturer (OEM) arrangements and other strategic technology relationships or investments, to develop new components or products, modify existing platforms or offer complementary technology to our customers. In addition, we participate in industry and standards organizations, where appropriate, and incorporate information from these affiliations throughout the product development process.

We regularly review our existing product offerings and prospective development projects to determine their fit within our portfolio and broader corporate strategy. We assess the market demand, technology evolution, prospective return on investment and growth opportunities, as well as the costs and resources necessary to develop and support these products. In recent years, our strategy has been to pursue technology and product convergence that allows us to consolidate multiple technologies and functionalities on a single platform, or to control and manage multiple elements throughout the network from a uniform management system, ultimately creating more robust, integrated and cost-effective network tools. We have also shifted our strategic development approach from delivering point products to providing a focused combination of networking equipment, software and service solutions that address the business and network needs of our customers.

Within our global products group, we maintain a team of skilled engineers with extensive experience in the areas of photonics, packet and circuit switching, network system design, embedded operating system and network management software. Our research and development expense was $327.6 million, $379.9 million and $364.2 million, for fiscal 2010, 2011 and 2012, respectively. For more information regarding our research and development expense, see “Management's Discussion and Analysis of Financial Condition and Results of Operations” in Item 7 of Part II of this report.

Sales and Marketing

We sell our communications networking solutions through our direct sales resources as well as through strategic channel relationships. In addition to securing new customers in growth geographies and customer market segments, our sales strategy has focused on building long-term, consultative relationships with existing customers. We believe this approach promotes our

network specialist approach and helps ensure the alignment of our expertise with the business and network requirements of our customers. We believe this approach also provides opportunities to participate in future projects relating to the transition or expansion of existing network infrastructures and to cross-sell solutions across our portfolio.

Within our global field organization, we maintain a direct sales presence that is organized geographically around the following markets: (i) U.S. and Canada; (ii) Caribbean and Latin America; (iii) Europe, Middle East and Africa; and (iv) Asia-Pacific. These regions include sales personnel that focus on one or more of the following customer segments: communications service providers including wireless providers, cable and multiservice operators, enterprise customers and government, research and education. Within each geographic area, we maintain regional, country and/or customer-specific teams, including sales management, account salespersons, and systems engineers, as well as strategic marketing, services and commercial management personnel, who ensure we operate closely with and provide a high level of support to our customers. We also maintain global sales teams that focus on submarine network opportunities and emerging customer segments including Internet content and cloud infrastructure providers.

We also maintain a global channel program that works with resellers, systems integrators, service providers, and other third party distributors who market and sell our products and services. Our third party channel sales and other distribution arrangements enable us to reach additional geographic regions and customer segments. We intend to pursue and foster a small number of strategic channel relationships in an effort to enable us to sell our products as a complement to the broader offering of these vendors or integrators, including, in particular, in support of enterprise-oriented applications and cloud-based services. We also see opportunities to leverage these strategic channel relationships to address additional customer segments, emerging applications for our solutions and growth geographies. Our use of channel partners has been a key component in our sales to government, research and education and enterprise customers. We believe this strategy and our use of third party channels affords us expanded market opportunities and reduces the financial and operational risk of entering these additional markets.

To support our sales efforts, we engage in marketing activities intended to position and promote both our brand and our product, software and service offerings. Our marketing team supports sales efforts through direct customer interaction, industry events, public relations, industry analysts, social media, tradeshows, our website and other marketing channels for our customers and channel partners.

Operations and Supply Chain Management

Operations personnel within our global products group manage our relationships with our third party manufacturers and manage our supply chain. In addition, this team also addresses component procurement and sourcing, product testing and quality, fulfillment and logistics relating to our sales, support and professional services, and distribution efforts.

We utilize a global sourcing strategy that emphasizes procurement of materials and product manufacturing in lower cost regions. Activities performed by our third party supply partners can include design and prototype development, component sourcing, full production, final assembly, testing and customer order fulfillment. We rely upon third party contract manufacturers, with facilities in Canada, China, Mexico, Thailand and the United States, to perform nearly all of the manufacturing of our products. As a result, we are exposed to risks associated with the business continuity of these third parties and other events or conditions affecting the locations where their manufacturing occurs. We are also exposed to risks associated with their business practices and practices in the markets in which they operate including the level of corruption or protection of intellectual property. To address customer concerns and to mitigate the related risks to our business, operations and intellectual property, we have been reducing our reliance upon contract manufacturers and component suppliers in China and are currently transitioning, or expect to transition in the near-term, the procurement of certain components and the manufacture and assembly of our product platforms to alternate locations.

We are currently utilizing a direct order fulfillment model for the sale of certain products, and are engaged in initiatives to expand this model to a broader set of products. This model allows us to rely on our third party manufacturers to perform final system integration and testing prior to shipment of products from their facilities directly to our customers. For certain products, we continue to perform a portion of the system assembly, software application, final system integration and testing internally. We believe that our sourcing and manufacturing strategy allows us to conserve capital, lower costs of product sales, adjust quickly to changes in market demand, and operate without dedicating significant resources to manufacturing-related plant and equipment. As part of our effort to optimize our operations, we continue to focus on driving cost reductions through sourcing and engineering efforts, rationalizing our supply chain and consolidating third party contract manufacturers, distribution sites and service logistics partners.

Our manufacturers procure components necessary for assembly and manufacture of our products based on our specifications, approved vendor lists, bill of materials and testing and quality standards. Our manufacturers' activity is based on rolling forecasts that we provide to them to estimate demand for our products. This build-to-forecast purchase model exposes us to the risk that our customers will not order those products for which we have forecast sales, or will purchase less than we have forecast. As a result, we incur carrying charges or obsolete material charges for components purchased by our manufacturers. We work closely with our manufacturers to manage material, quality, cost and delivery times, and we continually evaluate their services to ensure performance on a reliable and cost-effective basis.

Our products include some components that are proprietary in nature, only available from one or a small number of suppliers, or manufactured by sole or limited sources responsible for production. If component supplies become limited, production at a manufacturer is disrupted, or if we experience difficulty in our relationship with a key supplier or manufacturer, we may encounter manufacturing delays that could adversely affect our business.

Backlog

Generally, we make sales pursuant to purchase orders issued under framework agreements that govern the general commercial terms and conditions of the sale of our products and services. These agreements do not obligate customers to purchase any minimum or guaranteed order quantities. Our backlog includes orders for products that have not been shipped and for services that have not yet been performed. In addition, backlog also includes orders relating to products that have been delivered and services that have been performed, but are awaiting customer acceptance under the applicable purchase terms. Generally, our customers may cancel or change their orders with limited advance notice, or they may decide not to accept these products and services, although both cancellation and non-acceptance are infrequent. Orders in backlog may be fulfilled several quarters following receipt or may relate to multi-year support service obligations. As a result, backlog should not be viewed as an accurate indicator of future revenue in any particular period.

Our backlog increased from $714.1 million as of October 31, 2011 to $902.0 million as of October 31, 2012. Backlog includes product and service orders from commercial and government customers combined. Backlog at October 31, 2012 includes approximately $140.5 million, primarily related to orders for maintenance and support services that we do not reasonably expect to be filled within the next fiscal year. Backlog at October 31, 2011 included approximately $84.1 million that was not expected to be filled within fiscal 2012. Our presentation of backlog may not be comparable with figures presented by other companies in our industry.

Seasonality

Like other companies in our industry, we have experienced quarterly fluctuations in customer activity due to seasonal considerations. We typically experience reductions in order volume toward the end of the calendar year, as the procurement cycles of some of our customers slow and network deployment activity at service providers is curtailed. This seasonality in our order flows can result in somewhat weaker revenue results in the first quarter of our fiscal year. These seasonal effects do not apply consistently and do not always correlate to our financial results. Accordingly, they should not be considered a reliable indicator of our future revenue or results of operations.

Competition

Competition among communications network solution vendors remains intense. The markets in which we compete are characterized by rapidly advancing and converging technologies, introduction of new network solutions and selling efforts to displace incumbent vendors and secure market share. Successfully competing in these markets is based on any one or a combination of the following factors:

- product functionality, speed, capacity, scalability and performance;
- price and total cost of ownership;
- incumbency and existing business relationships;
- ability to offer comprehensive networking solutions, consisting of equipment, software and network consulting services;
- product development plans and the ability to drive convergence of network features, functions and layers and meet customers' immediate and future network requirements;
- flexibility, including ease of integration, product interoperability and integrated management;
- manufacturing and lead-time capability; and
- services and support capabilities.

In this competitive environment, securing new opportunities, particularly in international markets, often requires that we agree to less favorable commercial terms or pricing, financial commitments requiring collateralized performance bonds or similar instruments that place cash resources at risk, and other onerous contractual commitments that place a disproportionate allocation of risk upon the vendor. These terms can adversely affect our result of operations.

Competition for sales of communications networking solutions is dominated by a small number of very large, multi-national companies. Our competitors have included Alcatel-Lucent, Cisco, Ericsson, Fujitsu, Huawei, Juniper Networks, Nokia Siemens Networks, and ZTE. Many of these competitors have substantially greater financial, operational and marketing resources than Ciena, significantly broader product offerings or more extensive customer bases. In recent years, mergers among some of our larger competitors have intensified these advantages. We expect the level of competition, particularly in North America, to continue and potentially increase, as Chinese equipment vendors seek to gain entry into the U.S. market, and other multinational competitors seek to retain incumbent positions and market share with large customers in the region.

We expect our competitive landscape to be dynamic as network technologies and features converge, and vendors compete to have their network architectural approaches adopted. As this convergence occurs, and networks become more cloud-based, virtualized and software-defined, we expect that we may compete with additional information technology and software vendors, as well as suppliers of networking technology traditionally geared toward different network layers or functions. We also continue to compete with several smaller, but established, companies that offer one or more products that compete directly or indirectly with our offerings or whose products address specific niches within the markets and customer segments we address. These competitors include ADVA, BTI, Infinera, Tellabs and Transmode. In addition, there are a variety of earlier-stage companies with products targeted at specific segments of the communications networking market. These competitors often employ aggressive competitive and business tactics as they seek to gain entry to certain customers or markets. Due to these practices and the narrower focus of their development efforts, these competitors may be able to develop and introduce products more quickly, or offer commercial terms that are more attractive to customers.

Patents, Trademarks and Other Intellectual Property Rights

The success of our business and technology leadership is significantly dependent upon our proprietary and internally developed technology. We rely upon patents, copyrights, trademarks, and trade secret laws to establish and maintain proprietary rights in our technology. We maintain a patent incentive program that seeks to reward innovation. We regularly file applications for patents and have a significant number of patents in the United States and other countries where we do business. As of December 1, 2012, we had 1,357 U.S. patents and 233 pending U.S. applications. We also have over 415 non-U.S. patents.

We also rely on non-disclosure agreements and other contracts and policies regarding confidentiality with employees, contractors and customers, to establish proprietary rights and protect trade secrets and confidential information. Our practice is to require employees and relevant consultants to execute non-disclosure and proprietary rights agreements upon commencement of employment or consulting arrangements with us. These agreements acknowledge our ownership of intellectual property developed by the individual during the course of his or her work with us. The agreements also require that these persons maintain the confidentiality of all proprietary information disclosed to them.

Enforcing proprietary rights, especially patents, can be costly and uncertain. Moreover, monitoring unauthorized use of our technology is difficult, and we cannot be certain that the steps that we are taking will detect or prevent unauthorized use. In recent years, we have filed suit to enforce our intellectual property rights. We have also been subject to several claims related to patent infringement, including by competitors and non-practicing entities or "patent trolls," and have been requested to indemnify customers pursuant to contractual indemnity obligations relating to infringement claims made by third parties. Intellectual property infringement assertions could cause us to incur substantial costs, including legal fees in the defense of these actions. If we are not successful in defending these claims, our business would be adversely affected. For example, we may be required to enter into a license agreement requiring ongoing royalty payments, required to redesign our products, or prohibited from selling any infringing technology.

Our operating system, element and network management software and other products incorporate software and components under licenses from third parties. We may be required to license additional technology from third parties in order to develop new products or product enhancements. Failure to obtain or maintain such licenses or other rights could affect our development efforts, require us to re-engineer our products or obtain alternate technologies.

In connection with our acquisition of substantially all of the optical networking and Carrier Ethernet assets of Nortel's Metro Ethernet Networks business (the "MEN Acquisition"), we obtained a non-exclusive license to use patents and other intellectual property controlled or exclusively owned by Nortel in connection with our manufacture, sale and support of a broad range of optical networking and Carrier Ethernet products and services and natural evolutions of such products and services.

This license also provides us with an exclusive license to use a narrower set of patents and other intellectual property owned by Nortel in connection with Ciena's manufacture, sale and support of optical networking and Carrier Ethernet products and services within a narrower field of use and subject to certain limitations. As part of this license, we granted Nortel a non-exclusive license to use the patents and other intellectual property (except trademarks) that we acquired as part of the MEN Business in connection with the manufacture and sale of products and services in the fields of Nortel's other businesses (including those businesses sold and to be sold to other parties) and natural evolutions of such fields.

Environmental Matters

Our business and operations are subject to environmental laws in various jurisdictions around the world, including the Waste Electrical and Electronic Equipment (WEEE) and Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) regulations adopted by the European Union. We seek to operate our business in compliance with such laws relating to the materials and content of our products and product takeback and recycling. Environmental regulation is increasing, particularly outside of the United States, and we expect that our domestic and international operations may be subject to additional environmental compliance requirements, which could expose us to additional costs. To date, our compliance costs relating to environmental regulations have not resulted in a material cost or effect on our business, results of operations or financial condition.

Employees

As of October 31, 2012, we had 4,481 employees. We have not experienced any work stoppages, and we consider the relationships with our employees to be good. Competition to attract and retain highly skilled technical, engineering and other personnel with experience in our industry is intense. We believe that our future success depends in critical part on our continued ability to recruit, motivate and retain such qualified personnel.

Directors and Executive Officers

The table below sets forth certain information concerning our directors and executive officers:

Name	Age	Position
Patrick H. Nettles, Ph.D.	69	Executive Chairman of the Board of Directors
Gary B. Smith	52	President, Chief Executive Officer and Director
Stephen B. Alexander	53	Senior Vice President, Chief Technology Officer
Rick Dodd	43	Senior Vice President, Global Marketing
James A. Frodsham	46	Senior Vice President, Chief Strategy Officer
François Locoh-Donou	41	Senior Vice President, Global Products Group
Philippe Morin	47	Senior Vice President, Global Field Organization
James E. Moylan, Jr.	61	Senior Vice President, Finance and Chief Financial Officer
Andrew C. Petrik	49	Vice President and Controller
David M. Rothenstein	44	Senior Vice President, General Counsel and Secretary
Harvey B. Cash (1)(3)	74	Director
Bruce L. Claflin (1)(2)	61	Director
Lawton W. Fitt (2)	59	Director
Judith M. O'Brien (1)(3)	62	Director
Michael J. Rowny (2)	62	Director
Patrick T. Gallagher (2)	57	Director

(1) Member of the Compensation Committee

(2) Member of the Audit Committee

(3) Member of the Governance and Nominations Committee

Our Directors hold staggered terms of office, expiring as follows: Ms. Fitt, Dr. Nettles and Mr. Rowny in 2013; Ms. O'Brien and Messrs. Cash and Smith in 2014; and Messrs. Claflin and Gallagher in 2015.

Patrick H. Nettles, Ph.D. has served as a Director of Ciena since April 1994 and as Executive Chairman of the Board of Directors since May 2001. From October 2000 to May 2001, Dr. Nettles was Chairman of the Board and Chief Executive Officer of Ciena, and he was President and Chief Executive Officer from April 1994 to October 2000. Dr. Nettles serves as a Trustee for the California Institute of Technology and serves on the board of directors of Axcelis Technologies, Inc. and The Progressive Corporation. Dr. Nettles also serves on the board of directors of Optiwind Corp, a privately held company, and has previously served on the board of directors of Apptrigger, Inc., formerly known as Carrius Technologies, Inc.

Gary B. Smith joined Ciena in 1997 and has served as President and Chief Executive Officer since May 2001. Mr. Smith has served on Ciena's Board of Directors since October 2000. Prior to his current role, his positions with Ciena included Chief Operating Officer, and Senior Vice President, Worldwide Sales. Mr. Smith previously served as Vice President of Sales and Marketing for INTELSAT and Cray Communications, Inc. Mr. Smith also serves on the board of directors for Avaya Inc. and CommVault Systems, Inc. Mr. Smith is a member of the President's National Security Telecommunications Advisory Committee, the Global Information Infrastructure Commission and the Center for Corporate Innovation (CCI).

Stephen B. Alexander joined Ciena in 1994 and has served as Chief Technology Officer since September 1998 and as a Senior Vice President since January 2000. Mr. Alexander has previously served as General Manager of Products & Technology and General Manager of Transport and Switching and Data Networking.

Rick Dodd has served as Ciena's Senior Vice President, Global Marketing since December 2010 and is responsible for Ciena's product, solutions and corporate marketing organizations. In this role, he provides strategic support to Ciena's global field organization and global products groups. Mr. Dodd previously worked at Infinera Corporation from September 2003 to December 2010 and served in roles including Vice President of Product Marketing and Vice President of Corporate Marketing. Mr. Dodd previously served as Associate Partner at venture capital firm Kleiner, Perkins, Caufield and Byers and as Ciena's Director, Strategic Marketing.

James A. Frodsham joined Ciena in May 2004 and has served as Senior Vice President and Chief Strategy Officer since March 2010 with responsibility for our strategic planning and corporate development activities. In August 2010, Mr. Frodsham also assumed responsibility for the integration of the MEN Business, which was substantially completed in fiscal 2011. Mr. Frodsham previously served as Senior Vice President, General Manager of Ciena's former Broadband Access Group from October 2004 to October 2005 and Metro and Enterprise Solutions Group from May 2004 to October 2004. From August 2000 to January 2003, Mr. Frodsham served as chief operating officer of Innovance Networks, an optical networking company. On December 23, 2003, Innovance filed a Notice of Intent to make a proposal pursuant to Part III of the Bankruptcy and Insolvency Act (Canada). Prior to that, Mr. Frodsham was employed for more than ten years in senior level positions with Nortel Networks in product development and marketing strategy, lastly as Vice President, Product Line Marketing, Optical Networking Group, from December 1998 to June 2000. Mr. Frodsham serves on the board of directors of Innovance Networks.

François Locoh-Donou has served as Ciena's Senior Vice President, Global Products Group since August 2011. In this capacity, Mr. Locoh-Donou leads Ciena's engineering, supply chain, product line management, quality/customer advocacy and solutions interpretation organizations on a global basis. Mr. Locoh-Donou joined Ciena in August 2002 and served as Ciena's Vice President and General Manager, EMEA from June 2005 to August 2011.

Philippe Morin joined Ciena in March 2010 in connection with Ciena's acquisition of Nortel's MEN Business and has served as Senior Vice President, Global Field Organization since August 2011, where he is responsible for leading Ciena's global sales and services organizations. From March 2010 to August 2011, Mr. Morin served as Ciena's Senior Vice President, Global Products Group. Mr. Morin previously served as President of Nortel's MEN Business from May 2006 until Ciena's completion of the MEN Acquisition in March 2010. In January 2009, Nortel Networks Corporation and certain of its subsidiaries filed voluntary petitions in the United States under Chapter 11 of the U.S. Bankruptcy Code. From January 2003 to May 2006, Mr. Morin held the position of Nortel's General Manager of Optical Networks. Mr. Morin previously held other positions at Nortel in manufacturing, marketing, sales and product management both in North America and Europe.

James E. Moylan, Jr. has served as Senior Vice President, Finance and Chief Financial Officer since December 2007. From June 2006 to December 2007, Mr. Moylan served as Executive Vice President and Chief Financial Officer of Swett & Crawford, a wholesale insurance broker.

Andrew C. Petrik joined Ciena in 1996 and has served as Vice President, Controller since August 1997 and served as Treasurer from August 1997 to October 2008.

David M. Rothenstein joined Ciena in January 2001 and has served as Senior Vice President, General Counsel and Secretary since November 2008. Mr. Rothenstein served as Vice President and Associate General Counsel from July 2004 to October 2008 and previously as Assistant General Counsel.

Harvey B. Cash has served as a Director of Ciena since April 1994. Mr. Cash is a general partner of InterWest Partners, a venture capital firm in Menlo Park, California, which he joined in 1985. Mr. Cash serves on the board of directors of First Acceptance Corp., Silicon Laboratories, Inc. and Argonaut Group, Inc. and has previously served on the boards of directors of i2 Technologies, Inc., Voyence, Inc. and Staktek Holdings, Inc.

Bruce L. Claflin has served as a Director of Ciena since August 2006. Mr. Claflin served as President and Chief Executive Officer of 3Com Corporation from January 2001 until his retirement in February 2006. Mr. Claflin joined 3Com as President and Chief Operating Officer in August 1998. Prior to 3Com, Mr. Claflin served as Senior Vice President and General Manager, Sales and Marketing, for Digital Equipment Corporation. Mr. Claflin also worked for 22 years at IBM, where he held various sales, marketing and management positions, including general manager of IBM PC Company's worldwide research and development, product and brand management, as well as president of IBM PC Company Americas. Mr. Claflin also serves on the board of directors of Advanced Micro Devices (AMD) where he is currently Chairman of the Board.

Lawton W. Fitt has served as a Director of Ciena since November 2000. From October 2002 to March 2005, Ms. Fitt served as Director of the Royal Academy of Arts in London. From 1979 to October 2002, Ms. Fitt was an investment banker with Goldman Sachs & Co., where she was a partner from 1994 to October 2002, and a managing director from 1996 to October 2002. In addition to her service as a director of non-profit organizations, Ms. Fitt currently serves on the board of directors of Thomson Reuters, The Carlyle Group L.P., and The Progressive Corporation, and has previously served on the board of directors of Overture Acquisition Corporation and Frontier Communications Company.

Judith M. O'Brien has served as a Director of Ciena since July 2000. Since November 2012, Ms. O'Brien has served as a partner and head of the Emerging Company Practice Group at the law firm of King & Spalding. From November 2006 through December 2010, Ms. O'Brien served as Executive Vice President and General Counsel of Obopay, Inc., a provider of mobile payment services. From February 2001 until October 2006, Ms. O'Brien served as a Managing Director at Incubic Venture Fund, a venture capital firm. Ms. O'Brien was a lawyer with Wilson Sonsini Goodrich & Rosati, where, from February 1984 to February 2001, she was a partner specializing in corporate finance, mergers and acquisitions and general corporate matters. Ms. O'Brien has previously served on the board of directors of Adaptec, Inc.

Michael J. Rowny has served as a Director of Ciena since August 2004. Mr. Rowny has been Chairman of Rowny Capital, a private equity firm, since 1999. From 1994 to 1999, and previously from 1983 to 1986, Mr. Rowny was with MCI Communications in positions including President and Chief Executive Officer of MCI's International Ventures, Alliances and Correspondent group, acting Chief Financial Officer, Senior Vice President of Finance, and Treasurer. Mr. Rowny's career in business and government has also included positions as Chairman and Chief Executive Officer of the Ransohoff Company, Chief Executive Officer of Hermitage Holding Company, Executive Vice President and Chief Financial Officer of ICF Kaiser International, Inc., Vice President of the Bendix Corporation, and Deputy Staff Director of the White House. Mr. Rowny also serves on the board of directors of Neustar, Inc. and Pixspan, Inc. and has previously served on the boards of directors of Llamagraphics, Inc. and Step 9 Software Corporation.

Patrick T. Gallagher has served as a Director of Ciena since May 2009. From March 2008 until March 2012, Mr. Gallagher was Chairman of Ubiquisys Ltd., a leading developer and supplier of femtocells for the global 3G mobile wireless market. From January 2008 until February 2009, Mr. Gallagher was Chairman of Macro 4 plc, a global software solutions company, and from May 2006 until March 2008, served as Vice Chairman of Golden Telecom Inc., a leading facilities-based provider of integrated communications in Russia and the CIS. From 2003 until 2006, Mr. Gallagher was Executive Vice Chairman and served as Chief Executive Officer of FLAG Telecom Group and, prior to that role, held various senior management positions at British Telecom. Mr. Gallagher also serves on the boards of directors of Harmonic Inc. and Sollers JSC.

Item 1A. Risk Factors

Investing in our securities involves a high degree of risk. In addition to the other information contained in this report, you should consider the following risk factors before investing in our securities.

Our revenue and operating results can fluctuate significantly and unpredictably from quarter to quarter.

Our revenue and results of operations can fluctuate significantly and unpredictably from quarter to quarter. Our budgeted expense levels depend in part on our expectations of long-term, future revenue and gross margin, and substantial reductions in expense are difficult and can take time to implement. Uncertainty or lack of visibility into customer spending, and changes in economic or market conditions that affect customer spending can make it difficult to forecast future revenue and margins. In addition, increases in the percentage of a given quarter's revenue relating to orders placed during that quarter, along with significant order volume late that quarter, could further result in variability and less predictability in our quarterly revenue. Consequently, our level of operating expense or inventory may be high relative to revenue, which could harm our profitability and cash flow. Additional factors that contribute to fluctuations in our revenue and operating results include:

- broader macroeconomic conditions, including weakness and volatility in global markets, affecting our customers;
- changes in capital spending by large communications service providers;
- order flow and backlog levels;
- the timing of our ability to recognize revenue on sales;
- the mix of revenue by product segment, geography and customer in any particular quarter;
- the level of competition and pricing pressure we encounter;
- seasonal effects in our business;
- the level of start-up costs we incur to support initial deployments, gain new customers or enter new markets; and
- our level of success in improving manufacturing efficiencies and achieving cost reductions in our supply chain.

Quarterly fluctuations from these and other factors may cause our results of operations to fall short of or significantly exceed the expectations of securities analysts or investors, which may cause volatility in our stock price.

We face intense competition that could hurt our sales and results of operations.

We face a competitive market for sales of communications networking equipment, software and services and increased competition could result in pricing pressure, reduced demand, lower gross margins and the loss of market share that could harm our business and results of operations. Competition is particularly intense as we and our competitors aggressively seek to displace incumbent equipment vendors at large service providers and secure new customers. In an effort to secure customer opportunities and capture market share, we have in the past, and may in the future, agree to onerous commercial terms or pricing that result in low or negative gross margins on a particular order or group of orders. We expect the level of competition we face to continue and potentially increase, particularly in the U.S., as larger Chinese equipment vendors such as Huawei seek to gain market entry and other global competitors seek to retain incumbent positions with customers in the region.

Competition in our markets, generally, is based on any one or a combination of the following factors: price; product features; functionality and performance; service offering; manufacturing capability and lead-times; incumbency and existing business relationships; scalability; and the flexibility of products to meet the immediate and future network and service requirements of customers. A small number of very large companies have dominated our industry, many of which have substantially greater financial and marketing resources, broader product offerings and more established relationships with service providers and other customer segments than we do. In addition, a number of these vendors are putting forth competing visions for how next-generation network architectures should be designed. Because of their scale and resources, they may be perceived to be a better fit for the procurement, or network operating and management, strategies of large service providers. We also compete with a number of smaller companies that provide significant competition for a specific product, application, customer segment or geographic market. Due to the narrower focus of their efforts, these competitors may achieve commercial availability of their products more quickly or may be more attractive to customers. If competitive pressures increase or we fail to compete successfully in our markets, our business and results of operations would suffer.

Our business and operating results could be adversely affected by unfavorable changes in macroeconomic and market conditions and reductions in the level of capital expenditure by customers in response to these conditions.

Global markets have experienced a period of significant volatility that has resulted in a high degree of uncertainty and cautious customer behavior. Broad macroeconomic weakness and market volatility have previously resulted in sustained periods

of decreased demand for our products and services that have adversely affected our operating results. Continuation of or an increase in macroeconomic weakness could result in:

- reductions in customer spending and delay, deferral or cancellation of network infrastructure initiatives;
- difficulty forecasting, budgeting and planning;
- increased competition for fewer network projects and sales opportunities;
- increased pricing pressure that may adversely affect revenue, gross margin and profitability;
- higher overhead costs as a percentage of revenue;
- tightening of credit markets to fund capital expenditures by our customers and us;
- customer financial difficulty, including longer collection cycles and difficulties collecting accounts receivable or write-offs of receivables; and
- increased risk of charges relating to excess and obsolete inventories and the write-off of other intangible assets.

Our business and operating results could be materially adversely affected by reduced customer spending in response to unfavorable or uncertain macroeconomic and market conditions, globally or specific to a particular region where we operate.

A small number of large communications service providers account for a significant portion of our revenue and the loss of any of these customers, or a significant reduction in their spending, would have a material adverse effect on our business and results of operations.

A significant portion of our revenue is concentrated among a few, large global communications service providers. By way of example, AT&T accounted for approximately 13.5% of fiscal 2012 revenue and our largest ten customers contributed 54.2% of fiscal 2012 revenue. Consequently, our financial results are closely correlated with the spending of a relatively small number of service provider customers and can be significantly affected by market or industry changes that affect their businesses. These factors can include consumer and enterprise spending on communication services, macroeconomic volatility, the adoption of new communications products and services, the emergence of competing network operators and changing demands of end user customers. Because the terms of our frame contracts generally do not include any minimum purchase commitment and spending by these service providers can be unpredictable and sporadic, our revenue and operating results can fluctuate on a quarterly basis. Reliance upon a relatively small number of service providers increases our exposure to changes in the network and purchasing strategies. Some of our customers are pursuing efforts to outsource the management and operation of their networks, or have indicated a procurement strategy to reduce the number of vendors from which they purchase equipment, which may benefit our larger competitors. Our concentration in revenue has increased in the past as a result of consolidation among a number of our largest customers. Consolidation may increase the likelihood of temporary or indefinite reductions in customer spending or changes in network strategy that could harm our business and operating results. The loss of one or more of our large service provider customers, a significant reduction in their spending, or market or industry factors adversely affecting service providers generally, would have a material adverse effect on our business, financial condition and results of operations.

Our reliance upon third party contract manufacturers exposes us to risks that could negatively affect our business and operations.

We rely upon third party contract manufacturers to perform substantially all of the manufacturing of our products and a significant portion of our component sourcing. We do not have guaranteed supply of components or access to manufacturing capacity, and in some cases are utilizing temporary or transitional commercial arrangements. Our reliance upon third party manufacturers could expose us to increased risks related to lead times, continuity of supply, on-time delivery, quality assurance, and compliance with environmental standards and other regulations. Reliance upon third party manufacturers exposes us to significant risks related to their operations, financial position, business continuity, sourcing relationships and labor relationships, that may affect their servicing of Ciena including their continued viability. Our product manufacturing principally takes place in Mexico, Canada, China and Thailand. Significant disruptions in these and other countries where our products or key components are manufactured, including natural disasters, epidemics, acts of war or terrorism, social or political unrest or work stoppages, could affect the cost, availability or allocation of supply and manufacturing capacity and negatively affect our business and results of operations.

In an effort to drive cost reductions and further optimize Ciena's operations, we are working to rationalize our supply chain, consolidate third party contract manufacturers and distribution facilities and transition to alternative manufacturing locations. We are also actively pursuing additional opportunities for direct fulfillment of products from our manufacturers to our customers. These transitions are complex and there can be no assurance that these efforts, including any reallocation of third party manufacturing and sourcing, or our changes in fulfillment, will not ultimately result in additional costs or disruptions in our operations and business that affect our results of operations.

Our reliance upon third party component suppliers, including sole and limited source suppliers, exposes our business to additional risk and could limit our sales, increase our costs and harm our customer relationships.

We maintain a global sourcing strategy and depend on third party suppliers for our product components and subsystems. Our products include key optical and electronic components for which reliable, high-volume supply is often available only from sole or limited sources. Increases in market demand or scarcity of resources or manufacturing capability have previously resulted in shortages in availability of important components for our solutions, allocation challenges and increased lead times. We are exposed to risks relating to unfavorable economic conditions or other similar challenges affecting the businesses of our component providers that can affect their liquidity levels, ability to continue to invest in their business, and manufacturing capability. This could expose our business to increased costs, lack of supply or discontinuation of components that can result in lost revenue, additional product costs, increased lead times and deployment delays that could harm our business and customer relationships. We do not have any guarantee of supply from these third parties, and in certain cases are relying upon temporary or transitional commercial arrangements. As a result, there is no assurance that we will be able to secure the components or subsystems that we require in sufficient quantity and quality on reasonable terms. The loss of a source of supply, or lack of sufficient availability of key components, could require that we locate an alternate source or redesign our products, each of which could increase our costs and negatively affect our product gross margin and results of operations. Our business and results of operations would be negatively affected if we were to experience any significant disruption or difficulties with key suppliers affecting the price, quality, availability or timely delivery of required components.

Investment of research and development resources in communications networking technologies for which there is not a matching market opportunity, or failure to sufficiently or timely invest in technologies for which there is market demand, would adversely affect our revenue and profitability.

The market for communications networking equipment is characterized by rapidly evolving technologies and changes in market demand. We continually invest in research and development to sustain or enhance our existing products and develop or acquire new product technologies. Our current development efforts are focused upon enhancing our software applications, extending our OneConnect control plane across the 5400 and 6500 platform families, expanding packet applications on service delivery switches, aggregation switches, and packet-optical transport platforms, extending our WaveLogic chipset, enabling 40G and 100G coherent optical transport across our portfolio, and introducing 400G transmission products. There is often a lengthy period between commencing these development initiatives and bringing a new or improved products to market. During this time, technology preferences, customer demand and the market for our products, or those introduced by our competitors, may move in directions we had not anticipated. There is no guarantee that our new products or enhancements will achieve market acceptance or that the timing of market adoption will be as predicted. There is a significant possibility, therefore, that some of our development decisions, including significant expenditures on acquisitions, research and development costs, or investments in technologies, will not turn out as anticipated, and that our investment in some projects will be unprofitable. There is also a possibility that we may miss a market opportunity because we failed to invest, or invested too late, in a technology, product or enhancement sought by our customers, or addressing growth markets or emerging customer segments or applications beyond our traditional customer base. Changes in market demand or investment priorities may also cause us to discontinue existing or planned development for new products or features, which can have a disruptive effect on our relationships with customers. If we fail to make the right investments or fail to make them at the right time, our competitive position may suffer and our revenue and profitability could be harmed.

We may experience delays in the development of our products that may negatively affect our competitive position and business.

Our products are based on complex technology, and we can experience unanticipated delays in developing and manufacturing these solutions. Our current development efforts are focused upon enhancing our software applications, extending our OneConnect control plane across the 5400 and 6500 platform families, expanding packet applications on service delivery switches, aggregation switches, and packet-optical transport platforms, extending our WaveLogic 3 chipset for 40G and 100G coherent optical transport across our portfolio, and introducing 400G transmission products. Delays in these and other product development may affect our reputation with customers, affect our ability to seize market opportunities and impact the timing and level of demand for our products. Each step in the development life cycle of our products presents serious risks of failure, rework or delay, any one of which could adversely affect the cost-effective and timely development of our products. We may encounter delays relating to engineering development activities and software, design, sourcing and manufacture of critical components, and the development of prototypes. In addition, intellectual property disputes, failure of critical design elements, and other execution risks may delay or even prevent the release of these products. If we do not successfully develop products in a timely manner, our competitive position may suffer and our business, financial condition and results of operations would be harmed.

Product performance problems and undetected errors affecting the performance, reliability or security of our products could damage our business reputation and negatively affect our results of operations.

The development and production of sophisticated hardware and software for communications network equipment is complicated. Some of our products can be fully tested only when deployed in communications networks or when carrying traffic with other equipment. As a result, undetected defects or errors, and product quality, interoperability, reliability and performance problems are often more acute for initial deployments of new products and product enhancements. We are in the process of launching a number of new platforms across our product segments. Unanticipated product performance problems can relate to the design, manufacturing and installation of our products. Undetected errors can also arise as a result of defects in components, software or manufacturing, installation or maintenance services supplied by third parties, and technology acquired from or licensed by third parties. Unanticipated security vulnerabilities relating to our products or the activities of our supply chain, including any actual or perceived exposure of our solutions to malicious software or cyber-attacks, would adversely affect our business and reputation. Product performance, reliability, security and quality problems can negatively affect our business, including:

- damage to our reputation, declining sales and order cancellations.
- increased costs to remediate defects or replace products;
- payment of liquidated damages, contractual or similar penalties, or other claims for performance failures or delays;
- increased warranty expense or estimates resulting from higher failure rates, additional field service obligations or other rework costs related to defects;
- increased inventory obsolescence;
- costs and claims that may not be covered by liability insurance coverage or recoverable from third parties; and
- delays in recognizing revenue or collecting accounts receivable.

These and other consequences relating to undetected errors affecting the quality, reliability and security of our products could negatively affect our business and results of operations.

Network equipment sales to large communications service providers often involve lengthy sales cycles and protracted contract negotiations and may require us to assume commercial terms or conditions that negatively affect pricing, risk allocation, payment and the timing of revenue recognition.

A significant portion of our revenue comes from sales to large communications service providers. These sales typically involve lengthy sales cycles, extensive product testing, and demonstration laboratory or network certification, including network-specific or region-specific product certification or homologation processes. These sales also often involve protracted and sometimes difficult contract negotiations in which we may deem it necessary to agree to unfavorable contractual or commercial terms that adversely affect pricing, expose us to penalties for delays or non-performance, and require us to assume a disproportionate amount of risk. We may also be requested to provide deferred payment terms, vendor or third-party financing, or offer other alternative purchase structures that extend the timing of payment and revenue recognition. These terms may negatively affect our revenue and results of operations and increase our susceptibility to quarterly fluctuations in our results. Service providers may ultimately insist upon terms and conditions that we deem too onerous or not in our best interest. Moreover, our purchase agreements generally do not include minimum purchase commitments and customers often have the right to modify, delay, reduce or cancel previous orders. As a result, we may incur substantial expense and devote time and resources to potential sales opportunities that never materialize or result in lower than anticipated sales.

Efforts by us or our strategic third party channel partners to sell our solutions into targeted geographic markets and customer segments may be unsuccessful.

We continue to take steps, including sales initiatives and strategic channel relationships, to sell our products into new markets, growth geographies and diverse customer segments beyond our traditional service provider customer base. Specifically, we are targeting opportunities in Brazil, the Middle East, Russia, Japan and India. We are also targeting sales opportunities with enterprises, wireless operators, cable operators, submarine network operators, Internet content providers, cloud infrastructure providers, research and education institutions, and federal, state and local governments. We believe sales to these customer segments, as well as emerging network operators supporting new communications services and applications, will be an important component of our growth strategy. In many cases, we have less experience in these markets and customer segments and they may have less familiarity with our company. To succeed in some of these geographic markets and customer segments we intend to leverage strategic sales channels and distribution arrangements and expect these relationships to be an important part of our business. Our efforts may be unsuccessful, and difficulties selling into these target markets, including through third party channels, could limit our growth and harm our results of operations.

The international scale of our operations exposes us to additional risk and expense that could adversely affect our results of operations.

We market, sell and service our products globally and rely upon a global supply chain for sourcing important components and manufacturing of our products. Our international operations are subject to inherent risks, including:

- the impact of economic conditions in countries outside the United States;
- effects of changes in currency exchange rates;
- greater difficulty in collecting accounts receivable and longer collection periods;
- difficulty and cost of staffing and managing foreign operations;
- less protection for intellectual property rights in some countries;
- adverse tax and customs consequences, particularly as related to transfer-pricing issues;
- social, political and economic instability;
- higher incidence of corruption or unethical business practices that could expose us to liability or damage our reputation;
- trade protection measures, export compliance, domestic preference procurement requirements, qualification to transact business and additional regulatory requirements; and
- natural disasters, epidemics and acts of war or terrorism.

We expect that we may enter new markets and withdraw from or reduce operations in others. Our global operations expose us to additional risk and expense that could give rise to unanticipated liabilities, costs or other difficulties that could adversely affect our operations and financial results.

We may be required to write off significant amounts of inventory as a result of our inventory purchase practices, the obsolescence of product lines or unfavorable market conditions.

To avoid delays and meet customer demand for shorter delivery terms, we place orders with our contract manufacturers and component suppliers based in part on forecasts of customer demand. As a result, our business is exposed to the risk that our customers ultimately may not order the products we have forecast, or will purchase fewer products than forecast. As features and functionalities converge across our product lines, and we introduce new products with overlapping feature sets, it is increasingly possible that customers may forgo purchases of one product we have inventoried in favor of another product with similar functionality. Market uncertainty can also limit our visibility into customer spending plans and compound the difficulty of forecasting inventory at appropriate levels. Moreover, our customer purchase agreements generally do not include any minimum purchase commitment, and customers often have the right to modify, reduce or cancel purchase quantities. We may also be exposed to the risk of inventory write offs as a result of certain supply chain initiatives, including consolidation and transfer of key manufacturing activities As a result, we may purchase inventory in anticipation of sales that ultimately do not occur. If we are required to write off or write down a significant amount of inventory, our results of operations for the period would be materially adversely affected.

Our intellectual property rights may be difficult and costly to enforce.

We generally rely on a combination of patents, copyrights, trademarks and trade secret laws to establish and maintain proprietary rights in our products and technology. Although we have been issued numerous patents and other patent applications are currently pending, there can be no assurance that any of these patents or other proprietary rights will not be challenged, invalidated or circumvented or that our rights will provide us with any competitive advantage. In addition, there can be no assurance that patents will be issued from pending applications or that claims allowed on any patents will be sufficiently broad to protect our technology. Further, the laws of some foreign countries may not protect our proprietary rights to the same extent as do the laws of the United States.

We are subject to the risk that third parties may attempt to access, divert or use our intellectual property without authorization. Protecting against the unauthorized use of our products, technology and other proprietary rights is difficult, time-consuming and expensive, and we cannot be certain that the steps that we are taking will prevent or minimize the risks of such unauthorized use. Litigation may be necessary to enforce or defend our intellectual property rights or to determine the validity or scope of the proprietary rights of others. Such litigation could result in substantial cost and diversion of management time and resources, and there can be no assurance that we will obtain a successful result. Any inability to protect and enforce our intellectual property rights, despite our efforts, could harm our ability to compete effectively.

We may incur significant costs in response to claims by others that we infringe their intellectual property rights.

From time to time third parties may assert claims or initiate litigation or other proceedings related to patent, copyright, trademark and other intellectual property rights to technologies and related standards that are relevant to our business. The rate of patent infringement assertions both by operating entities and third party non-practicing entities (sometimes referred to as “patent trolls”) is increasing, particularly in the United States and Canada. We can be adversely affected by litigation, other

proceedings or claims against us, as well as our manufacturers, suppliers or customers, alleging infringement of third party proprietary rights by our products and technology, or components of those products. Regardless of the merit of these claims, they can be time-consuming, divert the time and attention of our technical and management personnel, and result in costly litigation. These claims, if successful, can require us to:

- pay substantial damages or royalties;
- comply with an injunction or other court order that could prevent us from offering certain of our products;
- seek a license for the use of certain intellectual property, which may not be available on commercially reasonable terms or at all;
- develop non-infringing technology, which could require significant effort and expense and ultimately may not be successful; and
- indemnify our customers pursuant to contractual obligations and pay expense or damages on their behalf.

Any of these events could adversely affect our business, results of operations and financial condition. Our exposure to risks associated with the use of intellectual property may be increased as a result of acquisitions, as we have a lower level of visibility into the development process with respect to such technology or the steps taken to safeguard against the risks of infringing the rights of third parties.

Our failure to manage effectively our relationships with third party service partners could adversely impact our financial results and relationship with customers.

We rely on a number of third party service partners, both domestic and international, to complement our global service and support resources. We rely upon these partners for certain installation, maintenance and support functions. In order to ensure the proper installation and maintenance of our products, we must identify, train and certify qualified service partners. Certification can be costly and time-consuming, and our partners often provide similar services for other companies, including our competitors. We may not be able to manage effectively our relationships with our service partners and cannot be certain that they will be able to deliver services in the manner or time required. We may also be exposed to liability relating to the performance of our service partners. If our service partners are unsuccessful in delivering services:

- we may suffer delays in recognizing revenue;
- our services revenue and gross margin may be adversely affected; and
- our relationship with customers could suffer.

If we do not manage effectively our relationships with third party service partners, or they fail to perform these services in the manner or time required, our financial results and relationship with customers could be adversely affected.

We may be exposed to unanticipated risks and additional obligations in connection with our resale of complementary products or technology of other companies.

We have entered into agreements with strategic supply partners that permit us to distribute their products or technology. We may rely upon these relationships to add complementary products or technologies, diversify our product portfolio, or address a particular customer or geographic market. We may enter into additional original equipment manufacturer (OEM), resale or similar strategic arrangements in the future, including in support of our selection as a domain supply partner with AT&T. We may incur unanticipated costs or difficulties relating to our resale of third party products. Our third party relationships could expose us to risks associated with the business, financial condition, intellectual property rights and supply chain continuity of such partners, as well as delays in their development, manufacturing or delivery of products or technology. We may also be required by customers to assume warranty, indemnity, service and other commercial obligations, including potential liability to customers, greater than the commitments, if any, made to us by our technology partners. Some of our strategic supply partners are relatively small companies with limited financial resources. If they are unable to satisfy their obligations to us or our customers, we may have to expend our own resources to satisfy these obligations. Exposure to these risks could harm our reputation with key customers and negatively affect our business and our results of operations.

Our exposure to the credit risks of our customers and resellers may make it difficult to collect receivables and could adversely affect our revenue and operating results.

In the course of our sales to customers and resale channel partners, we may have difficulty collecting receivables and our business and results of operations could be exposed to risks associated with uncollectible accounts. Lack of liquidity in the capital markets, macroeconomic weakness and market volatility may increase our exposure to these credit risks. Our attempts to monitor these situations carefully and take appropriate measures to protect ourselves may not be sufficient, and it is possible that we may have to write down or write off accounts receivable. Such write-downs or write-offs could negatively affect our

operating results for the period in which they occur, and, if large, could have a material adverse effect on our revenue and operating results.

Our business is dependent upon the proper functioning of our internal business processes and information systems and modification or interruption of such systems may disrupt our business, processes and internal controls.

We rely upon a number of internal business processes and information systems to support key business functions and the efficient operation of these processes and systems is critical to our business. Our business processes and information systems need to be sufficiently scalable to support the growth of our business and may require modifications or upgrades that expose us to a number of operational risks. We are currently pursuing initiatives to transform and optimize our business operations through the reengineering of certain processes, investment in automation and engagement of strategic partners or resources to assist with certain business functions. These changes may be costly and disruptive to our operations, and could impose substantial demands on management time. These changes may also require changes in our information systems, modification of internal control procedures and significant training of employees or third party resources. Our information technology systems, and those of third party providers, may also be vulnerable to damage or disruption caused by circumstances beyond our control. These include catastrophic events, power anomalies or outages, natural disasters, computer system or network failures, viruses or malware, physical or electronic break-ins, unauthorized access and cyber-attacks affecting our systems or those of third party business partners. Any material disruption, malfunction or similar challenges with our business processes or information systems, or disruptions or challenges relating to the transition to new processes, systems or providers, could have a material adverse effect on the operation of our business and our results of operations.

Data breaches and cyber-attacks could compromise our intellectual property or other sensitive information and cause significant damage to our business and reputation.

In the ordinary course of our business, we maintain sensitive data on our networks, including our intellectual property and proprietary or confidential business information relating to our business and that of our customers and business partners. The secure maintenance of this information is critical to our business and reputation. We believe that companies in the technology industry have been increasingly subject to a wide variety of security incidents, cyber-attacks and other attempts to gain unauthorized access. Our network and storage applications may be subject to unauthorized access by hackers or breached due to operator error, malfeasance or other system disruptions. In some cases, it is difficult to anticipate or immediately detect such incidents and the damage caused thereby. These data breaches and any unauthorized access or disclosure of our information, could compromise our intellectual property and expose sensitive business information. Cyber-attacks could also cause us to incur significant remediation costs, disrupt key business operations and divert attention of management and key information technology resources. These incidents could also subject us to liability, expose us to significant expense, or cause significant harm to our reputation.

Outstanding indebtedness under our convertible notes may adversely affect our liquidity and results of operations and could limit our business.

At October 31, 2012, indebtedness on our outstanding convertible notes totaled approximately $1.4 billion in aggregate principal, including approximately $216.0 million in convertible notes that mature in May 2013. Our indebtedness could have important negative consequences, including:

- increasing our vulnerability to adverse economic and industry conditions;
- limiting our ability to obtain additional financing, particularly in unfavorable capital and credit market conditions;
- incurrence of debt service and repayment obligations that reduce the availability of cash resources for other business purposes;
- limiting our flexibility in planning for, or reacting to, changes in our business and the markets; and
- placing us at a possible competitive disadvantage to competitors that have better access to capital resources.

On August 13, 2012, we entered into a $150 million senior secured asset-based revolving Credit Facility. In addition to customary remedies should we default under the credit agreement governing this facility, we may be subject to lender control over certain cash assets and required to comply with a fixed charge coverage ratio in the event that we do not maintain the requisite level of availability under the facility. The credit agreement also contains customary covenants that limit our ability to, among other things, pay cash dividends, incur debt, create liens and encumbrances, redeem or repurchase stock, enter into certain acquisition transactions, repay indebtedness, make investments or dispose of assets. The Credit Facility matures on August 13, 2015, provided that it will mature early on (i) January 31, 2013, if any of Ciena's 0.25% senior convertible notes due May 1, 2013 are then outstanding and Ciena is unable to meet certain financial criteria with respect to its cash position at that time, or (ii) December 15, 2014, if any of Ciena's 4.00% senior convertible notes due March 15, 2015 are then outstanding. We

may also enter into additional transactions or lending facilities, including equipment loans, working capital lines of credit and other long-term debt, that may increase our indebtedness and result in additional restrictions upon our business.

Significant volatility and uncertainty in the capital markets may limit our access to funding.

We have accessed the capital markets in the past and successfully raised funds, through the issuance of equity or convertible debt, to increase our cash position, support our operations and undertake strategic growth initiatives, including the acquisition of the MEN Business. We regularly evaluate our liquidity position, debt obligations, and anticipated cash needs to fund our long-term operating plans and may consider raising additional capital in the future. Global capital markets have undergone a sustained period of significant volatility and uncertainty, and there can be no assurance that such financing alternatives would be available to us, should we determine it necessary or advisable to seek additional cash resources.

Facilities transitions could be disruptive to our operations and result in unanticipated expense.

We have recently undertaken and expect to undertake a number of significant facilities transitions affecting a number of our largest employee populations, including our headquarters facility. In November 2011, we entered into a lease for our new corporate headquarters in Hanover, Maryland. While we have transitioned certain affected employees and operations, including key management and administration resources, to this new facility, we do not expect to complete the transition of all affected personnel and functions until early 2013. This transition could be disruptive to our operations and could result in unanticipated expense that adversely affects our financial results. In addition, the lease of our “Lab 10” building on the Carling Campus in Ottawa, Canada will expire in fiscal 2016 and the lease for our research and development facility in Gurgaon, India will expire in fiscal 2014. Both locations include sophisticated research and development lab equipment and key engineering personnel, and our Ottawa facility is our largest facility globally. We are currently considering facilities and development alternatives in advance of the expiration of these leases. However, locating appropriate alternative space for our engineering operations may be costly and there can be no assurance that the transition of key engineering functions to a successor facility will not be disruptive, or adversely affect productivity.

Restructuring activities could disrupt our business and affect our results of operations.

We have previously taken steps, including reductions in force, office closures, and internal reorganizations to reduce the size and cost of our operations, improve efficiencies, or realign our organization and staffing to better match our market opportunities and our technology development initiatives. We may take similar steps in the future as we seek to realize operating synergies, optimize our operations to achieve our target operating model and profitability objectives, or better reflect changes in the strategic direction of our business. These changes could be disruptive to our business and may result in significant expense including accounting charges for inventory and technology-related write-offs, workforce reduction costs and charges relating to consolidation of excess facilities. Substantial expense or charges resulting from restructuring activities could adversely affect our results of operations in the period in which we take such a charge.

If we are unable to attract and retain qualified personnel, we may be unable to manage our business effectively.

Competition to attract and retain highly skilled technical, engineering and other personnel with experience in our industry is intense, and our employees have been the subject of targeted hiring by our competitors. We may experience difficulty retaining and motivating existing employees and attracting qualified personnel to fill key positions. Because we rely upon equity awards as a significant component of compensation, particularly for our executive team, a lack of positive performance in our stock price, reduced grant levels, or changes to our compensation program may adversely affect our ability to attract and retain key employees. The loss of members of our management team or other key personnel could be disruptive to our business, and, were it necessary, it could be difficult to replace members of our management team or other key personnel. In addition, none of our executive officers is bound by an employment agreement for any specific term. If we are unable to attract and retain qualified personnel, we may be unable to manage our business effectively, and our operations and results of operations could suffer.

We may be adversely affected by fluctuations in currency exchange rates.

As a global concern, we face exposure to adverse movements in foreign currency exchange rates. Historically, our sales were primarily denominated in U.S. dollars. As a result of our increased global presence, a larger percentage of our revenue and operating expense are now non-U.S. dollar denominated and therefore subject to foreign currency fluctuation. We face exposure to currency exchange rates as a result of the growth in our non-U.S. dollar denominated operating expense in Canada, Europe, Asia and Latin America. From time to time, we may hedge against currency exposure associated with anticipated foreign currency cash flows. There can be no assurance that any hedging instruments will be effective, and losses associated with these instruments and the adverse effect of foreign currency exchange rate fluctuation may negatively affect our results of operations.

Our products incorporate software and other technology under license from third parties and our business would be adversely affected if this technology were no longer available to us on commercially reasonable terms.

We integrate third-party software and other technology into our embedded operating system, network management system tools and other products. Licenses for this technology may not be available or continue to be available to us on commercially reasonable terms. Third party licensors may insist on unreasonable financial or other terms in connection with our use of such technology. Difficulties with third party technology licensors could result in termination of such licenses, which may result in significant costs and require us to obtain or develop a substitute technology. Difficulty obtaining and maintaining third-party technology licenses may disrupt development of our products and increase our costs.

Strategic acquisitions and investments may expose us to increased costs and unexpected liabilities.

We may acquire or make investments in other technology companies, or enter into other strategic relationships, to expand the markets we address, diversify our customer base or acquire or accelerate the development of technology or products. To do so, we may use cash, issue equity that would dilute our current stockholders' ownership, or incur debt or assume indebtedness. These transactions involve numerous risks, including:

- significant integration costs;
- disruption due to the integration and rationalization of operations, products, technologies and personnel;
- diversion of management's attention;
- difficulty completing projects of the acquired company and costs related to in-process projects;
- the loss of key employees;
- ineffective internal controls over financial reporting;
- dependence on unfamiliar suppliers or manufacturers;
- exposure to unanticipated liabilities, including intellectual property infringement claims; and
- adverse tax or accounting effects including amortization expense related to intangible assets and charges associated with impairment of goodwill.

As a result of these and other risks, our acquisitions, investments or strategic transactions may not reap the intended benefits and may ultimately have a negative impact on our business, results of operation and financial condition.

Changes in government regulation affecting the communications industry and the businesses of our customers could harm our prospects and operating results.

The Federal Communications Commission, or FCC, has jurisdiction over the U.S. communications industry and similar agencies have jurisdiction over the communication industries in other countries. Many of our largest customers are subject to the rules and regulations of these agencies. Changes in regulatory requirements applicable to wireline or wireless communications and the Internet in the United States or other countries could serve as a disincentive to providers to invest in their communications network infrastructures or introduce new services. These changes could adversely affect the sale of our products and services. Changes in regulatory tariff requirements or other regulations relating to pricing or terms of carriage on communications networks could slow the development or expansion of network infrastructures and adversely affect our business, operating results, and financial condition.

Governmental regulations affecting the use, import or export of products could adversely affect our operations, and negatively affect our revenue and increase our costs.

The United States and various foreign governments have imposed controls, license requirements and other restrictions on the usage, import or export of some of the technologies that we sell. Governmental regulation of usage, import or export of our products, technology within our products, or our failure to obtain required approvals for our products, could harm our international and domestic sales and adversely affect our revenue and costs of sales. Failure to comply with such regulations could result in enforcement actions, fines or penalties and restrictions on export privileges. In addition, costly tariffs on our equipment, restrictions on importation, trade protection measures and domestic preference requirements of certain countries could limit our access to these markets and harm our sales. For example, India's government has recently implemented and is considering additional security regulations applicable to network equipment vendors, and has imposed significant tariffs that may inhibit sales of certain communications equipment; including equipment manufactured in China, where certain of our products are assembled. These and other regulations could adversely affect the sale or use of our products, substantially increase our cost of sales and could adversely affect our business and revenue.

Governmental regulations related to the environment and potential climate change, could adversely affect our business and operating results.

Our operations are regulated under various federal, state, local and international laws relating to the environment and potential climate change. We could incur fines, costs related to damage to property or personal injury, and costs related to investigation or remediation activities, if we were to violate or become liable under these laws or regulations. Our product design efforts, and the manufacturing of our products, are also subject to evolving requirements relating to the presence of certain materials or substances in our equipment, including regulations that make producers for such products financially responsible for the collection, treatment and recycling of certain products. For example, our operations and financial results may be negatively affected by environmental regulations, such as the Waste Electrical and Electronic Equipment (WEEE) and Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) that have been adopted by the European Union. Compliance with these and similar environmental regulations may increase our cost of designing, manufacturing, selling and removing our products. These regulations may also make it difficult to obtain supply of compliant components or require us to write off non-compliant inventory, which could have an adverse effect our business and operating results.

We may be required to write down long-lived assets and these impairment charges would adversely affect our operating results.

As of October 31, 2012, our balance sheet includes $438.3 million in long-lived assets, which includes $257.1 million of intangible assets. Valuation of our long-lived assets requires us to make assumptions about future sales prices and sales volumes for our products. These assumptions are used to forecast future, undiscounted cash flows. Given the significant uncertainty and instability of macroeconomic conditions in recent periods, forecasting future business is difficult and subject to modification. If actual market conditions differ or our forecasts change, we may be required to reassess long-lived assets and could record an impairment charge. Any impairment charge relating to long-lived assets would have the effect of decreasing our earnings or increasing our losses in such period. If we are required to take a substantial impairment charge, our operating results could be materially adversely affected in such period.

Failure to maintain effective internal controls over financial reporting could have a material adverse effect on our business, operating results and stock price.

Section 404 of the Sarbanes-Oxley Act of 2002 requires that we include in our annual report a report containing management's assessment of the effectiveness of our internal controls over financial reporting as of the end of our fiscal year and a statement as to whether or not such internal controls are effective. Compliance with these requirements has resulted in, and is likely to continue to result in, significant costs and the commitment of time and operational resources. Changes in our business, including certain initiatives to transform business processes, invest in information systems or transition certain functions to third party resources or providers, will necessitate modifications to our internal control systems, processes and information systems as we optimize our business and operations. Our increased global operations and expansion into new regions could pose additional challenges to our internal control systems. We cannot be certain that our current design for internal control over financial reporting, or any additional changes to be made, will be sufficient to enable management to determine that our internal controls are effective for any period, or on an ongoing basis. If we are unable to assert that our internal controls over financial reporting are effective, market perception of our financial condition and the trading price of our stock may be adversely affected, and customer perception of our business may suffer.

Our stock price is volatile.

Our common stock price has experienced substantial volatility in the past and may remain volatile in the future. Volatility in our stock price can arise as a result of a number of the factors discussed in this “Risk Factors” section. During fiscal 2012, our closing stock price ranged from a high of $17.98 per share to a low of $10.38 per share. The stock market has experienced significant price and volume fluctuations that have affected the market price of many technology companies, with such volatility often unrelated to the operating performance of these companies. Divergence between our actual or anticipated financial results and published expectations of analysts can cause significant swings in our stock price. Our stock price can also be affected by announcements that we, our competitors, or our customers may make, particularly announcements related to acquisitions or other significant transactions. Our common stock is included in a number of market indices and any change in the composition of these indices to exclude our company would adversely affect our stock price. These factors, as well as conditions affecting the general economy or financial markets, may materially adversely affect the market price of our common stock in the future.

Item 1B. Unresolved Staff Comments

Not applicable.

Item 2. Properties

Overview. As of October 31, 2012, all of our properties are leased and we do not own any real property. We lease facilities globally related to the ongoing operations of our four business segments and related functions. Our principal executive offices are located in two buildings in Hanover, Maryland. In addition, we currently occupy five buildings at various sites in Linthicum, Maryland, including an engineering facility, two supply chain and logistics facilities, and two administrative and sales facilities, though we will be vacating three of these buildings in the first half of fiscal 2013.

Our largest facility is our research and development center located at "Lab 10" on the former Nortel Carling Campus in Ottawa, Canada. See below for information regarding the lease associated with this engineering facility. We also have engineering and/or service facilities located in San Jose, California; Alpharetta, Georgia; Spokane, Washington; Kanata, Canada; and Gurgaon, India. In addition, we lease various smaller offices in the United States, Mexico, South America, Europe, the Middle East and Asia-Pacific to support our sales and services operations. We believe the facilities we are now using are adequate and suitable for our business requirements.

Hanover, Maryland Headquarters Lease. Ciena entered into a lease agreement dated November 3, 2011, with W2007 RDG Realty, L.L.C. relating to office space for its new corporate headquarters in Hanover, Maryland, consisting of an agreed-upon rentable area of approximately 154,100 square feet. At the commencement date, the minimal rental commitments to be paid over the 15-year lease term are approximately $61.8 million.

Carling, Ottawa Lease. Upon the completion of the MEN Acquisition, Ciena Canada Inc., a subsidiary of Ciena, entered into a lease agreement with Nortel Networks Technology Corp. ("Landlord") relating to the "Lab 10" building on Nortel's Carling Campus in Ottawa, Canada (the "Carling lease"). This facility consists of a rentable area of 265,000 square feet for which we incur lease expense of approximately $7.2 million CAD per year, consisting of both base rent and fixed additional operating expense, the latter of which increases at 2% per year. The Carling lease initially had a ten-year term, subject to an early termination feature that allowed Nortel to reduce the term of the lease in exchange for its payment of an early termination fee of up to $33.5 million. During the first quarter of fiscal 2011, Ciena received both notice of early termination from Nortel shortening the Carling lease to five years and the corresponding $33.5 million early termination payment.

Restructuring. We attempt to sublease properties that we no longer occupy. As part of our restructuring costs, we provide for the estimated cost of the future net lease expense for these facilities. The cost is based on the fair value of future minimum lease payments under contractual obligations offset by the fair value of the estimated future sublease payments that we may receive. As of October 31, 2012, our accrued restructuring liability related to these properties was $3.6 million. If actual market conditions relating to the use of these facilities are less favorable than those projected by management, additional restructuring costs associated with these facilities may be required. For additional information regarding our lease obligations, see Note 21 to the Consolidated Financial Statements in Item 8 of Part II of this annual report.

Item 3. Legal Proceedings

On July 29, 2011, Cheetah Omni LLC filed a complaint in the United States District Court for the Eastern District of Texas against Ciena and several other defendants, alleging, among other things, that certain of the parties' products infringe upon multiple U.S. Patents relating to certain reconfigurable optical add-drop multiplexer (ROADM) technologies. The complaint seeks injunctive relief and damages. On November 8, 2011, Ciena filed an answer and counterclaims to Cheetah Omni's amended complaint. The parties are currently engaged in discovery. Ciena believes that it has valid defenses to the lawsuit and intends to defend it vigorously.

On May 29, 2008, Graywire, LLC filed a complaint in the United States District Court for the Northern District of Georgia against Ciena and four other defendants, alleging, among other things, that certain of the parties' products infringe U.S. Patent 6,542,673 (the "'673 Patent"), relating to an identifier system and components for optical assemblies. The complaint seeks injunctive relief and damages. In July 2009, upon request of Ciena and certain other defendants, the U.S. Patent and Trademark Office ("PTO") granted the defendants' inter partes application for reexamination with respect to certain claims of the '673 Patent, and the district court granted the defendants' motion to stay the case pending reexamination of all of the patents-in-suit. In December 2010, the PTO confirmed the validity of some claims and rejected the validity of other claims of the '673 Patent, to which Ciena and other defendants filed an appeal. On March 16, 2012, the PTO on appeal rejected multiple claims of the '673 Patent, including the two claims on which Ciena is alleged to infringe. Subsequently, the plaintiff requested a reopening of the prosecution of the '673 Patent, to which Ciena and the other defendants filed an opposition. The case currently remains stayed, and there can be no assurance as to whether or when the stay will be lifted.

In addition to the matters described above, we are subject to various legal proceedings and claims arising in the ordinary course of our business, including claims against third parties that may involve a contractual indemnification obligation on the part of Ciena. We do not expect that the ultimate costs to resolve these matters will have a material effect on our results of operations, financial position or cash flows.

Item 4. Mine Safety Disclosures

Not applicable.

PART II

Item 5. Market for Registrant's Common Stock, Related Stockholder Matters and Issuer Purchases of Equity Securities

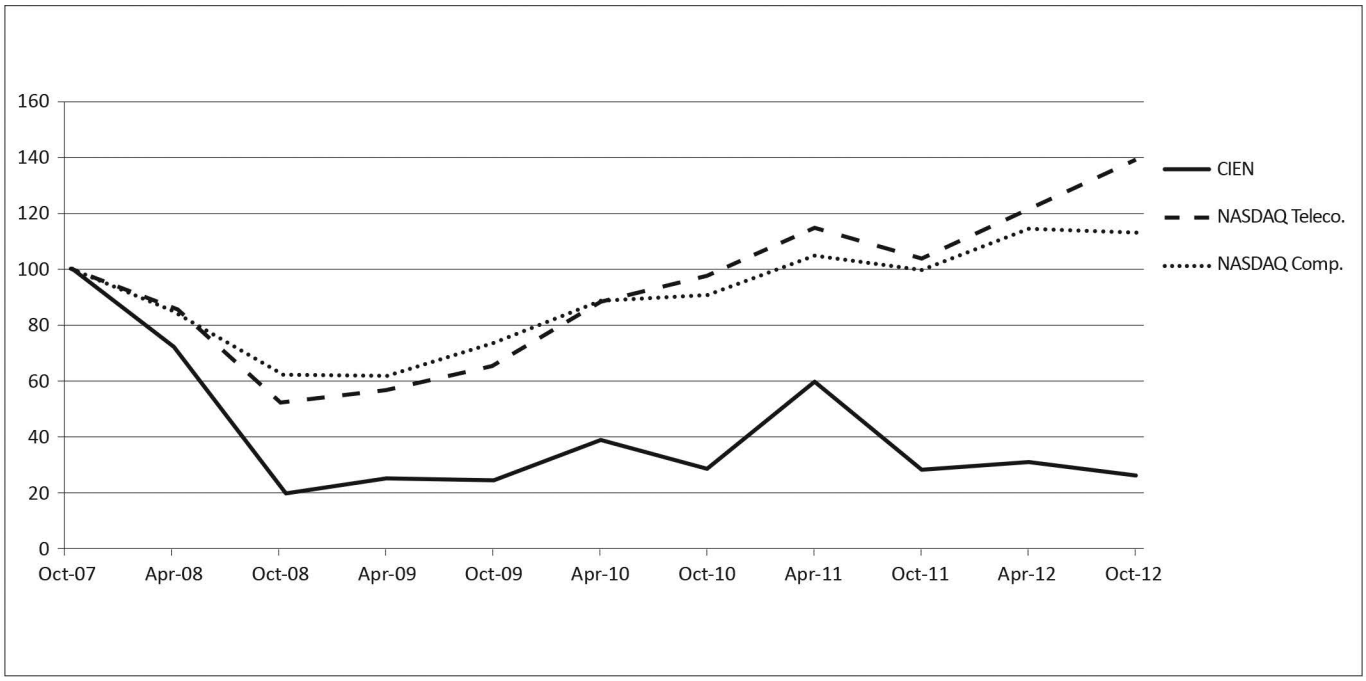
(a) Our common stock is traded on the NASDAQ Global Select Market under the symbol "CIEN." The following table sets forth the high and low sales prices of our common stock, as reported on the NASDAQ Global Select Market, for the fiscal periods indicated.

	High	Low
Fiscal Year 2011		
First Quarter ended January 31	$ 25.49	$ 13.55
Second Quarter ended April 30	$ 28.81	$ 22.03
Third Quarter ended July 31	$ 27.91	$ 15.46
Fourth Quarter ended October 31	$ 14.82	$ 10.28
Fiscal Year 2012		
First Quarter ended January 31	$ 15.34	$ 10.38
Second Quarter ended April 30	$ 17.16	$ 13.44
Third Quarter ended July 31	$ 16.81	$ 11.49
Fourth Quarter ended October 31	$ 17.98	$ 12.17

As of December 13, 2012, there were approximately 834 holders of record of our common stock and 100,610,686 shares of common stock outstanding. We have never paid cash dividends on our capital stock. We intend to retain earnings for use in our business, and we do not anticipate paying any cash dividends in the foreseeable future.

The following graph shows a comparison of cumulative total returns for an investment in our common stock, the NASDAQ Telecommunications Index and the NASDAQ Composite Index from October 31, 2007 to October 31, 2012. The NASDAQ

Composite Index measures all domestic and international based common stocks listed on The Nasdaq Stock Market. The NASDAQ Telecommunications Index contains securities of NASDAQ-listed companies classified according to the Industry Classification Benchmark as Telecommunications and Telecommunications Equipment. They include providers of fixed-line and mobile telephone services, and makers and distributors of high-technology communication products. This graph is not deemed to be "filed" with the SEC or subject to the liabilities of Section 18 of the Securities Exchange Act of 1934, and the graph shall not be deemed to be incorporated by reference into any prior or subsequent filing by us under the Securities Act of 1933 or the Exchange Act.



Assumes $100 invested in Ciena Corporation, the NASDAQ Telecommunications Index and the NASDAQ Composite Index on October 31, 2007 with all dividends reinvested at month-end.

(b) Not applicable.

(c) Not applicable.

Item 6. Selected Consolidated Financial Data

The following selected consolidated financial data should be read in conjunction with Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations" and the Consolidated Financial Statements and the notes thereto included in Item 8, "Financial Statements and Supplementary Data." We have a 52 or 53 week fiscal year, which ends on the Saturday nearest to the last day of October in each year. For purposes of financial statement presentation, each fiscal year is described as having ended on October 31. Fiscal 2008, 2009, 2010 and 2011 consisted of 52 weeks and fiscal 2012 consisted of 53 weeks.

	Year Ended October 31, (in thousands)				
	2008	2009	2010	2011	2012
Cash and cash equivalents	$ 550,669	$ 485,705	$ 688,687	$ 541,896	$ 642,444
Short-term investments	$ 366,336	$ 563,183	$ —	$ —	$ 50,057
Long-term investments	$ 156,171	$ 8,031	$ —	$ 50,264	$ —
Total assets	$ 2,024,594	$ 1,504,383	$ 2,118,093	$ 1,951,418	$ 1,881,143
Short-term convertible notes payable	$ —	$ —	$ —	$ —	$ 216,210
Long-term convertible notes payable	$ 798,000	$ 798,000	$ 1,442,705	$ 1,442,364	$ 1,225,806
Total liabilities	$ 1,025,645	$ 1,048,545	$ 1,958,800	$ 1,937,545	$ 1,970,115
Stockholders' equity (deficit)	$ 998,949	$ 455,838	$ 159,293	$ 13,873	$ (88,972)

Statement of Operations Data:

	Year Ended October 31, (in thousands, except per share data)				
	2008	2009	2010	2011	2012
Revenue	$ 902,448	$ 652,629	$ 1,236,636	$ 1,741,970	$ 1,833,923
Cost of goods sold	451,521	367,799	739,135	1,032,824	1,109,699
Gross profit	450,927	284,830	497,501	709,146	724,224
Operating expenses:					
Research and development	175,023	190,319	327,626	379,862	364,179
Selling and marketing	152,018	134,527	193,515	251,990	266,338
General and administrative	68,639	47,509	102,692	126,242	114,002
Acquisition and integration costs	—	—	101,379	42,088	—
Amortization of intangible assets	32,264	24,826	99,401	69,665	51,697
Restructuring costs	1,110	11,207	8,514	5,781	7,854
Goodwill impairment	—	455,673	—	—	—
Change in fair value of contingent consideration	—	—	(13,807)	(3,289)	—
Total operating expenses	429,054	864,061	819,320	872,339	804,070
Income (loss) from operations	21,873	(579,231)	(321,819)	(163,193)	(79,846)
Interest and other income (loss), net	36,762	9,487	3,917	6,022	(15,200)
Interest expense	(12,927)	(7,406)	(18,619)	(37,926)	(39,653)
Realized loss due to impairment of marketable debt investments	(5,101)	—	—	—	—
Gain (loss) on cost method investments	—	(5,328)	—	7,249	—
Gain on extinguishment of debt	932	—	4,948	—	—
Income (loss) before income taxes	41,539	(582,478)	(331,573)	(187,848)	(134,699)
Provision (benefit) for income taxes	2,645	(1,324)	1,941	7,673	9,322
Net income (loss)	$ 38,894	$ (581,154)	$ (333,514)	$ (195,521)	$ (144,021)
Basic net income (loss) per common share	$ 0.44	$ (6.37)	$ (3.58)	$ (2.04)	$ (1.45)
Diluted net income (loss) per potential common share	$ 0.42	$ (6.37)	$ (3.58)	$ (2.04)	$ (1.45)
Weighted average basic common shares outstanding	89,146	91,167	93,103	95,854	99,341
Weighted average dilutive potential common shares outstanding	110,605	91,167	93,103	95,854	99,341

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

This report contains statements that discuss future events or expectations, projections of results of operations or financial condition, changes in the markets for our products and services, or other "forward-looking" information. Our "forward-looking" information is based on various factors and was derived using numerous assumptions. In some cases, you can identify these "forward-looking statements" by words like "may," "will," "should," "expects," "plans," "anticipates," "believes," "estimates," "predicts," "intends," "potential" or "continue" or the negative of those words and other comparable words. You should be aware that these statements only reflect our current predictions and beliefs. These statements are subject to known and unknown risks, uncertainties and other factors, and actual events or results may differ materially. Important factors that could cause our actual results to be materially different from the forward-looking statements are disclosed throughout this report, particularly under the heading "Risk Factors" in Item 1A of Part I of this annual report. You should review these risk factors for a more complete understanding of the risks associated with an investment in our securities. We undertake no obligation to revise or update any forward-looking statements. The following discussion and analysis should be read in conjunction with our "Selected Consolidated Financial Data" and consolidated financial statements and notes thereto included elsewhere in this annual report.

Overview

We are a provider of equipment, software and services that support the transport, switching, aggregation and management of voice, video and data traffic on communications networks. Our Packet-Optical Transport, Packet-Optical Switching and Carrier-Ethernet Solutions products are used, individually or as part of an integrated solution, in communications networks operated by service providers, cable operators, governments, enterprises, research and education institutions and other network operators around the globe. We are a network specialist focused on solutions that enable converged, next-generation architectures, optimized to handle a broader mix of high-bandwidth communications services. Our products allow network operators to scale capacity and increase transmission speeds, efficiently allocate network traffic, and deliver services to business and consumer end users. Our network solutions also include our integrated Ciena One software suite that provides network management capabilities that unify our product portfolio and provide automation and management features that enable efficient service delivery. To complement our hardware and software portfolio, we offer a broad range of consulting and support services that help our customers design, optimize, deploy, manage and maintain their communications networks. We believe that the close, collaborative engagement with customers enabled by our services offering is an important component of our network specialist approach and a significant differentiator with customers.

Our quarterly reports on Form 10-Q, annual reports on Form 10-K and current reports on Form 8-K filed with the SEC are available through the SEC's website at www.sec.gov or free of charge on our website as soon as reasonably practicable after we file these documents. We routinely post the reports above, recent news and announcements, financial results and other important information about Ciena on the "Investors" page of our website at www.ciena.com.

Market Opportunity and Strategy

We believe that a number of underlying drivers in the marketplace represent long-term opportunities for our business, and we expect them to result in growing demand for next-generation networking solutions in our target markets. We believe that market trends, including the proliferation of smartphones, tablets and similar devices running mobile web applications, the prevalence of video applications, and the shift of enterprise and consumer applications to cloud-based or virtualized network environments, are indicative of increasing use and dependence by consumers and enterprises upon a growing variety of high-bandwidth applications and services. We expect that these services will continue to add significant multiservice network traffic, requiring our customers to continue to invest in high-capacity network infrastructures that are more robust, programmable and efficient. These dynamics also continue to drive demand for convergence of network features, functions and layers. Our strategy to capitalize on these market dynamics, promote operational efficiency and drive profitable growth of our business includes the corporate initiatives set forth in the "Strategy" subsection of the description of our business under Item 1 of Part I of this annual report above.

Global Market Conditions and Competitive Landscape

We believe that the market opportunity described above, together with multiservice traffic growth, are driving a shift in network priorities and spending toward high-capacity, next-generation network architectures. However, during fiscal 2012 our market experienced a challenging environment including declining growth rates in spending on in the markets addressed by our packet-optical networking solutions. We believe that this reflects the macroeconomic conditions and competitive landscape encountered in our market during the year.

The sustained period of macroeconomic uncertainty and volatility in the global economy and in capital markets has resulted in a high degree of uncertainty and cautious customer behavior in our industry and markets. These dynamics, particularly in Europe, have resulted and may continue to result in lower levels of capital expenditure on communications network infrastructure. Conditions in our markets have also resulted in protracted sales cycles, lengthier network deployments and revenue recognition delays. Broad macroeconomic weakness has previously resulted in periods of decreased demand for our products and services that have adversely affected our results of operations. We remain uncertain as to how long current macroeconomic and industry conditions will persist and the magnitude of the effect of these conditions on the growth of our markets and business, as well as our results of operations.

We also continue to encounter a highly competitive marketplace, particularly within our Packet-Optical Transport segment, where we and our competitors have introduced new, high-capacity, high-speed network solutions and have aggressively sought to capture market share. In this competitive environment, securing new opportunities, particularly in international markets, often requires that we agree to less favorable initial pricing, commercial terms that can elongate the revenue recognition cycle, startup costs to operationalize our solutions in customer networks, financial commitments or performance bonds that place cash resources at risk, and other onerous contractual commitments that place a disproportionate allocation of risk upon the vendor. These terms can adversely affect our results of operations and contribute to fluctuations in our results. We expect the competitive landscape to remain challenging and dynamic as we and our competitors introduce new, competing platforms, as networking technologies or features converge, and as competitors seek customer adoption of their network architectural approaches. See the "Competition" section of Item 1, "Business," in Part I of this annual report for more information regarding our competitive landscape. We expect the level of competition to continue and potentially increase, particularly in North America, as Chinese equipment vendors seek to gain entry into the U.S. market, and other multinational competitors seek to retain incumbent positions with large customers in the region.

Financial Results for Fourth Quarter of Fiscal 2012

Revenue for the fourth quarter of fiscal 2012 was $465.5 million, representing a sequential decrease of 1.8% from $474.1 million in the third quarter of fiscal 2012. Revenue-related details reflecting sequential changes from the third quarter of fiscal 2012 include:

- Product revenue for the fourth quarter of fiscal 2012 decreased by $10.2 million, primarily reflecting a decrease in Packet-Optical Switching revenue of $17.3 million and a decrease of $9.1 million in Packet-Optical Transport revenue. These decreases were offset by an increase of $16.6 million in sales of Carrier-Ethernet Solutions.
- Service revenue for the fourth quarter of fiscal 2012 increased by $1.7 million.
- Revenue from the United States for the fourth quarter of fiscal 2012 was $249.5 million, an increase from $237.3 million in the third quarter of fiscal 2012.
- International revenue for the fourth quarter of fiscal 2012 was $216.0 million, a decrease from $236.8 million in the third quarter of fiscal 2012.
- As a percentage of revenue, international revenue was 46.4% during the fourth quarter of fiscal 2012, a decrease from 49.9% during the third quarter of fiscal 2012.
- For the fourth quarter of fiscal 2012, one customer accounted for greater than 10% of revenue, representing 11.3% of total revenue. There were no customers that accounted for greater than 10% revenue in the third quarter of fiscal 2012.

Gross margin for the fourth quarter of fiscal 2012 was 41.3%, an increase from 38.2% in the third quarter of fiscal 2012. Gross margin for the fourth quarter of fiscal 2012 benefited from a favorable mix within our Packet-Optical Transport revenue, including an increased concentration of line cards for our 6500 Packet-Optical Platform, and improved margin relating to our Software and Services, Packet-Optical Switching and Carrier-Ethernet Solutions segments.

Operating expense was $214.1 million for the fourth quarter of fiscal 2012, an increase from $196.6 million in the third quarter of fiscal 2012. Increased operating expense for the fourth quarter described below, reflects, in part, the effect of an additional week during the fiscal period, as compared to the third quarter of fiscal 2012. See Note 1 to our Consolidated Financial Statements in Item 8 of Part II of this annual report describing our 53-week fiscal year for fiscal 2012. Fourth quarter operating expense reflects an increase of $8.6 million in selling and marketing expense, primarily due to increased variable compensation resulting from increased order flow, and product demonstration costs. Fourth quarter operating expense also reflects an increase of $7.5 million in research and development expense relating to employee compensation and prototype activity, and a $1.9 million increase in general and administrative expense due to employee compensation.

In spite of margin improvement in the fourth quarter of fiscal 2012, our lower revenue and increased operating expense described above resulted in a loss from operations for the fourth quarter of fiscal 2012 of $21.9 million, as compared to a $15.3 million loss from operations during the third quarter of fiscal 2012. Our net loss for the fourth quarter of fiscal 2012 was $38.8 million, or $0.39 per share. This compares to a net loss of $29.8 million or $0.30 per share, for the third quarter of fiscal 2012.

We generated $10.6 million in cash from operations during the fourth quarter of fiscal 2012, consisting of $23.7 million provided by net losses adjusted for non-cash charges partially offset by a $13.1 million use of cash related to changes in working capital. This compares with $23.1 million provided by cash from operations during the third quarter of fiscal 2012, consisting of $21.9 million from net losses adjusted for non-cash charges and $1.2 million in cash provided by changes in working capital.

As of October 31, 2012, we had $642.4 million in cash and cash equivalents and $50.1 million of short-term investments in U.S. treasury securities. This compares to $617.2 million in cash and cash equivalents and $50.1 million of short-term investments in U.S. treasury securities at July 31, 2012. As of October 31, 2011, we had $541.9 million in cash and cash equivalents and $50.3 million of long-term investments in U.S. treasury securities.

As of October 31, 2012, headcount was 4,481, an increase from 4,463 as of July 31, 2012 and an increase from 4,339 and 4,201 at October 31, 2011 and 2010, respectively.

Consolidated Results of Operations

We report our results of operations based on the following operating segments:

- *Packet-Optical Transport* - includes optical transport solutions that increase network capacity and enable more rapid delivery of a broader mix of high-bandwidth services. These products are used by network operators to facilitate the cost effective and efficient transport of voice, video and data traffic in core, regional, metro and access networks. Ciena's Packet-Optical Transport products support the efficient delivery of a wide variety of consumer-oriented network services, as well as key managed service and enterprise applications. Ciena's principal products in this segment include the 6500 Packet-Optical Platform, 4200 Advanced Services Platform, Corestream® Agility Optical Transport System, 5100/5200 Advanced Services Platform, Common Photonic Layer (CPL), and 6100 Multiservice Optical Platform. This segment also includes sales from legacy SONET/SDH, transport and data networking products, as well as certain enterprise-oriented transport solutions that support storage and LAN extension, interconnection of data centers, and virtual private networks. This segment also includes operating system software and enhanced software features embedded in each of these products. Revenue from this segment is included in product revenue on the Consolidated Statement of Operations.

- *Packet-Optical Switching* - includes optical switching platforms that enable automated optical infrastructures for the delivery of a wide variety of enterprise and consumer-oriented network services. Ciena's principal products in this segment include its family of CoreDirector® Multiservice Optical Switches, its 5430 Reconfigurable Switching System and its OTN configuration for the 5410 Reconfigurable Switching System. These products include multiservice, multi-protocol switching systems that consolidate the functionality of an add/drop multiplexer, digital cross-connect and packet switch into a single, high-capacity intelligent switching system. These products address both the core and metro segments of communications networks and support key managed services, Ethernet/TDM Private Line, Triple Play and IP services. This segment also includes sales of operating system software and enhanced software features embedded in each of these products. Revenue from this segment is included in product revenue on the Consolidated Statement of Operations.

- *Carrier-Ethernet Solutions* - principally includes Ciena's 3000 family of service delivery switches and service aggregation switches, the 5000 series of service aggregation switches, and its Carrier Ethernet packet configuration for the 5410 Service Aggregation Switch. These products support the access and aggregation tiers of communications networks and have principally been deployed to support wireless backhaul infrastructures and business data services. Employing sophisticated Carrier Ethernet switching technology, these products deliver quality of service capabilities, virtual local area networking and switching functions, and carrier-grade operations, administration, and maintenance features. This segment also includes legacy broadband products that transition voice networks to support Internet-based (IP) telephony, video services and DSL. This segment also includes sales of operating system software and enhanced software features embedded in each of these products. Revenue from this segment is included in product revenue on the Consolidated Statement of Operations.

- *Software and Services* - includes the Ciena One software suite, including OneControl, the integrated network and service management software designed to automate and simplify network management, operation and service delivery. These software solutions can track individual services across multiple product suites, facilitating planned network maintenance, outage detection and identification of customers or services affected by network performance. In addition to Ciena One, this segment includes the ON-Center® Network & Service Management Suite, and the OMEA and Preside platforms from the MEN Business. This segment also includes a broad range of consulting and support services, including installation and deployment, maintenance support, consulting, network design and training activities. Except for revenue from the software portion of this segment, which is included in product revenue, revenue from this segment is included in services revenue on the Consolidated Statement of Operations.

Fiscal 2011 compared to Fiscal 2012

Revenue

The table below (in thousands, except percentage data) sets forth the changes in our operating segment revenue for the periods indicated:

	Fiscal Year					
	2011	%*	2012	%*	Increase (decrease)	%**
Revenue:						
Packet-Optical Transport	$ 1,121,811	64.5	$ 1,172,159	63.9	$ 50,348	4.5
Packet-Optical Switching	148,395	8.5	132,705	7.2	(15,690)	(10.6)
Carrier-Ethernet Solutions	127,868	7.3	131,693	7.2	3,825	3.0
Software and Services	343,896	19.7	397,366	21.7	53,470	15.5
Consolidated revenue	$ 1,741,970	100.0	$ 1,833,923	100.0	$ 91,953	5.3

* Denotes % of total revenue

** Denotes % change from 2011 to 2012

- **Packet-Optical Transport revenue** increased reflecting a $232.8 million increase in sales of our 6500 Packet-Optical Platform, largely driven by service provider demand for high-capacity, optical transport for coherent 40G and 100G network infrastructures. This increase was partially offset by sales decreases of $82.1 million in our 4200 Advanced Services Platform, $40.0 million of 5100/5200 Advanced Services Platform, $25.2 million in legacy transport products, $19.8 million in 6100 Multiservice Optical Platform and $15.4 million of CPL. This shift in revenue reflects changing market demand as network operators adopt coherent, high-capacity network infrastructures, and our focused marketing and development investment on our next-generation 6500 Packet-Optical Platform that leverages the convergence of packet and optical networking technologies to enable a scalable, programmable solution.
- **Packet-Optical Switching revenue** decreased reflecting a $50.2 million decrease in sales of our CoreDirector® Multiservice Optical Switches. Packet-Optical Switching revenue has historically reflected sales of our CoreDirector platform, which has a concentrated customer base. As a result, revenue and gross margin for this segment can fluctuate considerably depending upon individual customer purchasing decisions. Our Packet-Optical Switching segment is in the midst of a platform transition to our next-generation 5430 Reconfigurable Switching System and the OTN configuration for the 5410 Reconfigurable Switching System. These platforms reflect market and customer demand for solutions that consolidate network features, such as OTN switching and transport, that leverage the convergence of packet and optical networking technologies. As a result, Packet-Optical Switching benefited from a $23.4 million increase in sales of our 5430 Reconfigurable Switching System, primarily relating to the completion of an international, solutions-based, submarine network deployment, and an $11.1 million increase in sales of our OTN configuration for the 5410 Reconfigurable Switching System.
- **Carrier-Ethernet Solutions revenue** increased reflecting increases of $10.1 million in sales of our 3000 and 5000 families of service delivery and aggregation switches and a $5.9 million increase in sales of our 5410 Service Aggregation Switch to support wireless backhaul, Ethernet business services and residential broadband applications. These increases were partially offset by a $12.2 million reduction in sales of our legacy broadband products.
- **Software and Services revenue** increased reflecting increases of $15.2 million in network transformation consulting services, $15.0 million in installation and deployment, $13.3 million in maintenance and support services revenue and $10.0 million in software sales.

Revenue from sales to customers outside of the United States is reflected as International in the geographic distribution of revenue below. The table below (in thousands, except percentage data) sets forth the changes in geographic distribution of revenue for the periods indicated:

	Fiscal Year					
	2011	%*	2012	%*	Increase (decrease)	%**
United States	$ 930,880	53.4	$ 972,576	53.0	$ 41,696	4.5
International	811,090	46.6	861,347	47.0	50,257	6.2
Total	$ 1,741,970	100.0	$ 1,833,923	100.0	$ 91,953	5.3

* Denotes % of total revenue

** Denotes % change from 2011 to 2012

- **United States revenue** reflects increases of $31.6 million in Software and Services revenue, $28.7 million in Packet-Optical Transport sales and $5.4 million in Carrier-Ethernet Solutions sales. These increases were partially offset by a decrease of $24.0 million in Packet-Optical Switching sales.
- **International revenue** reflects increases of $21.8 million in Software and Services revenue, $21.7 million in Packet-Optical Transport sales and $8.3 million in Packet-Optical Switching sales. These increases were slightly offset by a decrease of $1.5 million in Carrier-Ethernet Solutions sales.

A sizable portion of our revenue continues to come from sales to a small number of service providers. As a result, our financial results are significantly affected by and can fluctuate depending upon spending levels and the business opportunities and challenges encountered by our service provider customers. Some of our customers have indicated a procurement strategy to reduce the number of vendors from which they purchase equipment, which could further affect our concentration of revenue where we participate in these efforts. Sales to AT&T were $269.9 million, or 15.5% of total revenue, in fiscal 2011 and $248.1 million, or 13.5% of total revenue, in fiscal 2012. We did not have any other customers accounting for greater than 10% of our revenue in fiscal 2011 or 2012.

Cost of Goods Sold and Gross Profit

Product cost of goods sold consists primarily of amounts paid to third-party contract manufacturers, component costs, employee-related costs and overhead, shipping and logistics costs associated with manufacturing-related operations, warranty and other contractual obligations, royalties, license fees, amortization of intangible assets, cost of excess and obsolete inventory and, when applicable, estimated losses on committed customer contracts.

Services cost of goods sold consists primarily of direct and third-party costs, including employee-related costs, associated with our provision of services including installation, deployment, maintenance support, consulting and training activities, and, when applicable, estimated losses on committed customer contracts.

Our gross profit as a percentage of revenue, or “gross margin,” is susceptible to fluctuations due to a number of factors. In any given period, gross margin can vary significantly depending upon the mix and concentration of revenue by segment, product line within a particular segment, geography, and customers. Gross margin can also be affected by our concentration of lower margin "commons" equipment sales and higher margin channel cards, the mix of lower margin installation services within our service revenue, our introduction of new products, and changes in expense for excess and obsolete inventory and warranty obligations. We expect that gross margins will be subject to fluctuation based on our level of success in driving product cost reductions, rationalizing our supply chain and consolidating third party contract manufacturers and distribution sites as part of our effort to optimize our operations. Gross margin can also be adversely affected by the level of pricing pressure and competition that we encounter in the market. In an effort to retain or secure customers, enter new markets or capture market share, we may agree to pricing or other unfavorable commercial terms that result in lower or negative gross margins on a particular order or group of orders. These market dynamics and factors may adversely affect our gross margins and results of operations in certain periods.

Service gross margin can be affected by the mix of customers and services, particularly the mix between deployment and maintenance services, geographic mix and the timing and extent of any investments in internal resources to support this business.

The tables below (in thousands, except percentage data) set forth the changes in revenue, cost of goods sold and gross profit for the periods indicated:

	Fiscal Year					
	2011	%*	2012	%*	Increase (decrease)	%**
Total revenue	$ 1,741,970	100.0	$ 1,833,923	100.0	$ 91,953	5.3
Total cost of goods sold	1,032,824	59.3	1,109,699	60.5	76,875	7.4
Gross profit	$ 709,146	40.7	$ 724,224	39.5	$ 15,078	2.1

* Denotes % of total revenue

** Denotes % change from 2011 to 2012

	Fiscal Year					
	2011	%*	2012	%*	Increase (decrease)	%**
Product revenue	$ 1,406,532	100.0	$ 1,454,991	100.0	$ 48,459	3.4
Product cost of goods sold	825,969	58.7	868,805	59.7	42,836	5.2
Product gross profit	$ 580,563	41.3	$ 586,186	40.3	$ 5,623	1.0

* Denotes % of product revenue

** Denotes % change from 2011 to 2012

	Fiscal Year					
	2011	%*	2012	%*	Increase (decrease)	%**
Service revenue	$ 335,438	100.0	$ 378,932	100.0	$ 43,494	13.0
Service cost of goods sold	206,855	61.7	240,894	63.6	34,039	16.5
Service gross profit	$ 128,583	38.3	$ 138,038	36.4	$ 9,455	7.4

* Denotes % of service revenue

** Denotes % change from 2011 to 2012

- **Gross profit as a percentage of revenue** decreased as a result of the factors described below.
- **Gross profit on products as a percentage of product revenue** decreased, primarily due to a higher concentration of lower margin product revenue within our Packet-Optical Switching segment, increased warranty expense and provisions for inventory excess and obsolescence, partially offset by higher margin on our Packet-Optical Transport products.
- **Gross profit on services as a percentage of services revenue** decreased due to a higher concentration of lower margin installation and deployment services for international solutions-based projects.

Operating Expense

Operating expense consists of the component elements described below. We expect operating expense to increase in fiscal 2013 from the level reported for fiscal 2012 to support the growth of our business and fund our research and development initiatives.

Research and development expense primarily consists of salaries and related employee expense (including share-based compensation expense), prototype costs relating to design, development, and testing of our products, depreciation expense and third-party consulting costs.

Sales and marketing expense primarily consists of salaries, commissions and related employee expense (including share-based compensation expense), and sales and marketing support expense, including travel, demonstration units, trade show expense and third-party consulting costs.

General and administrative expense primarily consists of salaries and related employee expense (including share-based compensation expense), and costs for third-party consulting and other services.

Amortization of intangible assets primarily reflects purchased technology and customer relationships from our acquisitions.

The table below (in thousands, except percentage data) sets forth the changes in operating expense for the periods indicated:

	Fiscal Year					
	2011	%*	2012	%*	Increase (decrease)	%**
Research and development	$ 379,862	21.8	$ 364,179	19.9	$ (15,683)	(4.1)
Selling and marketing	251,990	14.5	266,338	14.5	14,348	5.7
General and administrative	126,242	7.2	114,002	6.2	(12,240)	(9.7)
Acquisition and integration costs	42,088	2.4	—	—	(42,088)	(100.0)
Amortization of intangible assets	69,665	4.0	51,697	2.8	(17,968)	(25.8)
Restructuring costs	5,781	0.3	7,854	0.4	2,073	35.9
Change in fair value of contingent consideration	(3,289)	(0.2)	—	—	3,289	(100.0)
Total operating expenses	$ 872,339	50.0	$ 804,070	43.8	$ (68,269)	(7.8)

* Denotes % of total revenue

** Denotes % change from 2011 to 2012

- **Research and development expense** benefited from $6.8 million as a result of foreign exchange rates, primarily due to the strengthening of the U.S. dollar in relation to the Canadian dollar and the Indian Rupee. The $15.7 million decrease primarily reflects decreases of $11.0 million in employee compensation and related costs, $4.2 million in depreciation expense and $2.8 million in prototype expense. This was partially offset by an increase of $3.2 million for facilities and information systems expense.
- **Selling and marketing expense** benefited from $4.5 million due to foreign exchange rates, primarily due to the strengthening of the U.S. dollar in relation to the Euro and the Canadian dollar. The $14.3 million increase primarily reflects increases of $9.9 million in employee compensation, a portion of which relates to increases in variable compensation due to our level of order flow, $4.2 million in facilities and information systems expense and $2.1 million of travel and related costs. This increase was partially offset by decreases of $1.0 million each in trade show and advertising expense.
- **General and administrative expense** decreased by $12.2 million primarily related to decreases of $4.9 million in professional services, $4.4 million in employee compensation and related costs largely related to reduced share-based compensation expense, and $2.3 million in facilities and information systems expense.
- **Acquisition and integration costs** principally consist of transaction, consulting and third party service fees related to the acquisition and integration of the MEN Business into the combined operations. This integration activity was substantially completed in the first half of fiscal 2011.
- **Amortization of intangible assets** decreased due to certain intangible assets from the MEN Business reaching the end of their economic lives during fiscal 2011. See Note 2 to our Consolidated Financial Statements in Item 8 of Part II of this annual report.
- **Restructuring costs** for fiscal 2011 and 2012 primarily reflect certain severance and related expense associated with headcount reductions and restructuring activities to align our workforce and resources with market opportunities and research and development initiatives. In addition, restructuring costs for fiscal 2102 include the consolidation of certain facilities located within Maryland.
- **Change in fair value of contingent consideration** relates to the contingent refund right we received as part of the acquisition of the MEN Business associated with the early termination of the Carling lease. During the first quarter of fiscal 2011, Ciena received both notice of early termination from Nortel shortening the Carling lease to five years and as a result reported a $3.3 million gain. See Note 2 to our Consolidated Financial Statements in Item 8 of Part II of this annual report for additional information.

Other items

The table below (in thousands, except percentage data) sets forth the changes in other items for the periods indicated:

	Fiscal Year					
	2011	%*	2012	%*	Increase (decrease)	%**
Interest and other income (loss), net	$ 6,022	0.3	$ (15,200)	(0.8)	$ (21,222)	(352.4)
Interest expense	$ 37,926	2.2	$ 39,653	2.2	$ 1,727	4.6
Gain on cost method investment	$ 7,249	0.4	$ —	—	$ (7,249)	100.0
Provision for income taxes	$ 7,673	0.4	$ 9,322	0.5	$ 1,649	21.5

* Denotes % of total revenue

** Denotes % change from 2011 to 2012

- **Interest and other income (loss), net** decreased due to a $7.7 million non-cash loss in fiscal 2012 related to the foreign exchange rates on assets and liabilities denominated in a currency other than the relevant functional currency as compared to a $4.3 million non-cash gain in fiscal 2011. Interest and other income (loss), net was also affected by a $6.6 million non-cash loss in fiscal 2012 related to the change in fair value of the embedded redemption feature associated with our 4.0% convertible senior notes due March 15, 2015, as compared to a $2.8 million non-cash gain in fiscal 2011.
- **Interest expense** increased due to an additional week of interest expense from our convertible notes payable in fiscal 2012 and the addition of our asset backed loan commitment.
- **Gain on cost method investment** for fiscal 2011 was the result of the sale of a privately held technology company in which we held a minority equity investment.
- **Provision for income taxes** increased primarily due to increased foreign taxes related to additional foreign activity.

Fiscal 2010 compared to Fiscal 2011

On March 19, 2010, Ciena completed its acquisition (the "MEN Acquisition") of the optical networking and Carrier Ethernet assets of Nortel's Metro Ethernet Business (the "MEN Business"). As a result of this acquisition, our results of operations for fiscal 2010 do not include a full year of MEN Business activity. The MEN Acquisition materially affected our operations and financial results. These effects include:

- In fiscal 2010, we paid the $676.8 million purchase price for the MEN Acquisition in cash and issued $375.0 million in aggregate principal amount of 4.0% convertible senior notes due March 15, 2015, in part to fund the purchase price. See Note 2 and Note 13 of the Consolidated Financial Statements found under Item 8 of Part II of this annual report;
- Our revenue increased materially, as not all of fiscal 2010 reflects the addition of the MEN Business due to the timing of the MEN Acquisition;
- Our concentration of Packet-Optical Transport revenue and revenue from outside of the United States increased.;
- Gross margin was adversely affected by the valuation, required under accounting rules, of the acquired finished goods inventory of the MEN Business to fair value upon closing. This valuation increased marketable inventory carrying value by $62.3 million, of which $48.0 million and $14.3 million were recognized in cost of goods sold during fiscal 2010 and 2011, respectively;
- Our operating expense increased materially after the MEN Acquisition, reflecting:
  - the addition of approximately 2,000 employees, nearly doubling our headcount;
  - increased operating costs associated with a significantly expanded, global business;
  - increased amortization costs relating to the acquisition of $492.4 million in intangible assets;
  - transition service expense for services performed by a Nortel affiliate through the second quarter of fiscal 2011, relating to finance and accounting functions, supply chain and logistics management, maintenance and product support, order management and fulfillment, trade compliance, and information technology; and
  - integration-related costs, including transaction, consulting and third party service fees, severance and purchases of capitalized information technology equipment of $122.3 million and $59.6 million for fiscal 2010 and 2011, respectively.

In reviewing our financial results, investors should consider these and other factors in order to better understand period to period comparisons.

Revenue

The table below (in thousands, except percentage data) sets forth the changes in our operating segment revenue for the periods indicated:

	Fiscal Year					
	2010	%*	2011	%*	Increase (decrease)	%**
Revenue:						
Packet-Optical Transport	$ 705,551	57.0	$ 1,121,811	64.5	$ 416,260	59.0
Packet-Optical Switching	112,058	9.1	148,395	8.5	36,337	32.4
Carrier-Ethernet Solutions	179,083	14.5	127,868	7.3	(51,215)	(28.6)
Software and Services	239,944	19.4	343,896	19.7	103,952	43.3
Consolidated revenue	$ 1,236,636	100.0	$ 1,741,970	100.0	$ 505,334	40.9

* Denotes % of total revenue

** Denotes % change from 2010 to 2011

- **Packet-Optical Transport revenue** increased reflecting a $377.8 million increase in sales of our 6500 Packet-Optical Platform, largely driven by service provider demand for high-capacity, optical transport, including coherent 40G and 100G network infrastructures. Packet-Optical Transport revenue also benefited from sales increases of $23.4 million in 4200 Advanced Services Platform, $19.9 million in 6100 Multiservice Optical Platform, $15.9 million in 5100/5200 Advanced Services Platform, and $10.2 million in CPL. These increases were partially offset by decreases of $25.6 million in Corestream® Agility Optical Transport System and $5.1 million in legacy transport products.
- **Packet-Optical Switching revenue** increased reflecting a $21.3 million increase in sales of our 5430 Reconfigurable Switching System and a $14.1 million increase in sales of our CoreDirector® Multiservice Optical Switches. Packet-Optical Switching revenue has historically reflected sales of our CoreDirector platform, which has a concentrated customer base.
- **Carrier-Ethernet Solutions revenue** increased reflecting a $51.6 million decrease in sales of our 3000 and 5000 families of service delivery switches and service aggregation switches and an $8.7 million decrease in sales of our legacy metro Ethernet and broadband products. Carrier Ethernet Service Delivery revenue benefited from $9.1 million in initial revenue from the introduction of the 5410 Service Aggregation Switch to support wireless backhaul, Ethernet business services and residential broadband applications.
- **Software and Services revenue** increased reflecting a $66.1 million increase in maintenance support revenue and a $42.0 million increase in installation, deployment and consulting services.

Revenue from sales to customers outside of the United States is reflected as International in the geographic distribution of revenue below. The table below (in thousands, except percentage data) sets forth the changes in geographic distribution of revenue for the periods indicated:

	Fiscal Year					
	2010	%*	2011	%*	Increase (decrease)	%**
United States	$ 744,232	60.2	$ 930,880	53.4	$ 186,648	25.1
International	492,404	39.8	811,090	46.6	318,686	64.7
Total	$ 1,236,636	100.0	$ 1,741,970	100.0	$ 505,334	40.9

* Denotes % of total revenue

** Denotes % change from 2010 to 2011

- **United States revenue** increased primarily due to a $185.2 million increase in sales of Packet-Optical Transport products, a $38.3 million increase in Software and Services revenue and a $17.4 million increase in Packet-Optical Switching products. These increases were partially offset by a $54.2 million decrease in Carrier Ethernet Solutions sales.

- **International revenue** increased primarily due to a $231.1 million increase in Packet-Optical Transport revenue, a $65.7 million increase in Software and Services revenue and an $18.9 million increase in sales of Packet-Optical Switching products.

Cost of Goods Sold and Gross Profit

The tables below (in thousands, except percentage data) set forth the changes in revenue, cost of goods sold and gross profit for the periods indicated:

	Fiscal Year					
	2010	%*	2011	%*	Increase (decrease)	%**
Total revenue	$ 1,236,636	100.0	$ 1,741,970	100.0	$ 505,334	40.9
Total cost of goods sold	739,135	59.8	1,032,824	59.3	293,689	39.7
Gross profit	$ 497,501	40.2	$ 709,146	40.7	$ 211,645	42.5

* Denotes % of total revenue

** Denotes % change from 2010 to 2011

	Fiscal Year					
	2010	%*	2011	%*	Increase (decrease)	%**
Product revenue	$ 1,009,239	100.0	$ 1,406,532	100.0	$ 397,293	39.4
Product cost of goods sold	596,704	59.1	825,969	58.7	229,265	38.4
Product gross profit	$ 412,535	40.9	$ 580,563	41.3	$ 168,028	40.7

* Denotes % of product revenue

** Denotes % change from 2010 to 2011

	Fiscal Year					
	2010	%*	2011	%*	Increase (decrease)	%**
Service revenue	$ 227,397	100.0	$ 335,438	100.0	$ 108,041	47.5
Service cost of goods sold	142,431	62.6	206,855	61.7	64,424	45.2
Service gross profit	$ 84,966	37.4	$ 128,583	38.3	$ 43,617	51.3

* Denotes % of service revenue

** Denotes % change from 2010 to 2011

- **Gross profit as a percentage of revenue** increased as a result of the factors described below.

- **Gross profit on products as a percentage of product revenue** increased despite less favorable product mix in fiscal 2011, largely as a result of the adverse effect, in fiscal 2010, of a number of items relating to the MEN Acquisition that increased costs of goods sold in that period. These items included $48.0 million related to the revaluation of inventory as of the date of the MEN Acquisition and $6.6 million in excess purchase commitment losses on Ciena's pre-

acquisition inventory relating to product rationalization decisions. Fiscal 2011 cost of goods sold included $14.3 million related to the revaluation of inventory above and an $8.8 million increase in amortization of intangible assets.

- **Gross profit on services as a percentage of services revenue** increased due to higher concentration of professional services as a percentage of revenue, and improved operational efficiencies.

Operating expense

The table below (in thousands, except percentage data) sets forth the changes in operating expense for the periods indicated:

	Fiscal Year					
	2010	%*	2011	%*	Increase (decrease)	%**
Research and development	$ 327,626	26.5	$ 379,862	21.8	$ 52,236	15.9
Selling and marketing	193,515	15.6	251,990	14.5	58,475	30.2
General and administrative	102,692	8.3	126,242	7.2	23,550	22.9
Acquisition and integration costs	101,379	8.2	42,088	2.4	(59,291)	(58.5)
Amortization of intangible assets	99,401	8.0	69,665	4.0	(29,736)	(29.9)
Restructuring costs	8,514	0.7	5,781	0.3	(2,733)	(32.1)
Change in fair value of contingent consideration	(13,807)	(1.1)	(3,289)	(0.2)	10,518	(76.2)
Total operating expenses	$ 819,320	66.2	$ 872,339	50.0	$ 53,019	6.5

* Denotes % of total revenue

** Denotes % change from 2010 to 2011

- **Research and development expense** was adversely affected by $12.2 million as a result of foreign exchange rates, primarily due to the weakening of the U.S. dollar in relation to the Canadian dollar. The $52.2 million increase primarily reflects increases of $47.4 million in employee compensation and related costs, $13.6 million in facilities and information systems, $4.8 million in depreciation expense and $2.5 million in professional services and fees. These increases were partially offset by decreases of $9.6 million in prototype expense and a $5.5 million benefit related to a conditional grant from the Province of Ontario. For additional information regarding the Ontario Grant, see Note 21 of the Consolidated Financial Statements found under Item 8 of Part II of this annual report.

- **Selling and marketing expense** was adversely affected by $2.5 million due to foreign exchange rates, primarily due to the weakening of the U.S. dollar in relation to the Euro and the Canadian dollar. The $58.5 million increase primarily reflects increases of $37.9 million in employee compensation and related costs, $6.0 million in facilities and information systems, $5.2 million in travel-related expenditures, $4.8 million in marketing program costs, $2.7 million in prototype expense and $2.0 million in professional services and fees.

- **General and administrative expense** increased by $21.5 million in employee compensation and related costs, reflecting increased administrative support service requirements relating to the growth in operations from the MEN Business and the termination of transition support services following the MEN Acquisition.

- **Acquisition and integration costs** principally consist of transaction, consulting and third party service fees related to the acquisition and integration of the MEN Business into the combined operations. This integration activity was substantially completed in the first half of fiscal 2011.

- **Amortization of intangible assets** decreased due to certain intangible assets from the MEN Acquisition reaching the end of their economic lives during fiscal 2011. See Note 2 to our Consolidated Financial Statements in Item 8 of Part II of this annual report.

- **Restructuring costs** primarily reflect the headcount reductions and restructuring activities described in the “Overview — Acquisition of Nortel Metro Ethernet Networks Business and Effect on Results of Operations and Financial Condition ” above.

- **Change in fair value of contingent consideration** is related to the contingent refund right we received as part of the MEN Acquisition relating to the early termination of the Carling lease. See Note 2 to our Consolidated Financial Statements in Item 8 of Part II of this annual report for additional information.

Other items

The table below (in thousands, except percentage data) sets forth the changes in other items for the periods indicated:

	Fiscal Year					
	2010	%*	2011	%*	Increase (decrease)	%**
Interest and other income (loss), net	$ 3,917	0.3	$ 6,022	0.3	$ 2,105	53.7
Interest expense	$ 18,619	1.5	$ 37,926	2.2	$ 19,307	103.7
Gain on cost method investments	$ —	—	$ 7,249	0.4	$ 7,249	100.0
Gain on extinguishment of debt	$ 4,948	0.4	$ —	0.0	$ (4,948)	(100.0)
Provision for income taxes	$ 1,941	0.2	$ 7,673	0.4	$ 5,732	295.3

* Denotes % of total revenue

** Denotes % change from 2010 to 2011

- **Interest and other income (loss), net** increased due to a $2.8 million positive effect of foreign exchange rates on assets and liabilities denominated in a currency other than the relevant functional currency. Fiscal 2010 reflects a $2.0 million charge relating to the termination of an indemnification asset upon the expiration of the statute of limitations applicable to one of the uncertain tax contingencies acquired as part of the MEN Acquisitions.
- **Interest expense** increased due to our issuance during fiscal 2010 of $375.0 million in aggregate principal amount of 4.0% convertible senior notes due March 15, 2015 and $350.0 million in aggregate principal amount of 3.75% convertible senior notes due October 15, 2018. See Note 13 to the Consolidated Financial Statements found under Item 8 of Part II of this annual report.
- **Gain on cost method investments** for fiscal 2011 was the result of the sale of a privately held technology company in which we held a minority equity investment.
- **Gain on extinguishment of debt** for fiscal 2010 resulted from our repurchase of $81.8 million in aggregate principal amount of our outstanding 0.25% convertible notes in privately negotiated transactions for $76.1 million. We recorded a gain on the extinguishment of debt in the amount of $4.9 million, which consists of the $5.7 million gain from the repurchase of the notes, less $0.8 million of associated debt issuance costs.
- **Provision for income taxes** increased primarily due to increased foreign taxes.

Segment Profit (Loss)

The table below (in thousands, except percentage data) sets forth the changes in our segment profit (loss) for the respective periods:

	Fiscal Year			
	2011	2012	Increase (decrease)	%*
Segment profit (loss):				
Packet-Optical Transport	$ 191,727	$ 242,137	$ 50,410	26.3
Packet-Optical Switching	$ 49,286	$ 22,842	$ (26,444)	(53.7)
Carrier-Ethernet Solutions	$ 10,849	$ (4,066)	$ (14,915)	(137.5)
Software and Services	$ 77,422	$ 99,132	$ 21,710	28.0

* Denotes % change from 2011 to 2012

- **Packet-Optical Transport segment profit** increased primarily due to increased sales volume and decreased research and development costs, partially offset by decreased gross margin.
- **Packet-Optical Switching segment profit** decreased primarily due to lower gross margins related to a change in product mix as described in our operating segment revenue discussion above, and decreased sales volume, partially offset by decreased research and development costs.
- **Carrier-Ethernet Solutions segment loss** in fiscal 2012, as compared to segment profit in fiscal 2011, was primarily due to increased research and development costs and decreased gross margin, partially offset by increased sales volume.
- **Software and Services segment profit** increased primarily due to increased sales volume and decreased research and development costs, partially offset by a higher concentration of revenue from lower margin installation and deployment services for international solutions-based projects.

The table below (in thousands, except percentage data) sets forth the changes in our segment profit (loss) for the respective periods:

	Fiscal Year			
	2010	2011	Increase (decrease)	%*
Segment profit (loss):				
Packet-Optical Transport	$ 69,319	$ 191,727	$ 122,408	176.6
Packet-Optical Switching	$ 15,662	$ 49,286	$ 33,624	214.7
Carrier-Ethernet Solutions	$ 28,742	$ 10,849	$ (17,893)	(62.3)
Software and Services	$ 56,152	$ 77,422	$ 21,270	37.9

* Denotes % change from 2010 to 2011

- **Packet-Optical Transport segment profit** increased primarily due to higher sales volume. Segment profit during fiscal 2010 was adversely affected by the revaluation of the acquired finished goods inventory of the MEN Business to fair value upon closing and the excess purchase commitment losses on Ciena's pre-acquisition inventory relating to product rationalization decisions described above.
- **Packet-Optical Switching segment profit** increased due to higher sales volume and decreased research and development costs, partially offset by lower product gross margin.
- **Carrier-Ethernet Solutions segment profit** decreased due to lower sales volume, partially offset by higher gross margin and decreased research and development costs.
- **Software and Services segment profit** was significantly affected by the MEN Acquisition. Segment profit increased due to increased sales volume, partially offset by increased research and development costs.

Liquidity and Capital Resources

At October 31, 2012, our principal sources of liquidity were cash and cash equivalents and short-term investments in marketable debt securities, representing U.S. treasuries. The following table sets forth (in thousands) changes in our cash and cash equivalents and investments in marketable debt securities (in thousands):

	October 31,		Increase
	2011	2012	(decrease)
Cash and cash equivalents	$ 541,896	$ 642,444	$ 100,548
Short-term investments in marketable debt securities	—	50,057	50,057
Long-term investments in marketable debt securities	50,264	—	(50,264)
Total cash and cash equivalents and investments in marketable debt securities	$ 592,160	$ 692,501	$ 100,341

The change in total cash and cash equivalents and investments in marketable debt securities during fiscal 2012 was primarily related to the following:

- $107.1 million cash generated by operations, consisting of $92.6 million from net losses adjusted for non-cash charges and $14.5 million for changes in working capital;
- $12.2 million from proceeds of stock issuances under our employee stock purchase plan and the exercise of stock options, slightly offset by $2.3 million of debt issuance costs and $1.9 million for the repayment of capital lease obligations; and
- $48.1 million for purchases of equipment, furniture, fixtures and intellectual property, partially offset by $35.6 million transferred from restricted cash as a result of reductions in cash collateral required to support our standby letters of credit described below.

On August 13, 2012, we entered into a $150.0 million senior secured asset-based revolving credit facility (the "Credit Facility"). See Note 14 to our Consolidated Financial Statements included in Item 8 of Part II of this annual report for a summary of the material terms and conditions of this Credit Facility. We principally expect to use the Credit Facility to support the issuance of letters of credit that arise in the ordinary course of our business and thereby to reduce our use of cash required to collateralize these instruments. As of October 31, 2012, letters of credit totaling $50.8 million were collateralized by the Credit Facility. There were no borrowings outstanding under the Credit Facility as of October 31, 2012. Ciena expects to satisfy the financial criteria such that the Credit Facility will not early mature on January 31, 2013.

We regularly evaluate our liquidity position, debt obligations, and anticipated cash needs to fund our operating plans and may consider capital raising and other market opportunities that may be available to us. Based on past performance and current expectations, we believe that our cash, cash equivalents and investments will satisfy our working capital needs, capital expenditures, the repayment of our outstanding 0.25% convertible senior notes due May 1, 2013 and other liquidity requirements associated with our operations through at least the next 12 months.

The following sections set forth the components of our $107.1 million of cash generated by operating activities for fiscal 2012:

Net loss adjusted for non-cash charges

The following tables set forth (in thousands) our net loss adjusted for non-cash charges during the period:

	Year ended October 31, 2012
Net loss	$ (144,021)
Adjustments for non-cash charges:	
Change in fair value of embedded redemption feature	6,600
Depreciation of equipment, furniture and fixtures, and amortization of leasehold improvements	59,099
Share-based compensation costs	32,394
Amortization of intangible assets	74,497
Provision for inventory excess and obsolescence	23,438
Provision for warranty	33,418
Other	7,122
Net losses adjusted for non-cash charges	$ 92,547

Working Capital

Accounts Receivable, Net

Cash generated by accounts receivable during fiscal 2012, net of $1.6 million in provision for doubtful accounts, was $70.4 million. Our days sales outstanding (DSOs) decreased from 86 days for fiscal 2011 to 69 days for fiscal 2012. DSOs decreased largely due to improved operational efficiencies from the redesign of billing and collection processes and systems.

The following table sets forth (in thousands) changes to our accounts receivable, net of allowance for doubtful accounts, from the end of fiscal 2011 through the end of fiscal 2012:

	October 31, 2011	October 31, 2012	Increase (decrease)
Accounts receivable, net	$ 417,509	$ 345,496	$ (72,013)

Inventory

Cash used by inventory during fiscal 2012 was $53.5 million. Our inventory turns decreased from 3.6 turns during fiscal 2011 to 3.3 turns during fiscal 2012. During fiscal 2012, changes in inventory reflect a $23.4 million reduction related to a non-cash provision for excess and obsolescence of which $15.2 million was scrapped. The following table sets forth (in thousands) changes to the components of our inventory from the end of fiscal 2011 through the end fiscal 2012:

	October 31, 2011	October 31, 2012	Increase (decrease)
Raw materials	$ 45,333	$ 39,678	$ (5,655)
Work-in-process	13,851	10,736	(3,115)
Finished goods	134,998	178,210	43,212
Deferred cost of goods sold	67,665	71,484	3,819
Gross inventory	261,847	300,108	38,261
Provision for inventory excess and obsolescence	(31,771)	(40,010)	(8,239)
Inventory	$ 230,076	$ 260,098	$ 30,022

Prepaid expenses and other

Cash generated by prepaid expense and other during fiscal 2012 was $1.7 million, primarily related to decreases in prepaid taxes and product demonstration units, partially offset by increases in other non-trade receivables and deferred deployment expense.

Accounts payable, accruals and other obligations

Cash generated by accounts payable, accruals and other obligations during fiscal 2012 was $12.6 million. This amount reflects a $49.6 million increase in our accounts payable, accruals and other obligations, and an additional $1.2 million related to payments for previously accrued equipment purchases, less non-cash provisions of $33.4 million related to warranties and $4.8 million for financing activities related to unpaid capital leases. The following table sets forth (in thousands) changes in our accounts payable, accruals and other obligations from the end of fiscal 2011 through the end of fiscal 2012:

	October 31, 2011	October 31, 2012	Increase (decrease)
Accounts payable	$ 157,116	$ 179,704	$ 22,588
Accrued liabilities	197,004	209,540	12,536
Other long-term obligations	17,263	31,779	14,516
Accounts payable, accruals and other obligations	$ 371,383	$ 421,023	$ 49,640

Interest Paid on Convertible Notes and Credit Facility

Interest on our outstanding 0.25% convertible senior notes, due May 1, 2013, is payable on May 1 and November 1 of each year. We paid $0.8 million in interest on these convertible notes during fiscal 2012.

Interest on our outstanding 4.0% convertible senior notes, due March 15, 2015, is payable on March 15 and September 15 of each year. We paid $15.0 million in interest on these convertible notes during fiscal 2012.

Interest on our outstanding 0.875% convertible senior notes, due June 15, 2017, is payable on June 15 and December 15 of each year. We paid $4.4 million in interest on these convertible notes during fiscal 2012.

Interest on our outstanding 3.75% convertible senior notes, due October 15, 2018, is payable on April 15 and October 15 of each year. We paid $13.1 million in interest on these convertible notes during fiscal 2012.

During fourth quarter of fiscal 2012, Ciena utilized the Credit Facility to collateralize certain standby letters of credit. We paid $0.2 million in commitment fees, interest expense and other administrative charges relating to the Credit Facility during fiscal 2012.

For additional information about our convertible notes, see Note 13 to our Consolidated Financial Statements included in Item 8 of Part II of this annual report. See Note 22 to the Consolidated Financial Statements in Item 8 of Part II of this annual report for information relating to Ciena's pending private exchange transactions relating to a portion of our outstanding 4.0% convertible senior notes, due March 15, 2015, and the issuance of new 4.0% convertible senior notes, due December 15, 2020. For additional information about the Credit Facility, see Note 14 to our Consolidated Financial Statements included in Item 8 of Part II of this report.

Deferred revenue

Deferred revenue decreased by $16.7 million during fiscal 2012. Product deferred revenue represents payments received in advance of shipment and payments received in advance of our ability to recognize revenue. Services deferred revenue is related to payment for service contracts that will be recognized over the contract term. The following table reflects (in thousands) the balance of deferred revenue and the change in this balance from the end of fiscal 2011 through the end of fiscal 2012:

	October 31,		Increase
	2011	2012	(decrease)
Products	$ 42,915	$ 29,279	$ (13,636)
Services	80,883	77,797	(3,086)
Total deferred revenue	$ 123,798	$ 107,076	$ (16,722)

Contractual Obligations

During fiscal 2012, we entered into a lease relating to office space for our new corporate headquarters in Hanover, Maryland, consisting of a rentable area of approximately 154,100 square feet. The future minimal rental commitments to be paid over the 15-year lease term are approximately $61.8 million. The following is a summary of our future minimum payments under contractual obligations as of October 31, 2012 (in thousands):

	Total	Less than one year	One to three years	Three to five years	Thereafter
Interest due on convertible notes	$ 138,395	$ 32,770	$ 57,500	$ 35,000	$ 13,125
Principal due at maturity on convertible notes	1,441,210	216,210	375,000	500,000	350,000
Operating leases (1)	145,601	31,381	48,497	19,597	46,126
Capital lease	6,328	3,040	3,288	—	—
Other obligations	1,856	879	977	—	—
Purchase obligations (2)	165,617	165,617	—	—	—
Total (3)	$ 1,899,007	$ 449,897	$ 485,262	$ 554,597	$ 409,251

(1) The amount for operating leases above does not include variable insurance, taxes, maintenance and other costs required by the applicable operating lease. These costs are not expected to have a material future impact.

(2) Purchase obligations relate to purchase order commitments to our contract manufacturers and component suppliers for inventory. In certain instances, we are permitted to cancel, reschedule or adjust these orders. Consequently, only a portion of the amount reported above relates to firm, non-cancelable and unconditional obligations.

(3) As of October 31, 2012, we also had approximately $11.5 million of other long-term obligations in our Consolidated Balance Sheet for unrecognized tax positions that are not included in this table because the timing or amount of any cash settlement with the respective tax authority cannot be reasonably estimated.

Some of our commercial commitments, including some of the future minimum payments in operating leases set forth above and certain commitments to customers, are secured by standby letters of credit collateralized under our Credit Facility or restricted cash. Restricted cash balances are included in other current assets or other long-term assets depending upon the duration of the underlying letter of credit obligation. Use of restricted cash to support these standby letters of credit decreased significantly during fiscal 2012 as we utilized our Credit Facility to replace cash previously required to collateralize these obligations. See Note 14 to our Consolidated Financial Statements included in Item 8 of Part II of this annual report for a summary of the material terms and condition of the Credit Facility. The following is a summary of our commercial commitments secured by standby letters of credit by commitment expiration date as of October 31, 2012 (in thousands):

	Total	Less than one year	One to three years	Three to five years	Thereafter
Standby letters of credit	$ 56,101	$ 49,980	$ 3,852	$ 14	$ 2,255

Off-Balance Sheet Arrangements

We do not engage in any off-balance sheet financing arrangements. In particular, we do not have any equity interests in so-called limited purpose entities, which include special purpose entities (SPEs) and structured finance entities.

Critical Accounting Policies and Estimates

The preparation of our consolidated financial statements requires that we make estimates and judgments that affect the reported amounts of assets, liabilities, revenue and expense, and related disclosure of contingent assets and liabilities. By their nature, these estimates and judgments are subject to an inherent degree of uncertainty. On an ongoing basis, we reevaluate our estimates, including those related to share-based compensation, bad debts, inventories, intangible and other long-lived assets, income taxes, warranty obligations, restructuring, derivatives and hedging, and contingencies and litigation. We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances. Among other things, these estimates form the basis for judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions. To the extent that there are material differences between our estimates and actual results, our consolidated financial statements will be affected.

We believe that the following critical accounting policies reflect those areas where significant judgments and estimates are used in the preparation of our consolidated financial statements.

Revenue Recognition

We recognize revenue when all of the following criteria are met: persuasive evidence of an arrangement exists; delivery has occurred or services have been rendered; the price to the buyer is fixed or determinable; and collectibility is reasonably assured. Customer purchase agreements and customer purchase orders are generally used to determine the existence of an arrangement. Shipping documents and evidence of customer acceptance, when applicable, are used to verify delivery or services rendered. We assess whether the price is fixed or determinable based on the payment terms associated with the transaction and whether the sales price is subject to refund or adjustment. We assess collectibility based primarily on the creditworthiness of the customer as determined by credit checks and analysis, as well as the customer's payment history. Revenue for maintenance services is generally deferred and recognized ratably over the period during which the services are to be performed.

We apply the percentage of completion method to long-term arrangements where we are required to undertake significant production, customizations or modification engineering, and reasonable and reliable estimates of revenue and cost are available. Utilizing the percentage of completion method, we recognize revenue based on the ratio of actual costs incurred to date to total estimated costs expected to be incurred. In instances that do not meet the percentage of completion method criteria, recognition of revenue is deferred until there are no uncertainties regarding customer acceptance.

Software revenue is recognized when persuasive evidence of an arrangement exists, delivery has occurred, the fee is fixed or determinable, and collectibility is probable. In instances where final acceptance criteria of the software is specified by the customer, revenue is deferred until there are no uncertainties regarding customer acceptance.

We limit the amount of revenue recognition for delivered elements to the amount that is not contingent on the future delivery of products or services, future performance obligations or subject to customer-specified return or refund privileges.

Accounting for multiple element arrangements entered into prior to fiscal 2011

Arrangements with customers may include multiple deliverables, including any combination of equipment, services and software. If multiple element arrangements include software or software-related elements that are essential to the equipment, we allocate the arrangement fee among separate units of accounting. Multiple element arrangements that include software are separated into more than one unit of accounting if the functionality of the delivered element(s) is not dependent on the undelivered element(s), there is vendor-specific objective evidence ("VSOE") of the fair value of the undelivered element(s), and general revenue recognition criteria related to the delivered element(s) have been met. The amount of product and services revenue recognized is affected by our judgment as to whether an arrangement includes multiple elements and, if so, whether VSOE of fair value exists. VSOE is established based on our standard pricing and discounting practices for the specific product or service when sold separately. In determining VSOE, we require that a substantial majority of the selling prices for a product or service fall within a reasonably narrow pricing range. Changes to the elements in an arrangement and our ability to establish VSOE for those elements could affect the timing of revenue recognition. For all other multiple element arrangements, we separate the elements into more than one unit of accounting if the delivered element(s) have value to the customer on a stand-alone basis, objective and reliable evidence of fair value exists for the undelivered element(s), and delivery of the undelivered element(s) is probable and substantially in our control. Revenue is allocated to each unit of accounting based on the relative fair value of each accounting unit or using the residual method if objective evidence of fair value does not exist for the delivered element(s). The revenue recognition criteria described above are applied to each separate unit of accounting. If these criteria are not met, revenue is deferred until the criteria are met or the last element has been delivered.

Accounting for multiple element arrangements entered into or materially modified after fiscal 2010

In October 2009, the Financial Accounting Standards Board, ("FASB") amended the accounting standard for revenue recognition with multiple deliverables which provided guidance on how the arrangement fee should be allocated. The amended guidance allows the use of management's best estimate of selling price ("BESP") for individual elements of an arrangement when VSOE or third-party evidence ("TPE") is unavailable. Additionally, it eliminates the residual method of revenue recognition in accounting for multiple deliverable arrangements. The FASB also amended the accounting guidance for revenue arrangements with software elements to exclude from the scope of the software revenue recognition guidance, tangible products that contain both software and non-software components that function together to deliver the product's essential functionality.

We adopted the new accounting guidance on a prospective basis for arrangements entered into or materially modified on or after November 1, 2010. Under the new guidance, we separate elements into more than one unit of accounting if the delivered element(s) have value to the customer on a stand-alone basis, and delivery of the undelivered element(s) is probable and substantially in our control. Therefore, the new guidance allows for deliverables, for which revenue was previously deferred due to an absence of fair value, to be separated and recognized as revenue as delivered. Also, because the residual method has been eliminated, discounts offered by us are allocated to all deliverables, rather than to the delivered element(s). Our adoption of the new guidance for revenue arrangements changed the accounting for certain products that consist of hardware and software components, in which these components together provided the product's essential functionality. For transactions involving these products entered into prior to fiscal 2011, we recognized revenue based on software revenue recognition guidance.

Revenue for multiple element arrangements is allocated to each unit of accounting based on the relative selling price of each element, with revenue recognized when the revenue recognition criteria are met for each delivered element. We determine the selling price for each deliverable based upon the selling price hierarchy for multiple-deliverable arrangements. Under this hierarchy, we use VSOE of selling price, if it exists, or TPE of selling price if VSOE does not exist. If neither VSOE nor TPE of selling price exists for a deliverable, we use our BESP for that deliverable.

VSOE is established based on our standard pricing and discounting practices for the specific product or service when sold separately. In determining VSOE, which exists across certain of our service offerings, we require that a substantial majority of the selling prices for a product or service fall within a reasonably narrow pricing range. We have generally been unable to establish TPE of selling price because our go-to-market strategy differs from that of others in our markets, and the extent of customization and differentiated features and functions varies among comparable products or services from our peers. We determine BESP based upon management-approved pricing guidelines, which consider multiple factors including the type of product or service, gross margin objectives, competitive and market conditions, and the go-to-market strategy; all of which can affect pricing practices.

Historically, for arrangements with multiple elements, we were typically able to establish fair value for undelivered elements and so we applied the residual method. As a result, assuming the adoption of the accounting guidance above on a prospective basis for arrangements entered into or materially modified on or after November 1, 2009, the effect on revenue recognized for fiscal 2010 would have been an increase of approximately $33.0 million.

Our total deferred revenue for products was $42.9 million and $29.3 million as of October 31, 2011 and October 31, 2012, respectively. Our services revenue is deferred and recognized ratably over the period during which the services are to be performed. Our total deferred revenue for services was $80.9 million and $77.8 million as of October 31, 2011 and October 31, 2012, respectively.

Business Combinations

We record acquisitions using the purchase method of accounting. All of the assets acquired, liabilities assumed, contractual contingencies and contingent consideration are recognized at their fair value as of the acquisition date. The excess of the purchase price over the estimated fair values of the net tangible and net intangible assets acquired is recorded as goodwill. The application of the purchase method of accounting for business combinations requires management to make significant estimates and assumptions in the determination of the fair value of assets acquired and liabilities assumed in order to properly allocate purchase price consideration between assets that are depreciated and amortized from goodwill. These assumptions and estimates include a market participant's use of the asset and the appropriate discount rates for a market participant. Our estimates are based on historical experience, information obtained from the management of the acquired companies and, when appropriate, includes assistance from independent third-party appraisal firms. Our significant assumptions and estimates can include, but are not limited to, the cash flows that an asset is expected to generate in the future, the appropriate weighted-average cost of capital, and the cost savings expected to be derived from acquiring an asset. These estimates are inherently uncertain and unpredictable. In addition, unanticipated events and circumstances may occur which may affect the accuracy or validity of such estimates. During fiscal 2010, we completed the MEN Acquisition for a purchase price of $676.8 million. As a result of the purchase price allocation to the assets acquired and liabilities assumed, as well as contingent consideration, there was no value assigned to goodwill. See Note 2 to the Consolidated Financial Statements included in Item 8 of Part II of this annual report.

Share-Based Compensation

We estimate the fair value of our restricted stock unit awards based on the fair value of our common stock on the date of grant. Our outstanding restricted stock unit awards are subject to service-based vesting conditions and/or performance-based vesting conditions. We recognize the estimated fair value of service-based awards, net of estimated forfeitures, as share-based expense ratably over the vesting period on a straight-line basis. Awards with performance-based vesting conditions require the achievement of certain financial or other performance criteria or targets as a condition to the vesting, or acceleration of vesting. We recognize the estimated fair value of performance-based awards, net of estimated forfeitures, as share-based expense over the performance period, using graded vesting, which considers each performance period or tranche separately, based upon our determination of whether it is probable that the performance targets will be achieved. At each reporting period, we reassess the probability of achieving the performance targets and the performance period required to meet those targets. Determining whether the performance targets will be achieved involves judgment, and the estimate of expense may be revised periodically based on changes in the probability of achieving the performance targets. Revisions are reflected in the period in which the estimate is changed. If any performance goals are not met, no compensation cost is ultimately recognized against that goal, and, to the extent previously recognized, compensation cost is reversed.

Because share-based compensation expense is based on awards that are ultimately expected to vest, the amount of expense takes into account estimated forfeitures. We estimate forfeitures at the time of grant and revise, if necessary, in subsequent periods if actual forfeitures differ from those estimates. Changes in these estimates and assumptions can materially affect the measure of estimated fair value of our share-based compensation. See Note 18 to our Consolidated Financial Statements in Item 8 of Part II of this report for information regarding our assumptions related to share-based compensation and the amount of share-based compensation expense we incurred for the periods covered in this report. As of October 31, 2012, total unrecognized compensation expense was $49.4 million: (i) $0.2 million, which relates to unvested stock options and is expected to be recognized over a weighted-average period of 0.5 year; and (ii) $49.2 million, which relates to unvested restricted stock units and is expected to be recognized over a weighted-average period of 1.3 years.

We recognize windfall tax benefits associated with the exercise of stock options or release of restricted stock units directly to stockholders' equity only when realized. A windfall tax benefit occurs when the actual tax benefit realized by us upon an employee's disposition of a share-based award exceeds the deferred tax asset, if any, associated with the award that we had

recorded. When assessing whether a tax benefit relating to share-based compensation has been realized, we follow the tax law "with-and-without" method. Under the with-and-without method, the windfall is considered realized and recognized for financial statement purposes only when an incremental benefit is provided after considering all other tax benefits including our net operating losses. The with-and-without method results in the windfall from share-based compensation awards always being effectively the last tax benefit to be considered. Consequently, the windfall attributable to share-based compensation will not be considered realized in instances where our net operating loss carryover (that is unrelated to windfalls) is sufficient to offset the current year's taxable income before considering the effects of current-year windfalls.

Reserve for Inventory Obsolescence

We make estimates about future customer demand for our products when establishing the appropriate reserve for excess and obsolete inventory. We write down inventory that has become obsolete or unmarketable by an amount equal to the difference between the cost of inventory and the estimated market value based on assumptions about future demand and market conditions. Inventory write downs are a component of our product cost of goods sold. Upon recognition of the write down, a new lower cost basis for that inventory is established, and subsequent changes in facts and circumstances do not result in the restoration or increase in that newly established cost basis. In an effort to limit our exposure to delivery delays and to satisfy customer needs we purchase inventory based on forecasted sales across our product lines. In addition, part of our research and development strategy is to promote the convergence of similar features and functionalities across our product lines. Each of these practices exposes us to the risk that our customers will not order products for which we have forecasted sales, or will purchase less than we have forecasted. Historically, we have experienced write downs due to changes in our strategic direction, discontinuance of a product and declines in market conditions. We recorded charges for excess and obsolete inventory of $17.3 million and $23.4 million in fiscal 2011 and 2012, respectively. The charges in fiscal 2011 were primarily related to excess inventory due to a change in forecasted sales across our product line. The charges in fiscal 2012 were primarily related to engineering design changes and the discontinuance of certain parts and components used in the manufacture of our Packet-Optical Transport and Packet-Optical Switching products. Our inventory net of allowance for excess and obsolescence was $230.1 million and $260.1 million as of October 31, 2011 and October 31, 2012, respectively.

Allowance for Doubtful Accounts Receivable

Our allowance for doubtful accounts receivable is based on management's assessment, on a specific identification basis, of the collectibility of customer accounts. We perform ongoing credit evaluations of our customers and generally have not required collateral or other forms of security from customers. In determining the appropriate balance for our allowance for doubtful accounts receivable, management considers each individual customer account receivable in order to determine collectibility. In doing so, we consider creditworthiness, payment history, account activity and communication with such customer. If a customer's financial condition changes, or if actual defaults are higher than our historical experience, we may be required to take a charge for an allowance for doubtful accounts receivable which could have an adverse impact on our results of operations. Our accounts receivable, net of allowance for doubtful accounts, was $417.5 million and $345.5 million as of October 31, 2011 and October 31, 2012, respectively. Our allowance for doubtful accounts was $0.7 million and $1.5 million as of October 31, 2011 and October 31, 2012, respectively.

Long-lived Assets

Our long-lived assets include: equipment, furniture and fixtures; finite-lived intangible assets; and maintenance spares. As of October 31, 2011 and October 31, 2012 these assets totaled $504.6 million and $438.3 million, net, respectively. We test long-lived assets for impairment whenever events or changes in circumstances indicate that the assets' carrying amount is not recoverable from its undiscounted cash flows. Our long-lived assets are assigned to asset groups which represents the lowest level for which we identify cash flows. Due to the lack of a triggering event, no impairment analysis was performed in fiscal 2011 or 2012.

Deferred Tax Valuation Allowance

As of October 31, 2012, we have recorded a valuation allowance of $1.5 billion which offsets nearly all our net deferred tax assets. When measuring the need for a valuation allowance, we assess both positive and negative evidence regarding the realizability of these deferred tax assets. We record a valuation allowance to reduce our deferred tax assets to the amount that is more likely than not to be realized. In determining net deferred tax assets and valuation allowances, management is required to make judgments and estimates related to projections of profitability, the timing and extent of the utilization of net operating loss carryforwards, applicable tax rates, transfer pricing methodologies and tax planning strategies. The valuation allowance is reviewed quarterly and is maintained until sufficient positive evidence exists to support a reversal. Because evidence such as our operating results during the most recent three-year period is afforded more weight than forecasted results for future periods,

our cumulative loss during this three-year period represents sufficient negative evidence regarding the need for nearly a full valuation allowance. We will release this valuation allowance when management determines that it is more likely than not that our deferred tax assets will be realized. Any future release of valuation allowance may be recorded as a tax benefit increasing net income or as an adjustment to paid-in capital, based on tax ordering requirements.

Warranty

Our liability for product warranties, included in other accrued liabilities, was $47.3 million and $55.1 million as of October 31, 2011 and October 31, 2012, respectively. Our products are generally covered by a warranty for periods ranging from one to five years. We accrue for warranty costs as part of our cost of goods sold based on associated material costs, technical support labor costs and associated overhead. Material cost is estimated based primarily upon historical trends in the volume of product returns within the warranty period and the cost to repair or replace the equipment. Technical support labor cost is estimated based primarily upon historical trends and the cost to support the customer cases within the warranty period. The provision for product warranties was $18.5 million and $33.4 million for fiscal 2011 and 2012, respectively. See Note 12 to the Consolidated Financial Statements included in Item 8 of Part II of this report. The provision for warranty claims may fluctuate on a quarterly basis depending upon the mix of products and customers in that period. If actual product failure rates, material replacement costs, service or labor costs differ from our estimates, revisions to the estimated warranty provision would be required. An increase in warranty claims or the related costs associated with satisfying these warranty obligations could increase our cost of sales and negatively affect our gross margin.

Effects of Recent Accounting Pronouncements

See Note 1 to our Consolidated Financial Statements in Item 8 of Part II of this report for information relating to our discussion of the effects of recent accounting pronouncements.

Unaudited Quarterly Results of Operations

The tables below (in thousands, except per share data) set forth the operating results in our consolidated statements of operations for each of the eight quarters in the period ended October 31, 2012. This information is unaudited, but in our opinion reflects all adjustments (consisting only of normal recurring adjustments) that we consider necessary for a fair statement of such information in accordance with generally accepted accounting principles. The results for any quarter are not necessarily indicative of results for any future period.

	Jan. 31, 2011	Apr. 30, 2011	Jul. 31, 2011	Oct. 31, 2011	Jan. 31, 2012	Apr. 30, 2012	Jul. 31, 2012	Oct. 31, 2012
Revenue:								
Products	$ 352,427	$ 336,026	$ 350,030	$ 368,049	$ 333,673	$ 384,726	$ 373,418	$ 363,174
Services	80,881	81,868	85,283	87,406	83,012	92,891	100,672	102,357
Total Revenue	433,308	417,894	435,313	455,455	416,685	477,617	474,090	465,531
Cost of goods sold:								
Products	214,401	202,665	198,217	210,686	197,752	234,372	225,238	211,443
Services	50,401	49,396	52,199	54,859	51,177	60,304	67,531	61,882
Total costs of goods sold	264,802	252,061	250,416	265,545	248,929	294,676	292,769	273,325
Gross profit	168,506	165,833	184,897	189,910	167,756	182,941	181,321	192,206
Operating expenses:								
Research and development	95,790	99,624	93,216	91,232	89,664	90,399	88,315	95,801
Selling and marketing	57,092	61,768	61,895	71,235	64,411	62,517	65,397	74,013
General and administrative	38,314	32,480	28,172	27,276	29,664	26,670	27,876	29,792
Acquisition and integration costs	24,185	10,741	4,822	2,340	—	—	—	—
Amortization of intangible assets	28,784	13,674	13,673	13,534	13,471	12,967	12,714	12,545
Restructuring costs	1,522	3,164	504	591	1,722	1,851	2,291	1,990
Change in fair value of contingent consideration	(3,289)	—	—	—	—	—	—	—
Total operating expenses	242,398	221,451	202,282	206,208	198,932	194,404	196,593	214,141
Loss from operations	(73,892)	(55,618)	(17,385)	(16,298)	(31,176)	(11,463)	(15,272)	(21,935)
Interest and other income (loss), net	6,265	4,229	(3,160)	(1,312)	(4,887)	(4,387)	(2,458)	(3,468)
Interest expense	(9,550)	(9,406)	(9,470)	(9,500)	(9,570)	(9,646)	(9,597)	(10,840)
Gain on cost method investment	—	—	—	7,249	—	—	—	—
Loss before income taxes	(77,177)	(60,795)	(30,015)	(19,861)	(45,633)	(25,496)	(27,327)	(36,243)
Provision for income tax	1,879	1,891	1,435	2,468	2,020	2,284	2,490	2,528
Net loss	$ (79,056)	$ (62,686)	$ (31,450)	$ (22,329)	$ (47,653)	$ (27,780)	$ (29,817)	$ (38,771)
Basic net loss per common share	$ (0.84)	$ (0.66)	$ (0.33)	$ (0.23)	$ (0.49)	$ (0.28)	$ (0.30)	$ (0.39)
Diluted net loss per potential common share	$ (0.84)	$ (0.66)	$ (0.33)	$ (0.23)	$ (0.49)	$ (0.28)	$ (0.30)	$ (0.39)
Weighted average basic common shares outstanding	94,496	95,360	96,313	97,197	98,066	98,981	99,530	100,506
Weighted average dilutive potential common shares outstanding	94,496	95,360	96,313	97,197	98,066	98,981	99,530	100,506

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

The following discussion about our market risk disclosures involves forward-looking statements. Actual results could differ materially from those projected in the forward-looking statements. We are exposed to market risk related to changes in interest rates and foreign currency exchange rates.

*Interest Rate Sensitivity***.** We currently hold an investment in a U.S. Government obligation that matures in January 2013. See Notes 5 and 6 to our Consolidated Financial Statements for information relating to investments and fair value. This investment is sensitive to interest rate movements, and its fair value will decline as interest rates rise and increase as interest rates decline. The estimated impact on this investment of a 100 basis point (1.0%) increase in interest rates across the yield curve from rates in effect as of the balance sheet date would be a $0.1 million decline in value.

Foreign Currency Exchange Risk. As a global concern, our business and results of operations are exposed to movements in foreign currency exchange rates. As a result of our increased global presence, a larger percentage of our revenue is non-U.S. dollar denominated with Canadian Dollars and Euros being our most significant foreign currency revenue streams. If the U.S. dollar strengthens against these currencies, our revenues reported in U.S. dollars would decline. For our U.S. dollar denominated sales, an increase in the value of the U.S. dollar would increase the real cost to our customers of our products in markets outside the United States, which could impact our competitive position.

With regard to operating expense, our primary exposure to foreign currency exchange risk relates to operating expense incurred in Canadian Dollars, British Pounds, Euros and Indian Rupees. During fiscal 2012, approximately 52.0% of our operating expense was non-U.S. dollar denominated. If these currencies strengthen, costs reported in U.S. dollars will increase, which would increase our expenses. During fiscal 2012, research and development expense benefited from approximately $6.8 million, inclusive of hedging, due to the strengthening of the U.S. dollar in relation to the Canadian Dollar and the Indian Rupee in comparison to fiscal 2011. Also in fiscal 2012, sales and marketing expense benefited from approximately $4.5 million due to the strengthening of the U.S. dollar in relation to the Euro in comparison to fiscal 2011.

From time to time, we use foreign currency forward contracts to reduce part of the variability in certain forecasted non-U.S. dollar denominated cash flows. Generally, these derivatives are for maturities of 12 months or less and are designated as cash flow hedges. We consider several factors when evaluating hedges of our forecasted foreign currency exposures, such as significance of the exposure, offsetting economic exposures, potential costs of hedging, and the potential for hedge ineffectiveness. We do not enter into derivative transactions for purposes other than hedging economic exposures. During fiscal 2011 and 2012, we entered into forward contracts to reduce the variability in our Canadian Dollar and Indian Rupee denominated operating expenses which principally relate to our research and development activities.

Convertible Debt Outstanding. The fair market value of each of our outstanding issues of convertible notes is subject to interest rate and market price risk due to the convertible feature of the notes and other factors. Generally the fair market value of fixed interest rate debt will increase as interest rates fall and decrease as interest rates rise. The fair market value of the notes may also increase as the market price of our stock rises and decrease as the market price of the stock falls. Interest rate and market value changes affect the fair market value of the notes, and may affect the prices at which we would be able to repurchase such notes were we to do so. These changes do not impact our financial position, cash flows or results of operations. For additional information on the fair value of our outstanding notes, see Note 13 to our Consolidated Financial Statements included in Item 8 of Part II of this report.

Item 8. Financial Statements and Supplementary Data

The following is an index to the consolidated financial statements:

	Page Number
Report of Independent Registered Public Accounting Firm	58
Consolidated Balance Sheets	59
Consolidated Statements of Operations	60
Consolidated Statements of Changes in Stockholders' Equity (Deficit)	61
Consolidated Statements of Cash Flows	62
Notes to Consolidated Financial Statements	63

Report of Independent Registered Public Accounting Firm

To the Board of Directors and Shareholders of Ciena Corporation

In our opinion, the consolidated financial statements listed in the accompanying index present fairly, in all material respects, the financial position of Ciena Corporation and its subsidiaries (the "Company") at October 31, 2012 and 2011, and the results of their operations and their cash flows for each of the three years in the period ended October 31, 2012 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of October 31, 2012, based on criteria established in *Internal Control — Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). The Company's management is responsible for these financial statements, for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the Report of Management on Internal Control Over Financial Reporting under Item 9A. Our responsibility is to express opinions on these financial statements and on the Company's internal control over financial reporting based on our integrated audits. We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement and whether effective internal control over financial reporting was maintained in all material respects. Our audits of the financial statements included examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

As discussed in Note 1 to the consolidated financial statements, the Company changed the manner in which it accounts for revenue in fiscal 2011.

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ PricewaterhouseCoopers LLP
Baltimore, Maryland
December 21, 2012

CIENA CORPORATION
CONSOLIDATED BALANCE SHEETS
(in thousands, except share data)

	October 31, 2011	October 31, 2012
ASSETS		
Current assets:		
Cash and cash equivalents	$ 541,896	$ 642,444
Short-term investments	—	50,057
Accounts receivable, net	417,509	345,496
Inventories	230,076	260,098
Prepaid expenses and other	143,357	117,595
Total current assets	1,332,838	1,415,690
Long-term investments	50,264	—
Equipment, furniture and fixtures, net	122,558	123,580
Intangible assets, net	331,635	257,137
Other long-term assets	114,123	84,736
Total assets	$ 1,951,418	$ 1,881,143
LIABILITIES AND STOCKHOLDERS' EQUITY (DEFICIT)		
Current liabilities:		
Accounts payable	$ 157,116	$ 179,704
Accrued liabilities	197,004	209,540
Deferred revenue	99,373	79,516
Convertible notes payable	—	216,210
Total current liabilities	453,493	684,970
Long-term deferred revenue	24,425	27,560
Other long-term obligations	17,263	31,779
Long term convertible notes payable	1,442,364	1,225,806
Total liabilities	1,937,545	1,970,115
Commitments and contingencies		
Stockholders' equity (deficit):		
Preferred stock — par value $0.01; 20,000,000 shares authorized; zero shares issued and outstanding	—	—
Common stock — par value $0.01; 290,000,000 shares authorized; 97,440,436 and 100,601,792 shares issued and outstanding	974	1,006
Additional paid-in capital	5,753,236	5,797,765
Accumulated other comprehensive income (loss)	31	(3,354)
Accumulated deficit	(5,740,368)	(5,884,389)
Total stockholders' equity (deficit)	13,873	(88,972)
Total liabilities and stockholders' equity (deficit)	$ 1,951,418	$ 1,881,143

The accompanying notes are an integral part of these consolidated financial statements.

CIENA CORPORATION
CONSOLIDATED STATEMENTS OF OPERATIONS
(in thousands, except per share data)

	Year Ended October 31,		
	2010	2011	2012
Revenue:			
Products	$ 1,009,239	$ 1,406,532	$ 1,454,991
Services	227,397	335,438	378,932
Total revenue	1,236,636	1,741,970	1,833,923
Cost of goods sold:			
Products	596,704	825,969	868,805
Services	142,431	206,855	240,894
Total cost of goods sold	739,135	1,032,824	1,109,699
Gross profit	497,501	709,146	724,224
Operating expenses:			
Research and development	327,626	379,862	364,179
Selling and marketing	193,515	251,990	266,338
General and administrative	102,692	126,242	114,002
Acquisition and integration costs	101,379	42,088	—
Amortization of intangible assets	99,401	69,665	51,697
Restructuring costs	8,514	5,781	7,854
Change in fair value of contingent consideration	(13,807)	(3,289)	—
Total operating expenses	819,320	872,339	804,070
Loss from operations	(321,819)	(163,193)	(79,846)
Interest and other income (loss), net	3,917	6,022	(15,200)
Interest expense	(18,619)	(37,926)	(39,653)
Gain on cost method investments	—	7,249	—
Gain on extinguishment of debt	4,948	—	—
Loss before income taxes	(331,573)	(187,848)	(134,699)
Provision for income taxes	1,941	7,673	9,322
Net loss	$ (333,514)	$ (195,521)	$ (144,021)
Basic net loss per common share	$ (3.58)	$ (2.04)	$ (1.45)
Diluted net loss per potential common share	$ (3.58)	$ (2.04)	$ (1.45)
Weighted average basic common shares outstanding	93,103	95,854	99,341
Weighted average dilutive potential common shares outstanding	93,103	95,854	99,341

The accompanying notes are an integral part of these consolidated financial statements.

CIENA CORPORATION
CONSOLIDATED STATEMENTS OF CHANGES IN STOCKHOLDERS' EQUITY (DEFICIT)
(in thousands, except share data)

	Common Stock Shares	Par Value	Additional Paid-in-Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total Stockholders' Equity (Deficit)
Balance at October 31, 2009	92,038,360	$ 920	$ 5,665,028	$ 1,223	$ (5,211,333)	$ 455,838
Net loss	—	—	—	—	(333,514)	(333,514)
Changes in unrealized gains and losses on investments, net	—	—	—	(458)	—	(458)
Translation adjustment	—	—	—	297	—	297
Comprehensive loss	—	—	—	—	—	(333,675)
Issuance of shares from employee equity plans	2,021,940	21	1,549	—	—	1,570
Share-based compensation expense	—	—	35,560	—	—	35,560
Balance at October 31, 2010	94,060,300	941	5,702,137	1,062	(5,544,847)	159,293
Net loss	—	—	—	—	(195,521)	(195,521)
Changes in unrealized gains and losses on investments, net	—	—	—	393	—	393
Translation adjustment	—	—	—	(1,424)	—	(1,424)
Comprehensive loss	—	—	—	—	—	(196,552)
Issuance of shares from employee equity plans	3,380,136	33	13,169	—	—	13,202
Share-based compensation expense	—	—	37,930	—	—	37,930
Balance at October 31, 2011	97,440,436	974	5,753,236	31	(5,740,368)	13,873
Net loss	—	—	—	—	(144,021)	(144,021)
Changes in unrealized gains and losses on investments, net	—	—	—	(166)	—	(166)
Changes in unrealized gains and losses on foreign currency contracts, net				49		49
Translation adjustment	—	—	—	(3,268)	—	(3,268)
Comprehensive loss	—	—	—	—	—	(147,406)
Issuance of shares from employee equity plans	3,161,356	32	12,135	—	—	12,167
Share-based compensation expense	—	—	32,394	—	—	32,394
Balance at October 31, 2012	100,601,792	$ 1,006	$ 5,797,765	$ (3,354)	$ (5,884,389)	$ (88,972)

The accompanying notes are an integral part of these consolidated financial statements.

CIENA CORPORATION
CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)

	Year Ended October 31,		
	2010	2011	2012
Cash flows from operating activities:			
Net loss	$ (333,514)	$ (195,521)	$ (144,021)
Adjustments to reconcile net loss to net cash provided by (used in) operating activities:			
Gain on extinguishment of debt	(4,948)	—	—
Gain on cost method investments	—	(7,249)	—
Change in fair value of embedded redemption feature	(2,510)	(2,800)	6,600
Change in fair value of contingent consideration	(13,807)	—	—
Depreciation of equipment, furniture and fixtures, and amortization of leasehold improvements	42,789	60,154	59,099
Share-based compensation costs	35,560	37,930	32,394
Amortization of intangible assets	127,018	95,927	74,497
Provision for inventory excess and obsolescence	13,696	17,334	23,438
Provision for warranty	15,353	18,451	33,418
Other	3,570	5,541	7,122
Changes in assets and liabilities, net of effect of acquisition:			
Accounts receivable	(218,196)	(75,623)	70,366
Inventories	(40,957)	14,209	(53,460)
Prepaid expenses and other	(34,908)	(18,302)	1,748
Accounts payable, accruals and other obligations	180,814	(59,285)	12,610
Deferred revenue	1,030	18,749	(16,722)
Net cash provided by (used in) operating activities	(229,010)	(90,485)	107,089
Cash flows used in investing activities:			
Payments for equipment, furniture, fixtures and intellectual property	(51,207)	(52,367)	(48,098)
Restricted cash	(24,521)	10,751	35,597
Purchase of available for sale securities	(63,591)	(49,892)	—
Proceeds from maturities of available for sale securities	454,141	—	—
Proceeds from sales of available for sale securities	179,531	—	—
Proceeds from sale of cost method investment	—	6,544	524
Acquisition of business, net of cash acquired	(693,247)	—	—
Receipt of contingent consideration related to business acquisition	—	16,394	—
Net cash used in investing activities	(198,894)	(68,570)	(11,977)
Cash flows from financing activities:			
Proceeds from issuance of senior convertible notes payable	725,000	—	—
Repayment of capital lease obligations	—	—	(1,895)
Repayment of senior convertible notes payable	(76,065)	—	—
Debt issuance costs	(20,301)	—	(2,332)
Proceeds from issuance of common stock	1,570	13,202	12,167
Net cash provided by financing activities	630,204	13,202	7,940
Effect of exchange rate changes on cash and cash equivalents	682	(938)	(2,504)
Net increase (decrease) in cash and cash equivalents	202,982	(146,791)	100,548
Cash and cash equivalents at beginning of period	485,705	688,687	541,896
Cash and cash equivalents at end of period	$ 688,687	$ 541,896	$ 642,444
Supplemental disclosure of cash flow information			
Cash paid during the period for interest	$ 12,248	$ 32,931	$ 33,511
Cash paid during the period for income taxes, net	$ 1,705	$ 3,204	$ 9,603
Non-cash investing and financing activities			
Purchase of equipment in accounts payable	$ 5,259	$ 6,431	$ 5,202
Debt issuance costs in accrued liabilities	$ 206	$ —	$ 319
Fixed assets purchased under capital leases	$ —	$ 1,106	$ 6,736

The accompanying notes are an integral part of these consolidated financial statements.

CIENA CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

(1) CIENA CORPORATION AND SIGNIFICANT ACCOUNTING POLICIES AND ESTIMATES

Description of Business

Ciena Corporation ("Ciena" or the "Company") is a provider of communications networking equipment, software and services that support the transport, switching, aggregation and management of voice, video and data traffic. Ciena's Packet-Optical Transport, Packet-Optical Switching and Carrier-Ethernet Solutions products are used, individually or as part of an integrated solution, in networks operated by communications service providers, cable operators, governments and enterprises around the globe. Ciena is a network specialist targeting the transition of disparate, legacy communications networks to converged, next-generation architectures, better able to handle increased traffic and deliver more efficiently a broader mix of high-bandwidth communications services. Ciena's products, along with its embedded, network element software and unified service and transport management, enable service providers to efficiently and cost-effectively deliver critical enterprise and consumer-oriented communication services. Ciena's principal executive offices are located at 7035 Ridge Road, Hanover, Maryland 21076.

Principles of Consolidation

The accompanying consolidated financial statements include the accounts of Ciena and its wholly owned subsidiaries. All material inter-company accounts and transactions have been eliminated in consolidation.

Acquisition of MEN Business ("MEN Acquisition")

On March 19, 2010, Ciena completed its acquisition of substantially all of the optical and carrier Ethernet assets of Nortel's Metro Ethernet Networks Business (the "MEN Business"). Additional details regarding this transaction are set forth in Note 2 below.

Business Combinations

Ciena records business combinations such that the total purchase price is allocated to the assets acquired and liabilities assumed based on their estimated fair values. The fair values assigned to the assets acquired and liabilities assumed are based on valuations using management's best estimates and assumptions. The allocation of the purchase price as reflected in the consolidated financial statements is based on the best information available to management at the time the consolidated financial statements are issued.

Fiscal Year

Ciena has a 52 or 53 week fiscal year, which ends on the Saturday nearest to the last day of October in each year (October 30, 2010, October 29, 2011, and November 3, 2012 for the periods reported). Fiscal 2010 and fiscal 2011 consisted of a 52 week fiscal year and fiscal 2012 consisted of a 53 week fiscal year. For purposes of financial statement presentation, each fiscal year is described as having ended on October 31.

During fiscal 2012, Ciena recorded out of period adjustments that increased its revenue by $6.8 million and decreased pre-tax loss by $5.2 million. These adjustments related to errors in the timing of recognition of revenue, for which all required criteria had been satisfied in prior periods. Specifically, revenues for fiscal 2010 and fiscal 2011 were understated by $1.4 million and $5.4 million, respectively. Ciena has determined that these adjustments were not material to any prior annual or interim periods, and the resulting correction is not material to its annual results for fiscal 2012.

Use of Estimates

The preparation of the financial statements and related disclosures in conformity with accounting principles generally accepted in the United States requires management to make estimates and judgments that affect the amounts reported in the consolidated financial statements and accompanying notes. Estimates are used for selling prices for multiple element arrangements, shared-based compensation, purchase accounting, bad debts, valuation of inventories and investments, recoverability of intangible assets and other long-lived assets, income taxes, warranty obligations, restructuring liabilities, derivatives, contingencies and litigation. Ciena bases its estimates on historical experience and assumptions that it believes are reasonable. Actual results may differ materially from management's estimates.

Cash and Cash Equivalents

Ciena considers all highly liquid investments purchased with original maturities of 3 months or less to be cash equivalents. Restricted cash collateralizing letters of credit is included in other current assets and other long-term assets depending upon the expected duration of the underlying letter of credit.

Investments

Ciena's investments are classified as available-for-sale and are reported at fair value, with unrealized gains and losses recorded in accumulated other comprehensive income. Ciena recognizes losses when it determines that declines in the fair value of its investments, below their cost basis, are other-than-temporary. In determining whether a decline in fair value is other-than-temporary, Ciena considers various factors including market price (when available), investment ratings, the financial condition and near-term prospects of the investee, the length of time and the extent to which the fair value has been less than Ciena's cost basis, and its intent and ability to hold the investment until maturity or for a period of time sufficient to allow for any anticipated recovery in market value. Ciena considers all marketable debt securities that it expects to convert to cash within one year or less to be short-term investments. All others are considered long-term investments.

At the end of fiscal 2010, Ciena owned a minority equity investment in a privately held technology company. This investment was carried at cost because Ciena did not have the ability to exercise significant influence over the company. During fiscal 2011, as a result of the sale of this privately held technology company, Ciena recorded a gain of $7.2 million.

Inventories

Inventories are stated at the lower of cost or market, with cost computed using standard cost, which approximates actual cost, on a first-in, first-out basis. Ciena records a provision for excess and obsolete inventory when an impairment has been identified.

Segment Reporting

Ciena's chief operating decision maker, its chief executive officer, evaluates performance and allocates resources based on multiple factors, including segment profit (loss) information for the following product categories: (i) Packet-Optical Transport; (ii) Packet-Optical Switching; (iii) Carrier-Ethernet Solutions; and (iv) Software and Services. Operating segments are defined as components of an enterprise: that engage in business activities which may earn revenue and incur expense; for which discrete financial information is available; and for which such information is evaluated regularly by the chief operating decision maker for purposes of allocating resources and assessing performance. Ciena considers the four product categories above to be its operating segments for reporting purposes. See Note 19 below.

Long-lived Assets

Long-lived assets include: equipment, furniture and fixtures; intangible assets; and maintenance spares. Ciena tests long-lived assets for impairment whenever triggering events or changes in circumstances indicate that the assets' carrying amount is not recoverable from its undiscounted cash flows. An impairment loss is measured as the amount by which the carrying amount of the asset or asset group exceeds its fair value. Ciena's long-lived assets are assigned to asset groups which represent the lowest level for which cash flows can be identified.

Equipment, Furniture and Fixtures

Equipment, furniture and fixtures are recorded at cost. Depreciation and amortization are computed using the straight-line method over useful lives of two to five years for equipment, furniture and fixtures and the shorter of useful life or lease term for leasehold improvements.

Qualifying internal use software and website development costs incurred during the application development stage, which consist primarily of outside services and purchased software license costs, are capitalized and amortized straight-line over the estimated useful lives of two to five years.

Intangible Assets

Ciena has recorded finite-lived intangible assets as a result of several acquisitions. Finite-lived intangible assets are carried at cost less accumulated amortization. Amortization is computed using the straight-line method over the expected economic lives of the respective assets, up to seven years, which approximates the use of intangible assets.

Maintenance Spares

Maintenance spares are recorded at cost. Spares usage cost is expensed ratably over four years.

Concentrations

Substantially all of Ciena's invested cash and cash equivalents are maintained at a small number of major U.S. financial institutions or in large, liquid money market funds. Deposits held with banks may exceed the amount of insurance provided on such deposits. Generally, these deposits may be redeemed upon demand and, therefore, management believes that they bear minimal risk.

Historically, a significant percentage of Ciena's revenue has been concentrated among sales to a small number of large communications service providers. Consolidation among Ciena's customers has increased this concentration. Consequently, Ciena's accounts receivable are concentrated among these customers. See Note 19 below.

Additionally, Ciena's access to certain materials or components is dependent upon sole or limited source suppliers. The inability of any of these suppliers to fulfill Ciena's supply requirements, or significant changes in their cost, could affect future results. Ciena relies on a small number of contract manufacturers to perform the majority of the manufacturing for its products. If Ciena cannot effectively manage these manufacturers and forecast future demand, or if they fail to deliver products or components on time, Ciena's business and results of operations may be affected.

Revenue Recognition

Ciena recognizes revenue when all of the following criteria are met: persuasive evidence of an arrangement exists; delivery has occurred or services have been rendered; the price to the buyer is fixed or determinable; and collectibility is reasonably assured. Customer purchase agreements and customer purchase orders are generally used to determine the existence of an arrangement. Shipping documents and evidence of customer acceptance, when applicable, are used to verify delivery or services rendered. Ciena assesses whether the price is fixed or determinable based on the payment terms associated with the transaction and whether the sales price is subject to refund or adjustment. Ciena assesses collectibility based primarily on the creditworthiness of the customer as determined by credit checks and analysis, as well as the customer's payment history. Revenue for maintenance services is generally deferred and recognized ratably over the period during which the services are to be performed. Shipping and handling fees billed to customers are included in revenue, with the associated expenses included in product cost of goods sold.

Ciena applies the percentage of completion method to long-term arrangements where it is required to undertake significant production, customizations or modification engineering, and reasonable and reliable estimates of revenue and cost are available. Utilizing the percentage of completion method, Ciena recognizes revenue based on the ratio of actual costs incurred to date to total estimated costs expected to be incurred. In instances that do not meet the percentage of completion method criteria, recognition of revenue is deferred until there are no uncertainties regarding customer acceptance.

Software revenue is recognized when persuasive evidence of an arrangement exists, delivery has occurred, the fee is fixed or determinable, and collectibility is probable. In instances where final acceptance criteria of the software is specified by the customer, revenue is deferred until there are no uncertainties regarding customer acceptance.

Ciena limits the amount of revenue recognition for delivered elements to the amount that is not contingent on the future delivery of products or services, future performance obligations or subject to customer-specified return or refund privileges.

Accounting for multiple element arrangements entered into prior to fiscal 2011

Arrangements with customers may include multiple deliverables, including any combination of equipment, services and software. If multiple element arrangements include software or software-related elements that are essential to the equipment, Ciena allocates the arrangement fee among separate units of accounting. Multiple element arrangements that include software are separated into more than one unit of accounting if the functionality of the delivered element(s) is not dependent on the undelivered element(s), there is vendor-specific objective evidence ("VSOE") of the fair value of the undelivered element(s), and general revenue recognition criteria related to the delivered element(s) have been met. The amount of product and services revenue recognized is affected by Ciena's judgment as to whether an arrangement includes multiple elements and, if so, whether VSOE of fair value exists. VSOE is established based on Ciena's standard pricing and discounting practices for the specific product or service when sold separately. In determining VSOE, Ciena requires that a substantial majority of the selling prices for a product or service fall within a reasonably narrow pricing range. Changes to the elements in an arrangement and Ciena's ability to establish VSOE for those elements could affect the timing of revenue recognition. For all other multiple element arrangements, Ciena separates the elements into more than one unit of accounting if the delivered element(s) have value to the customer on a stand-alone basis, objective and reliable evidence of fair value exists for the undelivered element(s), and delivery of the undelivered element(s) is probable and substantially in Ciena's control. Revenue is allocated to each unit of accounting based on the relative fair value of each accounting unit or using the residual method if objective evidence of fair value does not exist for the delivered element(s). The revenue recognition criteria described above are applied to each separate unit of accounting. If these criteria are not met, revenue is deferred until the criteria are met or the last element has been delivered.

Accounting for multiple element arrangements entered into or materially modified after fiscal 2010

In October 2009, the Financial Accounting Standards Board ("FASB") amended the accounting standard for revenue recognition with multiple deliverables which provided guidance on how the arrangement fee should be allocated and allows the use of management's best estimate of selling price ("BESP") for individual elements of an arrangement when VSOE or third-

party evidence (“TPE”) is unavailable. Additionally, it eliminates the residual method of revenue recognition in accounting for multiple deliverable arrangements. The FASB also amended the accounting guidance for revenue arrangements with software elements to exclude from the scope of the software revenue recognition guidance, tangible products that contain both software and non-software components that function together to deliver the product's essential functionality.

Ciena adopted the new accounting guidance on a prospective basis for arrangements entered into or materially modified on or after November 1, 2010. Under the new guidance, Ciena separates elements into more than one unit of accounting if the delivered element(s) have value to the customer on a stand-alone basis, and delivery of the undelivered element(s) is probable and substantially in Ciena's control. Therefore, the new guidance allows for deliverables, for which revenue was previously deferred due to an absence of fair value, to be separated and recognized as revenue as delivered. Also, because the residual method has been eliminated, discounts offered by Ciena are allocated to all deliverables, rather than to the delivered element(s). Ciena's adoption of the new guidance for revenue arrangements changed the accounting for certain Ciena products that consist of hardware and software components, in which these components together provided the product's essential functionality. For arrangements involving these products entered into prior to fiscal 2011, Ciena recognized revenue based on software revenue recognition guidance.

Revenue for multiple element arrangements is allocated to each unit of accounting based on the relative selling price of each delivered element, with revenue recognized when the revenue recognition criteria are met for each delivered element. Ciena determines the selling price for each deliverable based upon the selling price hierarchy for multiple-deliverable arrangements. Under this hierarchy, Ciena uses VSOE of selling price, if it exists, or TPE of selling price if VSOE does not exist. If neither VSOE nor TPE of selling price exists for a deliverable, Ciena uses its BESP for that deliverable.

VSOE is established based on Ciena's standard pricing and discounting practices for the specific product or service when sold separately. In determining VSOE, which exists across certain of Ciena's service offerings, Ciena requires that a substantial majority of the selling prices for a product or service fall within a reasonably narrow pricing range. Ciena has been unable to establish TPE of selling price because its go-to-market strategy differs from that of others in its markets, and the extent of customization and differentiated features and functions varies among comparable products or services from its peers. Ciena determines BESP based upon management-approved pricing guidelines, which consider multiple factors including the type of product or service, gross margin objectives, competitive and market conditions, and the go-to-market strategy; all of which can affect pricing practices.

Historically, for arrangements with multiple elements, Ciena was typically able to establish fair value for undelivered elements and so Ciena applied the residual method. As a result, assuming the adoption of the accounting guidance above on a prospective basis for arrangements entered into or materially modified on or after November 1, 2009, the effect on revenue recognized for fiscal 2010 would have been an increase of approximately $33.0 million.

Warranty Accruals

Ciena provides for the estimated costs to fulfill customer warranty obligations upon the recognition of the related revenue. Estimated warranty costs include estimates for material costs, technical support labor costs and associated overhead. The warranty liability is included in cost of goods sold and determined based upon actual warranty cost experience, estimates of component failure rates and management's industry experience. Ciena's sales contracts do not permit the right of return of product by the customer after the product has been accepted.

Accounts Receivable, Net

Ciena's allowance for doubtful accounts is based on its assessment, on a specific identification basis, of the collectibility of customer accounts. Ciena performs ongoing credit evaluations of its customers and generally has not required collateral or other forms of security from its customers. In determining the appropriate balance for Ciena's allowance for doubtful accounts, management considers each individual customer account receivable in order to determine collectibility. In doing so, management considers creditworthiness, payment history, account activity and communication with such customer. If a customer's financial condition changes, Ciena may be required to record an allowance for doubtful accounts, which would negatively affect its results of operations.

Research and Development

Ciena charges all research and development costs to expense as incurred. Types of expense incurred in research and development include employee compensation, cost of prototype equipment, consulting and third party services, depreciation, facility costs and information technology.

Government Grants

Ciena accounts for proceeds from government grants as a reduction of operating expense when there is reasonable assurance that Ciena has complied with the conditions attached to the grant and that the grant proceeds will be received. Grant benefits are recorded to the line item in the Consolidated Statement of Operations to which the grant activity relates. See Note 21 below.

Advertising Costs

Ciena expenses all advertising costs as incurred.

Legal Costs

Ciena expenses legal costs associated with litigation defense as incurred.

Share-Based Compensation Expense

Ciena measures and recognizes compensation expense for share-based awards based on estimated fair values on the date of grant. Ciena estimates the fair value of each option-based award on the date of grant using the Black-Scholes option-pricing model. This model is affected by Ciena's stock price as well as estimates regarding a number of variables including expected stock price volatility over the expected term of the award and projected employee stock option exercise behaviors. Ciena estimates the fair value of each restricted stock unit based on the fair value of the underlying common stock on the date of grant. In each case, Ciena only recognizes expense to its consolidated statement of operations for those options or shares that are expected ultimately to vest. Ciena recognizes the estimated fair value of performance-based awards, net of estimated forfeitures, as share-based expense over the performance period, using graded vesting, which considers each performance period or tranche separately, based upon its determination of whether it is probable that the performance targets will be achieved. At each reporting period, Ciena reassesses the probability of achieving the performance targets and the performance period required to meet those targets. Ciena uses the straight-line method to record expense for grants with only service-based vesting. See Note 18 below.

Income Taxes

Ciena accounts for income taxes using an asset and liability approach that recognizes deferred tax assets and liabilities for the expected future tax consequences attributable to differences between the carrying amounts of assets and liabilities for financial reporting purposes and their respective tax bases, and for operating loss and tax credit carryforwards. In estimating future tax consequences, Ciena considers all expected future events other than the enactment of changes in tax laws or rates. Valuation allowances are provided, if, based upon the weight of the available evidence, it is more likely than not that some or all of the deferred tax assets will not be realized.

In the ordinary course of business, transactions occur for which the ultimate outcome may be uncertain. In addition, tax authorities periodically audit Ciena's income tax returns. These audits examine significant tax filing positions, including the timing and amounts of deductions and the allocation of income tax expenses among tax jurisdictions. Ciena is currently under audit in India for 2007 and 2008 and in the United Kingdom for 2009. Management does not expect the outcome of these audits to have a material adverse effect on the Company's consolidated financial position, result of operations or cash flows. Ciena's major tax jurisdictions and the earliest open tax years are as follows: United States (2009), United Kingdom (2007), Canada (2006) and India (2007). However, limited adjustments can be made to Federal tax returns in earlier years in order to reduce net operating loss carryforwards. Ciena classifies interest and penalties related to uncertain tax positions as a component of income tax expense. All of the uncertain tax positions, if recognized, would decrease the effective income tax rate.

Ciena has not provided for U.S. deferred income taxes on the cumulative unremitted earnings of its non-U.S. affiliates as it plans to permanently reinvest cumulative unremitted foreign earnings outside the U.S. and it is not practicable to determine the unrecognized deferred income taxes. These cumulative unremitted foreign earnings relate to ongoing operations in foreign jurisdictions and are required to fund foreign operations, capital expenditures and any expansion requirements.

Ciena recognizes windfall tax benefits associated with the exercise of stock options or release of restricted stock units directly to stockholders' equity only when realized. A windfall tax benefit occurs when the actual tax benefit realized by Ciena upon an employee's disposition of a share-based award exceeds the deferred tax asset, if any, associated with the award that Ciena had recorded. When assessing whether a tax benefit relating to share-based compensation has been realized, Ciena follows the tax law “with-and-without” method. Under the with-and-without method, the windfall is considered realized and recognized for financial statement purposes only when an incremental benefit is provided after considering all other tax benefits including Ciena's net operating losses. The with-and-without method results in the windfall from share-based compensation awards always being effectively the last tax benefit to be considered. Consequently, the windfall attributable to share-based compensation will not be considered realized in instances where Ciena's net operating loss carryover (that is unrelated to windfalls) is sufficient to offset the current year's taxable income before considering the effects of current-year windfalls.

Loss Contingencies

Ciena is subject to the possibility of various losses arising in the ordinary course of business. These may relate to disputes, litigation and other legal actions. Ciena considers the likelihood of loss or the incurrence of a liability, as well as Ciena's ability to reasonably estimate the amount of loss, in determining loss contingencies. An estimated loss contingency is accrued when it is probable that a liability has been incurred and the amount of loss can be reasonably estimated. Ciena regularly evaluates current information available to it in order to determine whether any accruals should be adjusted and whether new accruals are required.

Fair Value of Financial Instruments

The carrying value of Ciena's cash and cash equivalents, accounts receivable, accounts payable, and accrued liabilities approximates fair market value due to the relatively short period of time to maturity. For information related to the fair value of Ciena's convertible notes, see Note 13 below.

Fair value for the measurement of financial assets and liabilities is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. As such, fair value is a market-based measurement that should be determined based on assumptions that market participants would use in pricing an asset or liability. Ciena utilizes a valuation hierarchy for disclosure of the inputs for fair value measurement. This hierarchy prioritizes the inputs into three broad levels as follows:

Level 1 inputs are unadjusted quoted prices in active markets for identical assets or liabilities;

Level 2 inputs are quoted prices for identical or similar assets or liabilities in less active markets or model-derived valuations in which significant inputs are observable for the asset or liability, either directly or indirectly through market corroboration, for substantially the full term of the financial instrument;

Level 3 inputs are unobservable inputs based on Ciena's assumptions used to measure assets and liabilities at fair value.

By distinguishing between inputs that are observable in the marketplace, and therefore more objective, and those that are unobservable and therefore more subjective, the hierarchy is designed to indicate the relative reliability of the fair value measurements. A financial asset or liability's classification within the hierarchy is determined based on the lowest level input that is significant to the fair value measurement.

Restructuring

From time to time, Ciena takes actions to better align its workforce, facilities and operating costs with perceived market opportunities, business strategies and changes in market and business conditions. Ciena implements these restructuring plans and generally incurs the associated liability concurrently. Generally accepted accounting principles require that a liability for the cost associated with an exit or disposal activity be recognized in the period in which the liability is incurred, except for one-time employee termination benefits related to a service period of more than 60 days, which are accrued over the service period. See Note 3 below.

Foreign Currency

Some of Ciena's foreign branch offices and subsidiaries use the U.S. dollar as their functional currency because Ciena, as the U.S. parent entity, exclusively funds the operations of these branch offices and subsidiaries. For those subsidiaries using the local currency as their functional currency, assets and liabilities are translated at exchange rates in effect at the balance sheet date, and the statement of operations is translated at a monthly average rate. Resulting translation adjustments are recorded directly to a separate component of stockholders' equity. Where the monetary assets and liabilities are transacted in a currency other than the entity's functional currency, re-measurement adjustments are recorded in other income. The net gain (loss) on foreign currency re-measurement and exchange rate changes is immaterial for separate financial statement presentation.

Derivatives

Ciena's 4.0% convertible senior notes include a redemption feature that is accounted for as a separate embedded derivative. The embedded redemption feature is recorded at fair value on a recurring basis, and these changes are included in interest and other income, net on the Consolidated Statement of Operations.

From time to time, Ciena uses foreign currency forward contracts to reduce variability in certain forecasted non U.S.-dollar denominated cash flows. Generally, these derivatives have maturities of twelve months or less and are designated as cash flow hedges. At the inception of the cash flow hedge, and on an ongoing basis, Ciena assesses whether the forward contract has been effective in offsetting changes in cash flows attributable to the hedged risk during the hedging period. The effective portion of the derivative's net gain or loss is initially reported as a component of accumulated other comprehensive income (loss), and,

upon the occurrence of the forecasted transaction, is subsequently reclassified to the line item in the Consolidated Statement of Operations to which the hedged transaction relates. Any net gain or loss associated with the ineffectiveness of the hedging instrument is reported in interest and other income (loss), net.

During fiscal 2012, Ciena entered into forward contracts to reduce the variability in its Canadian Dollar and Indian Rupee denominated expense, which principally relate to research and development activities. These derivative contracts have been designated as cash flow hedges and are immaterial for separate financial statement presentation.

Computation of Net Income (Loss) per Share

Ciena calculates basic earnings per share (EPS) by dividing earnings attributable to common stock by the weighted-average number of common shares outstanding for the period. Diluted EPS includes other potential dilutive shares that would be outstanding if securities or other contracts to issue common stock were exercised or converted into common stock. Ciena uses a dual presentation of basic and diluted EPS on the face of its income statement. A reconciliation of the numerator and denominator used for the basic and diluted EPS computations is set forth in Note 15.

Software Development Costs

Ciena develops software for sale to its customers. Generally accepted accounting principles require the capitalization of certain software development costs that are incurred subsequent to the date technological feasibility is established and prior to the date the product is generally available for sale. The capitalized cost is then amortized straight-line over the estimated life of the product. Ciena defines technological feasibility as being attained at the time a working model is completed. To date, the period between Ciena achieving technological feasibility and the general availability of such software has been short, and software development costs qualifying for capitalization have been insignificant. Accordingly, Ciena has not capitalized any software development costs.

Newly Issued Accounting Standards

In May 2011, the FASB issued an accounting standards update that amends current fair value measurement and disclosure guidance to converge with International Financial Reporting Standards (IFRS). This update provides improved comparability of fair value measurements presented and disclosed in financial statements prepared in accordance with U.S. GAAP and IFRS. This guidance is effective for fiscal years and interim periods beginning after December 15, 2011. Early application by public companies is not permitted. Ciena will adopt this guidance in fiscal 2013 and does not expect this new guidance to have any impact on its financial condition, results of operations and cash flows.

In June 2011, the FASB issued an accounting standards update that requires an entity to present total comprehensive income, the components of net income, and the components of other comprehensive income either in a single continuous statement of comprehensive income or in two separate but consecutive statements and eliminates the option to present the components of other comprehensive income as part of the statement of changes in stockholders' equity. In December 2011, the portion of this guidance related to the presentation of the reclassifications of items out of accumulated other comprehensive income was deferred. The remainder of this guidance is effective for fiscal years and interim periods beginning after December 15, 2011. Early adoption is permitted. Ciena will adopt this guidance in fiscal 2013 and does not expect this new guidance to have any impact on its financial condition, results of operations and cash flows.

(2) BUSINESS COMBINATIONS

Acquisition of MEN Business

On March 19, 2010, Ciena completed its acquisition of the MEN Business. Ciena acquired the MEN Business in an effort to strengthen its technology leadership position in next-generation, converged optical Ethernet networking, accelerate the execution of its corporate and research and development strategies and enable Ciena to better compete with larger equipment vendors. The acquisition expanded Ciena's geographic reach, customer relationships, and portfolio of network solutions.

In accordance with the agreements for the acquisition, the $773.8 million aggregate purchase price was subsequently adjusted downward by $80.6 million based upon the amount of net working capital transferred to Ciena at closing. As a result, Ciena paid $693.2 million in cash for the purchase of the MEN Business.

In connection with the acquisition, Ciena entered into an agreement with Nortel to lease the “Lab 10” building on Nortel’s Carling Campus in Ottawa, Canada (the “Carling lease”) for a term of ten years. The lease agreement contained a provision that allowed Nortel to reduce the term of the lease, and, in exchange, Ciena could receive a payment of up to $33.5 million. This amount was placed into escrow by Nortel in accordance with the acquisition agreements. The $16.4 million fair value of this contingent refund right was recorded as a reduction to the consideration paid, resulting in a purchase price of $676.8 million.

On October 19, 2010, Nortel issued a public announcement that it had entered into a sale agreement of its Carling campus with Publics Works and Government Services Canada (PWGSC) and had been directed to exercise its early termination rights under the Carling lease, shortening the lease term from ten years to five years. As a result, and based on this change in circumstances and expected outcome probability, during the fourth quarter of fiscal 2010 Ciena recorded an unrealized gain of $13.8 million resulting in a fair value of $30.2 million for the contingent consideration right. During the first quarter of fiscal 2011, Ciena received notice of early termination from Nortel and the corresponding $33.5 million payment described above, resulting in a gain of $3.3 million.

During fiscal 2010, Ciena incurred $101.4 million in transaction, consulting and third party service fees, $8.5 million in restructuring expense, and an additional $12.4 million in costs primarily related to purchases of capitalized information technology equipment. During fiscal 2011, Ciena incurred $42.1 million in transaction, consulting and third party service fees, $6.6 million in restructuring expense, and an additional $10.9 million in costs primarily related to purchases of capitalized information technology equipment. This integration activity was substantially completed in the first half of fiscal 2011.

The following table summarizes the final purchase price allocation related to the MEN Business, based on the estimated fair value of the acquired assets and assumed liabilities (in thousands):

	Final Allocation
Unbilled receivables	$ 7,136
Inventories	146,272
Prepaid expenses and other	32,517
Other long-term assets	21,924
Equipment, furniture and fixtures	41,213
Developed technology	218,774
In-process research and development	11,000
Customer relationships, outstanding purchase orders and contracts	260,592
Trade name	2,000
Deferred revenue	(28,086)
Accrued liabilities	(33,845)
Other long-term obligations	(2,644)
Total purchase price allocation	$ 676,853

Unbilled receivables represent unbilled claims for which Ciena, subsequent to the effective date of the MEN Acquisition date, invoiced customers upon completion of the acquired projects.

Under the acquisition method of accounting, Ciena recorded the acquired finished goods inventory at fair value, which was determined to be most appropriately recognized as the estimated selling price less the sum of (a) costs of disposal, and (b) a reasonable profit allowance for Ciena's selling effort.

Prepaid expenses and other include product demonstration units used to support research and development projects and indemnification assets related to uncertain tax contingencies acquired and recorded as part of other long-term obligations. Other long-term assets represent spares used to support customer maintenance commitments.

Developed technology represents purchased technology that had reached technological feasibility and for which development had been completed as of the date of the acquisition. Developed technology will be amortized on a straight line basis over its estimated useful lives of two to seven years.

In-process research and development represents development projects that had not reached technological feasibility at the time of the acquisition. This in-process research and development was completed during the fourth quarter of fiscal 2010 and is being amortized over a period of seven years. Expenditures to complete the in-process research and development were expensed as incurred.

Customer relationships, outstanding purchase orders and contracts represent agreements with existing customers of the MEN Business. These intangible assets are expected to have estimated useful lives of nine months to seven years, with the exception of $14.6 million related to a contract asset for acquired in-process projects, which was subsequently billed by Ciena and recognized as a reduction in revenue. Trade name represents acquired product trade names that are expected to have a useful life of nine months.

Deferred revenue represents obligations assumed by Ciena to provide maintenance support services for which payment for such services had already been made to Nortel.

Accrued liabilities represent assumed warranty obligations, other customer contract obligations, and certain employee benefit plans. Other long-term obligations represent uncertain tax contingencies.

The following unaudited pro forma financial information summarizes the results of operations for the period indicated as if Ciena's acquisition of the MEN Business had been completed as of the beginning of the period presented. These pro forma amounts (in thousands) do not purport to be indicative of the results that would have actually been obtained if the acquisition occurred as of the beginning of the period presented or that may be obtained in the future.

	Fiscal Year
	2010
Pro forma revenue	$ 1,592,911
Pro forma net loss	$ (536,253)

(3) RESTRUCTURING COSTS

Ciena has undertaken a number of restructuring activities intended to reduce expense and better align its workforce and costs with market opportunities, product development and business strategies. The following table displays the activity and balances of the historical restructuring liability accounts for the fiscal years indicated (in thousands):

	Workforce reduction	Consolidation of excess facilities	Total
Balance at October 31, 2009	$ 170	$ 9,435	$ 9,605
Additional liability recorded	9,256 (a)	—	9,256
Adjustment to previous estimates	—	(742) (a)	(742)
Cash payments	(7,850)	(2,301)	(10,151)
Balance at October 31, 2010	1,576	6,392	7,968
Additional liability recorded	6,627 (b)	—	6,627
Adjustment to previous estimates	—	(846) (b)	(846)
Cash payments	(8,043)	(2,253)	(10,296)
Balance at October 31, 2011	160	3,293	3,453
Additional liability recorded	5,484 (c)	2,370 (c)	7,854
Adjustment to previous estimates	—	—	—
Cash payments	(4,195)	(2,063)	(6,258)
Balance at October 31, 2012	$ 1,449	$ 3,600	$ 5,049
Current restructuring liabilities	$ 1,449	$ 2,067	$ 3,516
Non-current restructuring liabilities	$ —	$ 1,533	$ 1,533

(a) During fiscal 2010, Ciena recorded a charge of $2.1 million related to a workforce reduction of approximately 70 employees, principally affecting Ciena's global product group and global field organization outside of the EMEA region and $7.1 million related to a workforce reduction of 82 employees associated with the restructuring activities in the EMEA region described above and an adjustment of $0.7 million associated with previously restructured facilities.

(b) During fiscal 2011, Ciena recorded a charge of $6.6 million of severance and other employee-related costs associated with a workforce reduction of approximately 150 employees related to a number of restructuring activities intended to reduce operating expense and better align its workforce with market opportunities. Ciena also recorded an adjustment of $0.8 million related to its previous restructured Acton, Massachusetts facility.

(c) During fiscal 2012, Ciena recorded a charge of $5.5 million of severance and other employee-related costs associated with a workforce reduction of approximately 135 employees related to a number of restructuring activities intended to reduce operating expense and better align its workforce with market opportunities. Ciena also recorded an adjustment of $2.4 million related to its consolidation of several facilities in the Linthicum, Maryland area.

(4) LONG-LIVED ASSET IMPAIRMENTS

Due to the reorganization as a result of the MEN Acquisition, Ciena performed an impairment analysis of its long-lived assets during the second quarter of fiscal 2010. Based on Ciena's estimate of future undiscounted cash flows by asset group, no impairment was required. Due to the lack of a triggering event, no impairment analysis was performed in fiscal 2011 or 2012.

(5) SHORT-TERM AND LONG-TERM INVESTMENTS

As of October 31, 2011, long-term investments are comprised of the following (in thousands):

	October 31, 2011			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
US government obligations	$ 49,933	$ 331	$ —	$ 50,264
	$ 49,933	$ 331	$ —	$ 50,264

As of October 31, 2012, short-term investments have final legal maturities of less than one year and are comprised of the following (in thousands):

	October 31, 2012			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
US government obligations	$ 49,987	$ 70	$ —	$ 50,057
	$ 49,987	$ 70	$ —	$ 50,057

(6) FAIR VALUE MEASUREMENTS

As of the date indicated, the following table summarizes the fair value of assets that are recorded at fair value on a recurring basis (in thousands):

	October 31, 2011			
	Level 1	Level 2	Level 3	Total
Assets:				
U.S government obligations	$ 50,264	$ —	$ —	$ 50,264
Embedded redemption feature	—	—	7,020	7,020
Total assets measured at fair value	$ 50,264	$ —	$ 7,020	$ 57,284

	October 31, 2012			
	Level 1	Level 2	Level 3	Total
Assets:				
U.S. government obligations	$ 50,057	$ —	$ —	$ 50,057
Embedded redemption feature	—	—	420	420
Total assets measured at fair value	$ 50,057	$ —	$ 420	$ 50,477

As of the dates indicated, the assets above were presented on Ciena's Consolidated Balance Sheet as follows (in thousands):

	October 31, 2011			
	Level 1	Level 2	Level 3	Total
Assets:				
Long-term investments	$ 50,264	$ —	$ —	$ 50,264
Other long-term assets	—	—	7,020	7,020
Total assets measured at fair value	$ 50,264	$ —	$ 7,020	$ 57,284

	October 31, 2012			
	Level 1	Level 2	Level 3	Total
Assets:				
Short-term investments	$ 50,057	$ —	$ —	$ 50,057
Other long-term assets	—	—	420	420
Total assets measured at fair value	$ 50,057	$ —	$ 420	$ 50,477

Ciena's Level 3 assets included in other long-term assets reflect an embedded redemption feature contained within Ciena's 4.0% convertible senior notes. See Note 13 below. The embedded redemption feature is bifurcated from Ciena's 4.0% convertible senior notes using the "with-and-without" approach. As such, the total value of the embedded redemption feature is calculated as the difference between the value of the 4.0% convertible senior notes (the "Hybrid Instrument") and the value of an identical instrument without the embedded redemption feature (the "Host Instrument"). Both the Host Instrument and the Hybrid Instrument are valued using a modified binomial model. The modified binomial model utilizes a risk free interest rate, an implied volatility of Ciena's stock, the recovery rates of bonds and the implied default intensity of the 4.0% convertible senior notes.

As of the dates indicated, the following table sets forth, in thousands, the reconciliation of changes in Level 3 assets recorded at fair value:

	Level 3
Balance at October 31, 2011	$ 7,020
Issuances	—
Settlements	—
Changes in unrealized gain	(6,600)
Transfers into Level 3	—
Transfers out of Level 3	—
Balance at October 31, 2012	$ 420

(7) ACCOUNTS RECEIVABLE

Ciena has not historically experienced a significant amount of bad debt expense. The following table summarizes the activity in Ciena's allowance for doubtful accounts for the fiscal years indicated (in thousands):

Year ended October 31,	Balance at beginning of period	Provisions	Net Deductions	Balance at end of period
2010	$ 116	$ 1	$ —	$ 117
2011	$ 117	$ 1,696	$ 1,112	$ 701
2012	$ 701	$ 1,647	$ 848	$ 1,500

(8) INVENTORIES

As of the dates indicated, inventories are comprised of the following (in thousands):

	October 31, 2011	October 31, 2012
Raw materials	$ 45,333	$ 39,678
Work-in-process	13,851	10,736
Finished goods	134,998	178,210
Deferred cost of goods sold	67,665	71,484
	261,847	300,108
Provision for excess and obsolescence	(31,771)	(40,010)
	$ 230,076	$ 260,098

Ciena writes down its inventory for estimated obsolescence or unmarketable inventory by an amount equal to the difference between the cost of inventory and the estimated market value based on assumptions about future demand and market conditions. During fiscal 2010 and fiscal 2011, recorded provisions for inventory reserves were primarily related to changes in forecasted sales for certain products. During fiscal 2012, recorded provisions for inventory reserves were primarily related to engineering design changes and the discontinuance of certain parts and components used in the manufacture of our Packet-Optical Transport and Packet-Optical Switching products. Deductions from the provision for excess and obsolete inventory relate to disposal activities.

The following table summarizes the activity in Ciena's reserve for excess and obsolete inventory for the fiscal years indicated (in thousands):

Year ended October 31,	Balance at beginning of period	Provisions	Disposals	Balance at end of period
2010	$ 24,002	$ 13,696	$ 6,931	$ 30,767
2011	$ 30,767	$ 17,334	$ 16,330	$ 31,771
2012	$ 31,771	$ 23,438	$ 15,199	$ 40,010

(9) PREPAID EXPENSES AND OTHER

As of the dates indicated, prepaid expenses and other are comprised of the following (in thousands):

	October 31, 2011	October 31, 2012
Prepaid VAT and other taxes	$ 44,969	$ 37,806
Deferred deployment expense	17,839	19,449
Product demonstration equipment, net	46,996	33,144
Prepaid expenses	14,769	16,477
Restricted cash	12,533	2,030
Other non-trade receivables	6,251	8,689
	$ 143,357	$ 117,595

Depreciation of product demonstration equipment was $4.3 million, $9.7 million and $7.8 million for fiscal 2010, 2011 and 2012, respectively.

(10) EQUIPMENT, FURNITURE AND FIXTURES

As of the dates indicated, equipment, furniture and fixtures are comprised of the following (in thousands):

	October 31,	
	2011	2012
Equipment, furniture and fixtures	$ 396,310	$ 422,118
Leasehold improvements	50,380	61,493
	446,690	483,611
Accumulated depreciation and amortization	(324,132)	(360,031)
	$ 122,558	$ 123,580

During fiscal 2010, fiscal 2011 and fiscal 2012, Ciena recorded depreciation of equipment, furniture and fixtures, and amortization of leasehold improvements of $38.5 million, $50.5 million and $51.3 million, respectively.

(11) INTANGIBLE ASSETS

As of the dates indicated, intangible assets are comprised of the following (in thousands):

	October 31,					
	2011			2012		
	Gross Intangible	Accumulated Amortization	Net Intangible	Gross Intangible	Accumulated Amortization	Net Intangible
Developed technology	$ 417,833	$ (234,393)	$ 183,440	$ 417,833	$ (279,195)	$ 138,638
Patents and licenses	46,538	(45,320)	1,218	46,538	(45,566)	972
Customer relationships, covenants not to compete, outstanding purchase orders and contracts	323,573	(176,596)	146,977	323,573	(206,046)	117,527
Total intangible assets	$ 787,944	$ (456,309)	$ 331,635	$ 787,944	$ (530,807)	$ 257,137

The aggregate amortization expense of intangible assets was $127.0 million, $95.9 million and $74.5 million for fiscal 2010, fiscal 2011 and fiscal 2012, respectively. Expected future amortization of intangible assets for the fiscal years indicated is as follows (in thousands):

Year Ended October 31,	
2013	$ 71,309
2014	57,151
2015	52,879
2016	52,879
2017	22,783
Thereafter	136
	$ 257,137

(12) OTHER BALANCE SHEET DETAILS

As of the dates indicated, other long-term assets are comprised of the following (in thousands):

	October 31, 2011	October 31, 2012
Maintenance spares inventory, net	$ 50,442	$ 57,548
Deferred debt issuance costs, net	23,481	20,575
Embedded redemption feature	7,020	420
Restricted cash	27,507	2,413
Other	5,673	3,780
	$ 114,123	$ 84,736

Deferred debt issuance costs are amortized using the straight line method which approximates the effect of the effective interest rate method through the maturity of the related debt. Amortization of debt issuance costs related to our convertible notes payable, which is included in interest expense, was $3.8 million, $5.3 million and $5.3 million for fiscal 2010, fiscal 2011 and fiscal 2012, respectively.

As of the dates indicated, accrued liabilities are comprised of the following (in thousands):

	October 31, 2011	October 31, 2012
Warranty	$ 47,282	$ 55,132
Compensation, payroll related tax and benefits	51,808	48,885
Vacation	27,808	29,581
Current restructuring liabilities	664	3,516
Interest payable	4,248	4,404
Other	65,194	68,022
	$ 197,004	$ 209,540

The following table summarizes the activity in Ciena's accrued warranty for the fiscal years indicated (in thousands):

Year ended October 31,	Beginning Balance	Acquired	Provisions	Settlements	Balance at end of period
2010	$ 40,196	$ 24,041	$ 15,353	$ 25,218	$ 54,372
2011	$ 54,372	$ —	$ 18,451	$ 25,541	$ 47,282
2012	$ 47,282	$ —	$ 33,418	$ 25,568	$ 55,132

As a result of the substantial completion of integration activities related to the MEN Business, Ciena consolidated certain support operations and processes during fiscal 2011, resulting in a reduction in costs to service future warranty obligations. As a result of the lower expected costs, Ciena reduced its warranty liability by $6.9 million, which had the effect of reducing the provisions in the table above. The increase in fiscal 2012 warranty provision was driven primarily by sales that included longer-term support obligations and technical support requirements from additional geographies.

As of the dates indicated, deferred revenue is comprised of the following (in thousands):

	October 31, 2011	October 31, 2012
Products	$ 42,915	$ 29,279
Services	80,883	77,797
	123,798	107,076
Less current portion	(99,373)	(79,516)
Long-term deferred revenue	$ 24,425	$ 27,560

(13) CONVERTIBLE NOTES PAYABLE

Outstanding Convertible Notes Payable

Ciena has four issuances of convertible notes payable outstanding. The notes are senior unsecured obligations of Ciena and rank equally with all of Ciena's other existing and future senior unsecured debt. The indentures governing Ciena's notes provide for customary events of default which include (subject in certain cases to customary grace and cure periods), among others, the following: nonpayment of principal or interest; breach of covenants or other agreements in the indenture; defaults in or failure to pay certain other indebtedness; and certain events of bankruptcy or insolvency. Generally, if an event of default occurs and is continuing, the trustee or the holders of at least 25% in aggregate principal amount of the notes may declare the principal of, accrued interest on, and premium, if any, on all the notes immediately due and payable. Under the indentures, if Ciena undergoes a "fundamental change" (as that term is defined in the indenture governing the notes to include certain change in control transactions), holders of notes will have the right, subject to certain exemptions, to require Ciena to purchase for cash any or all of their notes at a price equal to the principal amount, plus accrued interest. If the holder elects to convert his or her notes in connection with a specified fundamental change, in certain circumstances, Ciena will be required to increase the applicable conversion rate, depending on the price paid per share for Ciena common stock and the effective date of the fundamental change transaction.

0.25% *Convertible Senior Notes due May 1, 2013*

On April 10, 2006, Ciena completed a public offering of 0.25% convertible senior notes due May 1, 2013, in aggregate principal amount of $300.0 million. Interest is payable on May 1 and November 1 of each year.

At the election of the holder, notes may be converted prior to maturity into shares of Ciena common stock at the initial conversion rate of 25.3001 shares per $1,000 in principal amount, which is equivalent to an initial conversion price of $39.5255 per share. The notes may be redeemed by Ciena if the closing sale price of Ciena's common stock for at least 20 trading days in any 30 consecutive trading day period ending on the date one day prior to the date of the notice of redemption exceeds 130% of the conversion price. Ciena may redeem the notes in whole or in part, at a redemption price in cash equal to the principal amount to be redeemed, plus accrued and unpaid interest.

Ciena used approximately $28.5 million of the net proceeds of this offering to purchase a call spread option on its common stock that is intended to limit exposure to potential dilution from the conversion of the notes. See Note 16 below for a description of this call spread option.

During the fourth quarter of fiscal 2010, Ciena repurchased $81.8 million in aggregate principal amount of its outstanding 0.25% convertible senior notes in privately negotiated transactions, which resulted in a gain of approximately $4.9 million. As of October 31, 2012, the outstanding principal on these notes was $216.2 million.

4.0% *Convertible Senior Notes, due March 15, 2015*

On March 15, 2010, Ciena completed a private placement of 4.0% convertible senior notes due March 15, 2015, in aggregate principal amount of $375.0 million. Interest is payable on the notes on March 15 and September 15 of each year, beginning on September 15, 2010.

At the election of the holder, the notes may be converted prior to maturity into shares of Ciena common stock at the initial conversion rate of 49.0557 shares per $1,000 in principal amount, which is equivalent to an initial conversion price of approximately $20.38 per share. The notes may be redeemed by Ciena on or after March 15, 2013 if the closing sale price of Ciena's common stock for at least 20 trading days in any 30 consecutive trading day period ending on the date one day prior to the date of the notice of redemption exceeds 150% of the conversion price. Ciena may redeem the notes in whole or in part, at a redemption price in cash equal to the principal amount to be redeemed, plus accrued and unpaid interest, including any additional interest to, but excluding, the redemption date, plus a make-whole premium payment. The "make whole premium" payment will be made in cash and equal the present value of the remaining interest payments, to maturity, computed using a discount rate equal to 2.75%. The make-whole premium is paid to holders whether or not they convert the notes following Ciena's issuance of a redemption notice. For accounting purposes, this redemption feature is an embedded derivative that is not clearly and closely related to the notes. Consequently, it was initially bifurcated from the indenture and separately recorded at its fair value as an asset with subsequent changes in fair value recorded through earnings. As of October 31, 2012, the fair value of the embedded redemption feature was $0.4 million and is included in other long-term assets on the Consolidated Balance Sheet. Changes in fair value of the embedded redemption feature in the amount of $6.6 million are reflected as interest and other income (loss), net in the Consolidated Statement of Operations during fiscal 2012.

The net proceeds from the offering of the notes were $364.3 million after deducting the placement agents' fees and other fees and expenses. Ciena used $243.8 million of this amount to fund its payment election to replace its contractual obligation to issue convertible notes to Nortel as part of the aggregate purchase price for the acquisition of the MEN Business. The remaining proceeds were used to reduce the cash on hand required to fund the aggregate purchase price of the MEN Business. See Note 2 above.

0.875% *Convertible Senior Notes due June 15, 2017*

On June 11, 2007, Ciena completed a public offering of 0.875% convertible senior notes due June 15, 2017, in aggregate principal amount of $500.0 million. Interest is payable on June 15 and December 15 of each year, beginning on December 15, 2007.

At the election of the holder, notes may be converted prior to maturity into shares of Ciena common stock at the initial conversion rate of 26.2154 shares per $1,000 in principal amount, which is equivalent to an initial conversion price of approximately $38.15 per share. The notes are not redeemable by Ciena prior to maturity.

Ciena used approximately $42.5 million of the net proceeds of this offering to purchase a call spread option on its common stock that is intended to limit exposure to potential dilution from conversion of the notes. See Note 16 below for a description of this call spread option.

3.75% *Convertible Senior Notes, due October 15, 2018*

On October 18, 2010, Ciena completed a private placement of 3.75% convertible senior notes due October 15, 2018, in aggregate principal amount of $350.0 million. Interest is payable on the notes on April 15 and October 15 of each year, beginning on April 15, 2011.

At the election of the holder, the notes may be converted prior to maturity into shares of Ciena common stock at the initial conversion rate of 49.5872 shares per $1,000 in principal amount, which is equivalent to an initial conversion price of approximately $20.17 per share.

The net proceeds from the offering were approximately $340.4 million after deducting the placement agents' fees and other fees and expenses. Ciena used $76.1 million of the net proceeds to effect the repurchase of its 0.25% convertible senior notes due 2013 described above.

The following table sets forth, in thousands, the carrying value and the estimated current fair value of Ciena's outstanding convertible notes:

	October 31, 2012	
Description	Carrying Value	Fair Value
0.25% Convertible Senior Notes due May 1, 2013	$ 216,210	$ 213,237
4.0% Convertible Senior Notes, due March 15, 2015 (1)	375,806	397,885
0.875% Convertible Senior Notes due June 15, 2017	500,000	425,625
3.75% Convertible Senior Notes, due October 15, 2018	350,000	360,063
	$ 1,442,016	$ 1,396,810

(1) Includes unamortized bond premium related to embedded redemption feature

The fair value reported above is based on the quoted market price for the notes on the date above.

(14) CREDIT FACILITY

On August 13, 2012 (the "Closing Date"), Ciena and certain of its subsidiaries, including Ciena Communications, Inc. and Ciena Canada, Inc. (with Ciena, collectively, the "Borrowers"), entered into asset-based lending (ABL) facility and executed an ABL Credit Agreement (the "Credit Agreement") with the lenders party thereto, including Deutsche Bank AG New York Branch, as administrative agent and collateral agent (the "Agent"), Bank of America, N.A., as Syndication Agent, and Morgan Stanley Senior Funding, Inc. and Wells Fargo Bank, National Association, as Co-Documentation Agents. The Credit Agreement provides for a senior secured asset-based revolving credit facility of up to $150 million (the "Credit Facility"). Ciena has the option to increase the total commitment under the Credit Facility to $200 million, subject to certain conditions, including obtaining commitments from one or more lenders. The Credit Agreement provides that the entire amount of the Credit Facility is available for issuances of letters of credit, and allows for both swingline loans, and Canadian dollar denominated loans to Ciena's Canadian subsidiary (the "Canadian Borrower") in an amount not to exceed $20 million. Ciena principally expects to use the Credit Facility to support the issuance of letters of credit that arise in the ordinary course of its business and thereby to reduce its use of cash to support and collateralize these instruments. As of October 31, 2012, letters of credit totaling $50.8 million were collateralized by the Credit Facility. There are no borrowings outstanding under the Credit Facility as of October 31, 2012.

Availability under the Credit Facility is based upon monthly (or weekly, in certain cases) borrowing base certifications valuing the Borrowers' eligible inventory and eligible accounts receivable, as reduced by certain reserves in effect from time to time. Outstanding borrowings under the Credit Facility accrue interest at floating rates plus an applicable margin ranging from 2.00% to 2.50% for LIBOR rate loans, and 1.00% to 1.50% for base rate loans. The commitment fee payable on the unused portion of the Credit Facility equals 0.50% or 0.375% based on utilization of the Credit Facility and Borrowers will pay customary letter of credit fees.

The Credit Facility matures on August 13, 2015, provided that it will mature early on (i) January 31, 2013, if any of Ciena's 0.25% senior convertible notes due May 1, 2013 are then outstanding and Ciena is unable to meet certain financial criteria with respect to its cash position at that time, or (ii) December 15, 2014, if any of Ciena's 4.00% senior convertible notes due March 15, 2015 are then outstanding. Ciena expects to satisfy the financial criteria such that the Credit Facility will not early mature on January 31, 2013.

On the Closing Date, Ciena and Ciena Communications, Inc. entered into a U.S. Guaranty in favor of the Agent, providing an unconditional guaranty of all amounts owing under the Credit Facility. Ciena Canada entered into a similar guaranty in favor of the Agent with respect to the Canadian Borrower's obligations. These agreements may require additional subsidiary guarantors in the future. In addition, Ciena, the other domestic Borrowers and the Agent entered into a Security Agreement and a Pledge Agreement on the Closing Date. Pursuant to the Security Agreement and Pledge Agreement, the obligations of Ciena and the other domestic Borrowers and the guarantees by the domestic guarantors are secured by first priority security interests (subject only to customary permitted liens and certain other permitted liens) in substantially all current assets of Ciena, the other domestic Borrowers and the domestic guarantors, such property consisting of accounts receivable, inventory, cash, deposit and securities accounts, chattel paper, promissory notes and payment intangibles and, to the extent evidencing or otherwise related to such property, all general intangibles, licenses, letter of credit rights, commercial tort claims, instruments, supporting obligations and documents. Pursuant to a Canadian Security Agreement entered into on the Closing Date by and between Ciena Canada and the Agent, similar assets of the Canadian Borrower secure the obligations of the Canadian Borrower.

The Credit Agreement contains customary covenants that limit, absent lender approval, the ability of Ciena and certain of its affiliates to, among other things, pay cash dividends, incur debt, create liens and encumbrances, redeem or repurchase stock, enter into certain acquisition transactions or transactions with affiliates, merge, dissolve, repay certain indebtedness, change the nature of Ciena's business, make investments or dispose of assets. In some cases, these restrictions are subject to certain negotiated exceptions or permit Ciena to undertake otherwise restricted activities if it satisfies certain required conditions. In addition, Ciena will be required to maintain a minimum fixed charge coverage ratio of not less than 1.0 to 1.0 as of the end of any period of four fiscal quarters when excess availability under the Credit Facility is less than the greater of (i) 12.5% of availability or (ii) $15,000,000. Ciena is also required to maintain at all times at least $200 million in the aggregate of unrestricted cash and cash equivalents.

If (x) excess availability under the Credit Facility is less than the greater of (i) 12.5% of availability or (ii) $15,000,000 or (y) there exists an event of default, amounts in any of the Borrowers' or subsidiary guarantors' designated core deposit accounts will be transferred daily into a blocked account held by the Agent and applied to reduce outstanding amounts under the Credit Facility.

The Credit Agreement contains customary events of default including, among other things, failure to pay obligations when due, initiation of bankruptcy or insolvency proceedings, defaults on certain other indebtedness, change of control, incurrence of certain material judgments that are not stayed, satisfied, bonded or discharged within 30 days, certain ERISA events, invalidity of the credit documents, and violation of affirmative and negative covenants or breach of representations and warranties set forth in the Credit Agreement. Upon an event of default, the lenders may, subject to various customary cure rights, require the immediate payment of all amounts outstanding and foreclose on collateral.

Ciena recorded $2.7 million of debt issuance costs related to the credit facility agreement of which $2.3 million has been paid.

(15) EARNINGS (LOSS) PER SHARE CALCULATION

The following table (in thousands except per share amounts) is a reconciliation of the numerator and denominator of the basic net income (loss) per common share (“Basic EPS”) and the diluted net income (loss) per potential common share (“Diluted EPS”). Since the numerator reflects net losses for the fiscal years indicated, both Basic EPS and Diluted EPS are computed using the weighted average number of common shares outstanding. If the numerator reflected net income, Diluted

EPS would also include, to the extent the effect is not anti-dilutive, the following: (i) shares issuable upon vesting of restricted stock units, (ii) shares issuable under Ciena's employee stock purchase plan and upon exercise of outstanding stock options, using the treasury stock method; and (iii) shares underlying Ciena's outstanding convertible notes.

Numerator

	Year Ended October 31,		
	2010	2011	2012
Net loss	$ (333,514)	$ (195,521)	$ (144,021)

Denominator

	Year Ended October 31,		
	2010	2011	2012
Basic weighted average shares outstanding	93,103	95,854	99,341
Dilutive weighted average shares outstanding	93,103	95,854	99,341

EPS

	Year Ended October 31,		
	2010	2011	2012
Basic EPS	$ (3.58)	$ (2.04)	$ (1.45)
Diluted EPS	$ (3.58)	$ (2.04)	$ (1.45)

The following table summarizes the weighted average shares excluded from the calculation of the denominator for Diluted EPS due to their anti-dilutive effect for the fiscal years indicated (in thousands):

	Year Ended October 31,		
	2010	2011	2012
Shares underlying stock options and restricted stock units	7,397	6,141	5,726
0.25% Convertible Senior Notes due May 1, 2013	7,454	5,470	5,470
4.00% Convertible Senior Notes due March 15, 2015	11,605	18,395	18,395
0.875% Convertible Senior Notes due June 15, 2017	13,108	13,108	13,108
3.75% Convertible Senior Notes due October 15, 2018	717	17,356	17,355
Total excluded due to anti-dilutive effect	40,281	60,470	60,054

(16) STOCKHOLDERS' EQUITY

Call Spread Options

Ciena holds two call spread options on its common stock relating to the shares issuable upon conversion of two issues of convertible notes. These call spread options are designed to mitigate exposure to potential dilution from the conversion of these notes. Ciena purchased a call spread option relating to the 0.25% convertible senior notes due May 1, 2013 for $28.5 million during the second quarter of fiscal 2006. Ciena purchased a call spread option relating to the 0.875% convertible senior notes due June 15, 2017 for $42.5 million during the third quarter of fiscal 2007. In each case, the call spread options were purchased at the time of the notes offering from an affiliate of the underwriter. The cost of each call spread option was recorded as a reduction in paid-in capital.

Each call spread option is exercisable, upon maturity of the relevant issue of convertible notes, for such number of shares of Ciena common stock issuable upon conversion of that series of notes in full. Each call spread option has a "lower strike price" equal to the conversion price for the notes and a "higher strike price" that serves to cap the amount of dilution protection provided. At its election, Ciena can exercise the call spread options on a net cash basis or a net share basis. The value of the consideration of a net share settlement will be equal to the value upon a net cash settlement and can range from $0, if the market price per share of Ciena common stock upon exercise is equal to or below the lower strike price, to approximately $45.7 million (in the case of the April 2006 call spread option) or approximately $76.1 million (in the case of the June 2007 call spread option), if the market price per share of Ciena common stock upon exercise is at or above the higher strike price. If the market price on the date of exercise is between the lower strike price and the higher strike price, in lieu of a net settlement, Ciena may elect to receive the full number of shares underlying the call spread option by paying the aggregate option exercise

price, which is equal to the original principal outstanding on that series of notes. Should there be an early unwind of the call spread option, the amount of cash or shares to be received by Ciena will depend upon the existing overall market conditions, and on Ciena's stock price, the volatility of Ciena's stock and the remaining term of the call spread option. The number of shares subject to the call spread options, and the lower and higher strike prices, are subject to customary adjustments.

(17) INCOME TAXES

For the periods indicated, the provision (benefit) for income taxes consists of the following (in thousands):

	October 31,		
	2010	2011	2012
Provision for income taxes:			
Current:			
Federal	$ (918)	$ (194)	$ —
State	223	(518)	857
Foreign	1,936	8,202	8,465
Total current	1,241	7,490	9,322
Deferred:			
Federal	700	160	—
State	—	23	—
Foreign	—	—	—
Total deferred	700	183	—
Provision for income taxes	$ 1,941	$ 7,673	$ 9,322

For the periods indicated, income (loss) before provision for income taxes consists of the following (in thousands):

	October 31,		
	2010	2011	2012
United States	$ (317,899)	$ (240,244)	$ (151,958)
Foreign	(13,674)	52,396	17,259
Total	$ (331,573)	$ (187,848)	$ (134,699)

For the periods indicated, the tax provision (benefit) reconciles to the amount computed by multiplying income or loss before income taxes by the U.S. federal statutory rate of 35% as follows:

	October 31,		
	2010	2011	2012
Provision at statutory rate	35.00 %	35.00 %	35.00 %
State taxes	(0.07)%	0.27 %	(0.64)%
Foreign taxes	(4.56)%	2.32 %	(5.09)%
Research and development credit	2.54 %	11.03 %	10.21 %
Non-deductible compensation and other	(1.43)%	(3.96)%	(4.92)%
Valuation allowance	(32.07)%	(48.74)%	(41.48)%
Effective income tax rate	(0.59)%	(4.08)%	(6.92)%

The significant components of deferred tax assets and liabilities are as follows (in thousands):

	October 31, 2011	October 31, 2012
Deferred tax assets:		
Reserves and accrued liabilities	$ 30,637	$ 44,128
Depreciation and amortization	259,899	276,710
NOL and credit carry forward	1,154,571	1,142,647
Other	22,304	25,509
Gross deferred tax assets	1,467,411	1,488,994
Valuation allowance	(1,467,411)	(1,488,994)
Net deferred tax asset	$ —	$ —

A reconciliation of the beginning and ending amount of unrecognized tax benefits, excluding interest and penalties, is as follows (in thousands):

Unrecognized tax benefits at October 31, 2009	$ 6,189
Increase related to positions taken in prior period	26
Increase related to positions taken in current period	3,383
Reductions related to expiration of statute of limitations	(2,156)
Unrecognized tax benefits at October 31, 2010	7,442
Increase related to positions taken in prior period	(450)
Increase related to positions taken in current period	1,847
Reductions related to expiration of statute of limitations	(249)
Unrecognized tax benefits at October 31, 2011	8,590
Increase related to positions taken in prior period	(12)
Increase related to positions taken in current period	2,866
Reductions related to expiration of statute of limitations	(392)
Unrecognized tax benefits at October 31, 2012	$ 11,052

As of October 31, 2011 and 2012, Ciena had accrued $1.1 million and $1.4 million, respectively, of interest and some minor penalties related to unrecognized tax benefits within other long-term liabilities in the Consolidated Balance Sheets. A charge of $0.2 million, a benefit of $0.3 million, and a charge of $0.3 million of interest were recorded to the provision for income taxes during fiscal 2010, 2011 and 2012, respectively. If recognized, the entire balance of unrecognized tax benefits would impact the effective tax rate. Over the next 12 months, Ciena does not estimate any material changes in unrecognized income tax benefits.

During fiscal 2002, Ciena established a valuation allowance against its deferred tax assets. Ciena intends to maintain a valuation allowance until sufficient positive evidence exists to support a reversal. Any future release of the valuation allowance may be recorded as a tax benefit increasing net income or as an adjustment to paid-in capital, based on tax ordering requirements. The following table summarizes the activity in Ciena's valuation allowance against its gross deferred tax assets (in thousands):

Year ended October 31,	Balance at beginning of period	Additions	Deductions	Balance at end of period
2010	$ 1,198,067	$ 165,426	$ —	$ 1,363,493
2011	$ 1,363,493	$ 103,918	$ —	$ 1,467,411
2012	$ 1,467,411	$ 21,583	$ —	$ 1,488,994

As of October 31, 2012, Ciena had a $2.8 billion net operating loss carry forward and a $0.1 billion income tax credit carry forward which begin to expire in fiscal year 2018 and 2013, respectively. Ciena's ability to use net operating losses and credit carry forwards is subject to limitations pursuant to the ownership change rules of the Internal Revenue Code Section 382.

The income tax provision does not reflect the tax savings resulting from deductions associated with Ciena's equity compensation and the call spread option associated with Ciena's convertible debt. The cumulative tax benefit through October 31, 2012 of approximately $78.0 million will be credited to additional paid-in capital when realized. For deductions associated with Ciena's equity compensation, credits to paid-in capital will be recorded when those tax benefits are used to reduce taxes payable.

(18) SHARE-BASED COMPENSATION EXPENSE

Ciena grants equity awards under its 2008 Omnibus Incentive Plan and the Amended and Restated Employee Stock Purchase Plan ("ESPP").

2008 Plan

The 2008 Omnibus Incentive Plan (the "2008 Plan") authorizes the issuance of awards including stock options, restricted stock units (RSUs), restricted stock, unrestricted stock, stock appreciation rights (SARs) and other equity and/or cash performance incentive awards to employees, directors, and consultants of Ciena. Subject to certain restrictions, the Compensation Committee of the Board of Directors has broad discretion to establish the terms and conditions for awards under the 2008 Plan, including the number of shares, vesting conditions and the required service or performance criteria. Options and SARs have a maximum term of ten years, and their exercise price may not be less than 100% of fair market value on the date of grant. Repricing of stock options and SARs is prohibited without stockholder approval. Certain change in control transactions may cause awards granted under the 2008 Plan to vest, unless the awards are continued or substituted for in connection with the transaction.

The 2008 Plan reserves 18.5 million shares of common stock for issuance, subject to increase from time to time by the number of shares: (i) subject to outstanding awards granted under Ciena's prior equity compensation plans that terminate without delivery of any stock (to the extent such shares would have been available for issuance under such prior plan), and (ii) subject to awards assumed or substituted in connection with the acquisition of another company. The 2008 Plan includes a fungible share feature that counts each share of common stock underlying full value awards, such as restricted stock units, as 1.31 shares for purposes of calculating the shares remaining available under the 2008 Plan. As of October 31, 2012, approximately 7.0 million shares remained available for issuance under the 2008 Plan.

Stock Options

Outstanding stock option awards to employees are generally subject to service-based vesting restrictions and vest incrementally over a four-year period. The following table is a summary of Ciena's stock option activity for the periods indicated (shares in thousands):

	Shares Underlying Options Outstanding	Weighted Average Exercise Price
Balance as of October 31, 2009	5,538	$ 45.80
Granted	86	12.42
Exercised	(103)	5.21
Canceled	(519)	95.00
Balance as of October 31, 2010	5,002	40.96
Granted	—	—
Exercised	(411)	14.88
Canceled	(901)	97.64
Balance as of October 31, 2011	3,690	30.01
Granted	—	—
Exercised	(56)	6.72
Canceled	(427)	51.28
Balance as of October 31, 2012	3,207	$ 27.58

The total intrinsic value of options exercised during fiscal 2010, fiscal 2011 and fiscal 2012 was $0.9 million, $3.4 million and $0.5 million, respectively. The weighted average fair value of each stock option granted by Ciena during fiscal 2010 was $6.94. There were no stock options granted by Ciena during fiscal 2011 or fiscal 2012.

The following table summarizes information with respect to stock options outstanding at October 31, 2012, based on Ciena's closing stock price on the last trading day of Ciena's fiscal 2012 (shares and intrinsic value in thousands):

	Options Outstanding at October 31, 2012				Vested Options at October 31, 2012			
Range of Exercise Price	Number of Underlying Shares	Weighted Average Remaining Contractual Life (Years)	Weighted Average Exercise Price	Aggregate Intrinsic Value	Number of Underlying Shares	Weighted Average Remaining Contractual Life (Years)	Weighted Average Exercise Price	Aggregate Intrinsic Value
$ 0.94 — $ 16.31	318	5.03	$ 8.44	$ 1,445	286	4.84	$ 8.16	$ 1,387
$ 16.52 — $ 17.29	389	2.68	16.68	—	389	2.68	16.68	—
$ 17.43 — $ 24.50	529	2.48	20.46	—	529	2.48	20.46	—
$ 24.69 — $ 28.28	406	3.67	27.00	—	406	3.67	27.00	—
$ 28.61 — $ 31.43	195	3.20	29.80	—	195	3.20	29.80	—
$ 31.71 — $ 32.55	506	0.31	31.72	—	506	0.31	31.72	—
$ 33.00 — $ 37.10	345	3.89	35.19	—	345	3.89	35.19	—
$ 37.31 — $ 47.32	487	1.93	44.83	—	487	1.93	44.83	—
$ 47.53 — $ 55.79	32	0.80	49.35	—	32	0.80	49.35	—
$ 0.94 — $ 55.79	3,207	2.66	$ 27.58	$ 1,445	3,175	2.62	$ 27.75	$ 1,387

Assumptions for Option-Based Awards

Ciena recognizes the fair value of service-based options as share-based compensation expense on a straight-line basis over the requisite service period. During fiscal 2010, Ciena estimated the fair value of each option award on the date of grant using the Black-Scholes option-pricing model. Ciena did not grant any option-based awards during fiscal 2011 or fiscal 2012. The following table lists the assumptions used in valuing option-based awards granted in fiscal 2010:

	Year Ended October 31, 2010
Expected volatility	61.9%
Risk-free interest rate	2.0%-3.0%
Expected term (years)	5.3-5.5
Expected dividend yield	0.0%

Ciena considered the implied volatility and historical volatility of its stock price in determining its expected volatility, and, finding both to be equally reliable, determined that a combination of both would result in the best estimate of expected volatility.

The risk-free interest rate assumption is based upon observed interest rates appropriate for the expected term of Ciena's employee stock options.

The expected life of employee stock options represents the weighted-average period the stock options are expected to remain outstanding. Ciena uses historical information about specific exercise behavior of its grantees to determine the expected term.

The dividend yield assumption is based on Ciena's history and expectation of dividend payouts.

Because share-based compensation expense is recognized only for those awards that are ultimately expected to vest, the amount of share-based compensation expense recognized reflects a reduction for estimated forfeitures. Ciena estimates forfeitures at the time of grant and revises those estimates in subsequent periods based upon new or changed information. Ciena relies upon historical experience in establishing forfeiture rates. If actual forfeitures differ from current estimates, total unrecognized share-based compensation expense will be adjusted for future changes in estimated forfeitures.

Restricted Stock Units

A restricted stock unit is a stock award that entitles the holder to receive shares of Ciena common stock as the unit vests. Ciena's outstanding restricted stock unit awards are subject to service-based vesting conditions and/or performance-based vesting conditions. Awards subject to service-based conditions typically vest in increments over a three or four-year period. Awards with performance-based vesting conditions require the achievement of certain operational, financial or other performance criteria or targets as a condition of vesting, or the acceleration of vesting, of such awards. Ciena recognizes the estimated fair value of performance-based awards, net of estimated forfeitures, as share-based compensation expense over the performance period, using graded vesting, which considers each performance period or tranche separately, based upon Ciena's determination of whether it is probable that the performance targets will be achieved. At each reporting period, Ciena reassesses the probability of achieving the performance targets and the performance period required to meet those targets.

The following table is a summary of Ciena's restricted stock unit activity for the period indicated, with the aggregate fair value of the balance outstanding at the end of each period, based on Ciena's closing stock price on the last trading day of the relevant period (shares and aggregate fair value in thousands):

	Restricted Stock Units Outstanding	Weighted Average Grant Date Fair Value Per Share	Aggregate Fair Value
Balance as of October 31, 2009	3,716	$ 14.67	$ 43,591
Granted	3,643		
Vested	(1,846)		
Canceled or forfeited	(322)		
Balance as of October 31, 2010	5,191	13.81	71,681
Granted	2,064		
Vested	(2,466)		
Canceled or forfeited	(491)		
Balance as of October 31, 2011	4,298	16.28	59,399
Granted	2,433		
Vested	(1,912)		
Canceled or forfeited	(416)		
Balance as of October 31, 2012	4,403	$ 14.16	$ 56,267

The total fair value of restricted stock units that vested and were converted into common stock during fiscal 2010, fiscal 2011 and fiscal 2012 was $25.7 million, $45.3 million and $27.0 million, respectively. The weighted average fair value of each restricted stock unit granted by Ciena during fiscal 2010, fiscal 2011 and fiscal 2012 was $13.43, $19.73 and $11.28, respectively.

Assumptions for Restricted Stock Unit Awards

The fair value of each restricted stock unit award is based on the closing price on the date of grant. Share-based expense for service-based restricted stock unit awards is recognized, net of estimated forfeitures, ratably over the vesting period on a straight-line basis.

Share-based expense for performance-based restricted stock unit awards, net of estimated forfeitures, is recognized ratably over the performance period based upon Ciena's determination of whether it is probable that the performance targets will be achieved. At each reporting period, Ciena reassesses the probability of achieving the performance targets and the performance period required to meet those targets. The estimation of whether the performance targets will be achieved involves judgment,

and the estimate of expense is revised periodically based on the probability of achieving the performance targets. Revisions are reflected in the period in which the estimate is changed. If any performance goals are not met, no compensation cost is ultimately recognized against that goal and, to the extent previously recognized, compensation cost is reversed.

2003 Employee Stock Purchase Plan

Under the ESPP, eligible employees may enroll in a twelve-month offer period that begins in December and June of each year. Each offer period includes two six-month purchase periods. Employees may purchase a limited number of shares of the Company stock at 85% of the fair market value on either the day immediately preceding the offer date or the purchase date, whichever is lower. The ESPP is considered compensatory for purposes of share-based compensation expense. In March 2012, Ciena stockholders approved an amendment and restatement of the ESPP, extending the term to January 24, 2023 and increasing by 5.0 million the number of shares authorized for issuance thereunder. Pursuant to the ESPP's “evergreen” provision, on December 31 of each year, the number of shares available under the ESPP increases by up to 0.6 million shares, provided that the total number of shares available at that time shall not exceed 8.2 million.

During fiscal 2010, fiscal 2011 and fiscal 2012, Ciena issued 0.1 million, 0.5 million and 1.2 million shares under the ESPP, respectively. At October 31, 2012, 7.6 million shares remained available for issuance under the ESPP.

Share-Based Compensation Expense for Periods Reported

The following table summarizes share-based compensation expense for the periods indicated (in thousands):

	Year Ended October 31,		
	2010	2011	2012
Product costs	$ 2,140	$ 2,269	$ 2,156
Service costs	1,717	1,881	1,462
Share-based compensation expense included in cost of goods sold	3,857	4,150	3,618
Research and development	9,310	10,149	8,567
Sales and marketing	10,950	12,182	11,558
General and administrative	9,959	11,140	8,691
Acquisition and integration costs	1,342	308	7
Share-based compensation expense included in operating expense	31,561	33,779	28,823
Share-based compensation expense capitalized in inventory, net	142	1	(47)
Total share-based compensation	$ 35,560	$ 37,930	$ 32,394

As of October 31, 2012, total unrecognized compensation expense was $49.4 million: (i) $0.2 million, which relates to unvested stock options and is expected to be recognized over a weighted-average period of 0.5 years; and (ii) $49.2 million, which relates to unvested restricted stock units and is expected to be recognized over a weighted-average period of 1.3 years.

(19) SEGMENT AND ENTITY WIDE DISCLOSURES

Segment Reporting

Ciena’s chief operating decision maker, its chief executive officer, evaluates performance and allocates resources based on multiple factors, including segment profit (loss) information for the following product categories:

- *Packet-Optical Transport —* includes optical transport solutions that increase network capacity and enable more rapid delivery of a broader mix of high-bandwidth services. These products are used by network operators to facilitate the cost effective and efficient transport of voice, video and data traffic in core, regional, metro and access networks. Ciena's Packet-Optical Transport products support the efficient delivery of a wide variety of consumer-oriented network services, as well as key managed service and enterprise applications. Ciena's principal products in this segment include the 6500 Packet-Optical Platform, 4200 Advanced Services Platform, Corestream® Agility Optical Transport System, 5100/5200 Advanced Services Platform, Common Photonic Layer (CPL), and 6100 Multiservice Optical Platform. This segment also includes sales from legacy SONET/SDH, transport and data networking products, as well as certain enterprise-oriented transport solutions that support storage and LAN extension, interconnection of data centers, and virtual private networks. This segment also includes operating system software and enhanced software features embedded in each of these products. Revenue from this segment is included in product revenue on the Consolidated Statement of Operations.

- *Packet-Optical Switching* — includes optical switching platforms that enable automated optical infrastructures for the delivery of a wide variety of enterprise and consumer-oriented network services. Ciena's principal products in this segment include its family of CoreDirector® Multiservice Optical Switches, its 5430 Reconfigurable Switching System and its OTN configuration for the 5410 Reconfigurable Switching System. These products include multiservice, multi-protocol switching systems that consolidate the functionality of an add/drop multiplexer, digital cross-connect and packet switch into a single, high-capacity intelligent switching system. These products address both the core and metro segments of communications networks and support key managed services, Ethernet/TDM Private Line, Triple Play and IP services. This segment also includes sales of operating system software and enhanced software features embedded in each of these products. Revenue from this segment is included in product revenue on the Consolidated Statement of Operations.
- *Carrier-Ethernet Solutions* - principally includes Ciena's 3000 family of service delivery switches and service aggregation switches, the 5000 series of service aggregation switches, and its Carrier Ethernet packet configuration for the 5410 Service Aggregation Switch. These products support the access and aggregation tiers of communications networks and have principally been deployed to support wireless backhaul infrastructures and business data services. Employing sophisticated Carrier Ethernet switching technology, these products deliver quality of service capabilities, virtual local area networking and switching functions, and carrier-grade operations, administration, and maintenance features. This segment includes legacy broadband products that transition legacy voice networks to support Internet-based (IP) telephony, video services and DSL. This segment also includes sales of operating system software and enhanced software features embedded in each of these products. Revenue from this segment is included in product revenue on the Consolidated Statement of Operations.
- *Software and Services* - includes the Ciena One software suite, including OneControl, the integrated network and service management software designed to automate and simplify network management, operation and service delivery. These software solutions can track individual services across multiple product suites, facilitating planned network maintenance, outage detection and identification of customers or services affected by network troubles. In addition to Ciena One, this segment includes the ON-Center® Network & Service Management Suite, and the OMEA and Preside platforms from the MEN Business. This segment also includes a broad range of consulting and support services, including installation and deployment, maintenance support, consulting, network design and training activities. Except for revenue from the software portion of this segment, which is included in product revenue, revenue from this segment is included in services revenue on the Consolidated Statement of Operations.

Reportable segment asset information is not disclosed because it is not reviewed by the chief operating decision maker for purposes of evaluating performance and allocating resources.

The table below (in thousands, except percentage data) sets forth Ciena's segment revenue for the respective periods:

	Fiscal Year		
	2010	2011	2012
Revenues:			
Packet-Optical Transport	$ 705,551	$ 1,121,811	$ 1,172,159
Packet-Optical Switching	112,058	148,395	132,705
Carrier Ethernet Solutions	179,083	127,868	131,693
Software and Services	239,944	343,896	397,366
Consolidated revenue	$ 1,236,636	$ 1,741,970	$ 1,833,923

Segment Profit (Loss)

Segment profit (loss) is determined based on internal performance measures used by the chief executive officer to assess the performance of each operating segment in a given period. In connection with that assessment, the chief executive officer excludes the following items: selling and marketing costs; general and administrative costs; acquisition and integration costs; amortization of intangible assets; restructuring costs; change in fair value of contingent consideration; interest and other income (net); interest expense; equity investment gains or losses and provisions (benefit) for income taxes.

The table below (in thousands) sets forth Ciena's segment profit (loss) and the reconciliation to consolidated net income (loss) during the respective periods:

	Fiscal Year		
	2010	2011	2012
Segment profit:			
Packet-Optical Transport	$ 69,319	$ 191,727	$ 242,137
Packet-Optical Switching	15,662	49,286	22,842
Carrier-Ethernet Solutions	28,742	10,849	(4,066)
Software and Services	56,152	77,422	99,132
Total segment profit	169,875	329,284	360,045
Less: non-performance operating expenses			
Selling and marketing	193,515	251,990	266,338
General and administrative	102,692	126,242	114,002
Acquisition and integration costs	101,379	42,088	—
Amortization of intangible assets	99,401	69,665	51,697
Restructuring costs	8,514	5,781	7,854
Change in fair value of contingent consideration	(13,807)	(3,289)	—
Add: other non-performance financial items			
Interest expense and other income (loss), net	(14,702)	(31,904)	(54,853)
Gain on cost method investments	—	7,249	—
Gain on extinguishment of debt	4,948	—	—
Less: Provision for income taxes	1,941	7,673	9,322
Consolidated net loss	$ (333,514)	$ (195,521)	$ (144,021)

Entity Wide Reporting

The following table reflects Ciena's geographic distribution of revenue based on the location of the purchaser, with any country accounting for at least 10% of total revenue in the period specifically identified. Revenue attributable to geographic regions outside of the United States is reflected as International revenue. For the periods below, Ciena's geographic distribution of revenue was as follows (in thousands, except percentage data):

	Fiscal Year		
	2010	2011	2012
United States	$ 744,232	$ 930,880	$ 972,576
International	492,404	811,090	861,347
Total	$ 1,236,636	$ 1,741,970	$ 1,833,923

The following table reflects Ciena's geographic distribution of equipment, furniture and fixtures, with any country accounting for at least 10% of total equipment, furniture and fixtures in the period specifically identified. Equipment, furniture and fixtures attributable to geographic regions outside of the United States and Canada are reflected as "Other International." For the periods below, Ciena's geographic distribution of equipment, furniture and fixtures was as follows (in thousands, except percentage data):

	October 31,		
	2010	2011	2012
United States	$ 63,675	$ 60,848	$ 64,653
Canada	45,103	47,424	48,376
Other International	11,516	14,286	10,551
Total	$ 120,294	$ 122,558	$ 123,580

For the periods below, customers accounting for at least 10% of Ciena's revenue were as follows (in thousands, except percentage data):

	Fiscal Year		
	2010	2011	2012
AT&T	$ 267,422	$ 269,858	$ 248,123

(20) OTHER EMPLOYEE BENEFIT PLANS

Effective March 1, 2010, Ciena has a Defined Contribution Pension Plan that covers all of its Canada-based employees who are not part of an excluded group. Total contributions (employee and employer) cannot exceed the lesser of 18% of participant earnings and an annual dollar limit (CAD$23,820 for 2012). This plan includes a required employer contribution of 1% for all participants and a 50% matching of participant contributions up to a total annual maximum of CAD$3,000 per employee. During fiscal 2010, 2011 and 2012, Ciena made matching contributions of approximately CAD$2.5 million, CAD$4.3 million and CAD$4.0 million, respectively.

Ciena has a 401(k) defined contribution profit sharing plan. The plan covers all U.S. based employees who are not part of an excluded group. Participants may contribute up to 60% of pre-tax compensation, subject to certain limitations. The plan includes an employer matching contribution equal to 50% of the first 6% an employee contributes each pay period. Ciena may also make discretionary annual profit contributions up to the IRS regulated limit. Ciena has made no profit sharing contributions to date. During fiscal 2010, 2011 and 2012, Ciena made matching contributions of approximately $3.4 million, $3.9 million and $4.1 million, respectively.

(21) COMMITMENTS AND CONTINGENCIES

Ontario Grant

Ciena was awarded a conditional grant from the Province of Ontario in June 2011. Under this strategic jobs investment fund grant, Ciena can receive up to an aggregate of CAD$25.0 million in funding for eligible costs relating to certain next-generation, coherent optical transport development initiatives over the period from November 1, 2010 to October 31, 2015. Ciena anticipates receiving disbursements, approximating CAD$5.0 million per fiscal year over the period above. Amounts received under the grant are subject to recoupment in the event that Ciena fails to achieve certain minimum investment, employment and project milestones. Ciena recorded a CAD$5.3 million and a CAD$5.6 million benefit, as a reduction in research and development expenses, in fiscal 2011 and 2012, respectively. As of October 31, 2011 and 2012, amounts receivable from this grant were CAD$0.3 million and CAD$2.5 million, respectively.

Foreign Tax Contingencies

Ciena has received assessment notices from the Mexican tax authorities asserting deficiencies in payments between 2001 and 2005 related primarily to income taxes and import taxes and duties. Ciena has filed judicial petitions appealing these assessments. As of October 31, 2011 and 2012, Ciena had accrued liabilities of $1.4 million and $1.7 million related to these contingencies, which are reported as a component of other current accrued liabilities. As of October 31, 2012, Ciena estimates that it could be exposed to possible losses of up to $5.8 million, for which it has not accrued liabilities. Ciena has not accrued the additional income tax liabilities because it does not believe that such losses are more likely than not. Ciena has not accrued the additional import taxes and duties because it does not believe the incurrence of such losses are probable. Ciena continues to evaluate the likelihood of probable and reasonably possible losses, if any, related to these assessments. As a result, future increases or decreases to accrued liabilities may be necessary and will be recorded in the period when such amounts are estimable and more likely than not (for income taxes) or probable (for non-income taxes).

In addition to the matters described above, Ciena is subject to various tax liabilities arising in the ordinary course of business. Ciena does not expect that the ultimate settlement of these liabilities will have a material effect on its results of operations, financial position or cash flows.

Litigation

On July 29, 2011, Cheetah Omni LLC filed a complaint in the United States District Court for the Eastern District of Texas against Ciena and several other defendants, alleging, among other things, that certain of the parties' products infringe upon multiple U.S. patents relating to certain reconfigurable optical add-drop multiplexer (ROADM) technologies. The complaint seeks injunctive relief and damages. On November 8, 2011, Ciena filed an answer and counterclaims to Cheetah Omni's

amended complaint. The parties are currently engaged in discovery. Ciena believes that it has valid defenses to the lawsuit and intends to defend it vigorously.

On May 29, 2008, Graywire, LLC filed a complaint in the United States District Court for the Northern District of Georgia against Ciena and four other defendants, alleging, among other things, that certain of the parties' products infringe U.S. Patent 6,542,673 (the "'673 Patent"), relating to an identifier system and components for optical assemblies. The complaint seeks injunctive relief and damages. In July 2009, upon request of Ciena and certain other defendants, the U.S. Patent and Trademark Office ("PTO") granted the defendants' inter partes application for reexamination with respect to certain claims of the '673 Patent, and the district court granted the defendants' motion to stay the case pending reexamination of all of the patents-in-suit. In December 2010, the PTO confirmed the validity of some claims and rejected the validity of other claims of the '673 Patent, to which Ciena and other defendants filed an appeal. On March 16, 2012, the PTO on appeal rejected multiple claims of the '673 Patent, including the two claims on which Ciena is alleged to infringe. Subsequently, the plaintiff requested a reopening of the prosecution of the '673 Patent, to which Ciena and the other defendants filed an opposition. The case currently remains stayed, and there can be no assurance as to whether or when the stay will be lifted.

As a result of its June 2002 acquisition of ONI Systems Corp., Ciena became a defendant in a securities class action lawsuit filed in the United States District Court for the Southern District of New York in August 2001. On January 9, 2012, the final appellant in this securities class action lawsuit withdrew and dismissed its appeal with prejudice in accordance with the terms of the settlement agreement. Ciena was not required to pay any amount toward the settlement or to make any other payments to plaintiffs in connection with the resolution of this matter.

In addition to the matters described above, Ciena is subject to various legal proceedings and claims arising in the ordinary course of business, including claims against third parties that may involve a contractual indemnification obligation on the part of Ciena. Ciena does not expect that the ultimate costs to resolve these matters will have a material effect on its results of operations, financial position or cash flows.

Operating Lease Commitments

Ciena has certain minimum obligations under non-cancelable operating leases expiring on various dates through 2027 for equipment and facilities. During fiscal 2012, the Company entered into a lease relating to office space for its new corporate headquarters in Hanover, Maryland, consisting of a rentable area of approximately 154,100 square feet. The future minimal rental commitments to be paid over the 15-year lease term are approximately $61.8 million. Future annual minimum operating lease commitments under non-cancelable operating leases at October 31, 2012 are as follows (in thousands):

Year ended October 31,	
2013	$ 31,381
2014	26,569
2015	21,928
2016	12,967
2017	6,630
Thereafter	46,126
Total	$ 145,601

Rental expense for fiscal 2010, fiscal 2011 and fiscal 2012 was approximately $22.2 million, $25.5 million and $21.7 million, respectively. In addition, Ciena paid approximately $2.2 million, $2.4 million and $1.4 million during fiscal 2010, fiscal 2011 and fiscal 2012, respectively, related to rent costs for restructured facilities and unfavorable lease commitments, which were offset against Ciena's restructuring liabilities and unfavorable lease obligations. The amount for operating lease commitments above does not include variable expenses relating to insurance, taxes, maintenance and other costs required by the applicable operating lease. These costs are not expected to have a material impact on Ciena's financial condition, results of operations or cash flows.

(22) SUBSEQUENT EVENTS

On December 19, 2012, Ciena entered into separate, privately negotiated exchange agreements under which it will retire $187.5 million in aggregate principal amount of its outstanding 4.0% Convertible Senior Notes due 2015 (the "2015 Notes") in exchange for its issuance of a new series of 4.0% Convertible Senior Notes due 2020 (the "2020 Notes") in an aggregate original principal amount of $187.5 million (collectively, the "Exchange Transactions"). Following the Exchange Transactions,

there will be a total of $187.5 million in aggregate principal amount of 2015 Notes outstanding, with terms unchanged by the Exchange Transactions, and $187.5 million in aggregate principal amount of 2020 Notes outstanding. The 2015 Notes and the 2020 Notes will be the Company's senior unsecured obligations and will rank equally with all of the Company's other existing and future senior unsecured debt. The 2020 Notes will be issued pursuant to an indenture between the Company and Bank of New York Mellon to be entered into in connection with the closing of the Exchange Transactions.

The 2020 Notes will pay interest semi-annually at a rate of 4.0% per year in respect of each $1,000 original principal amount of 2020 Notes. The 2020 Notes will mature on December 15, 2020. The principal amount of the 2020 Notes will also accrete at a rate of 1.85% per year commencing December 27, 2012, compounding on a semi-annual basis. The accreted portion of the principal payable at maturity does not bear interest and is not convertible into shares of the Company's common stock.

The 2020 Notes may be converted prior to maturity (unless earlier repurchased), at the option of the holder, into shares of the Company's common stock at an initial conversion rate of 49.0557 shares of Ciena common stock per $1,000 in original principal amount, which is equal to an initial conversion price of $20.385 per share. In addition, upon satisfaction of certain conditions, the Company may elect to convert the 2020 Notes in whole or in part, prior to maturity. An aggregate of 9,197,944 shares of the Company's common stock issuable upon conversion of the 2020 Notes have been reserved for issuance. If the Company elects to convert the 2020 Notes on or before maturity, holders will also receive a make-whole premium payable in the Company's common stock, or its cash equivalent, at the election of the Company.

Upon certain fundamental changes, holders of the 2020 Notes have the option to require the Company to purchase the 2020 Notes at a price equal to the accreted principal amount of the 2020 Notes delivered for repurchase plus any accrued and unpaid interest on the original principal amount of such 2020 Notes. Upon a holder's election to convert the 2020 Notes in connection with certain fundamental changes, such holder will receive a make-whole premium payable in the Company's common stock, or its cash equivalent, at the election of the Company.

Ciena expects the Exchange Transactions to close on December 27, 2012.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

None.

Item 9A. Controls and Procedures

Disclosure Controls and Procedures

As of the end of the period covered by this report, we carried out an evaluation under the supervision and with the participation of management, including our Chief Executive Officer and Chief Financial Officer, of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended). Based upon this evaluation, our Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective as of the end of the period covered by this report.

Changes in Internal Control over Financial Reporting

There was no change in Ciena's internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Securities Exchange Act of 1934, as amended) during the most recently completed fiscal quarter that has materially affected, or is reasonably likely to materially affect, Ciena's internal control over financial reporting.

Report of Management on Internal Control Over Financial Reporting

The management of Ciena Corporation is responsible for establishing and maintaining adequate internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Securities Exchange Act of 1934).

The internal control over financial reporting at Ciena Corporation was designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with accounting principles generally accepted in the United States of America. Internal control over financial reporting includes those policies and procedures that:

- pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of Ciena Corporation;
- provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with accounting principles generally accepted in the United States of America;
- provide reasonable assurance that receipts and expenditures of Ciena Corporation are being made only in accordance with authorization of management and directors of Ciena Corporation; and
- provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of assets that could have a material effect on the consolidated financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements.

Management of Ciena Corporation assessed the effectiveness of the company's internal control over financial reporting as of October 31, 2012. Management based this assessment on criteria for effective internal control over financial reporting described in "Internal Control — Integrated Framework" issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on this assessment, management determined that, as of October 31, 2012, Ciena Corporation maintained effective internal control over financial reporting. Management reviewed the results of its assessment with the Audit Committee of our Board of Directors.

PricewaterhouseCoopers LLP, independent registered public accounting firm, who audited and reported on the consolidated financial statements of Ciena Corporation included in this annual report, has also audited the effectiveness of Ciena Corporation's internal control over financial reporting as of October 31, 2012, as stated in its report appearing under Item 8 of Part II of this annual report.

/s/ Gary B. Smith	/s/ James E. Moylan, Jr.
Gary B. Smith	James E. Moylan, Jr.
President and Chief Executive Officer	Senior Vice President and Chief Financial Officer
December 21, 2012	December 21, 2012

Item 9B. Other Information

None.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

Information relating to Ciena's directors and executive officers is set forth in Part I of this annual report under the caption Item 1. "Business—Directors and Executive Officers."

Additional information concerning our Audit Committee and regarding compliance with Section 16(a) of the Exchange Act responsive to this item is incorporated herein by reference to Ciena's definitive proxy statement with respect to our 2013 Annual Meeting of Stockholders to be filed with the SEC within 120 days after the end of the fiscal year covered by this Form 10-K.

As part of our system of corporate governance, our board of directors has adopted a code of ethics that is specifically applicable to our chief executive officer and senior financial officers. This Code of Ethics for Senior Financial Officers, as well as our Code of Business Conduct and Ethics, applicable to all directors, officers and employees, are available on the corporate governance page of our web site at http://www.ciena.com. We intend to satisfy any disclosure requirement under Item 5.05 of Form 8-K regarding an amendment to, or waiver from, a provision of the Code of Ethics for Senior Financial Officers, by posting such information on our web site at the address above.

Item 11. Executive Compensation

Information responsive to this item is incorporated herein by reference to Ciena's definitive proxy statement with respect to our 2013 Annual Meeting of Stockholders to be filed with the SEC within 120 days after the end of the fiscal year covered by this Form 10-K.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

Information responsive to this item is incorporated herein by reference to Ciena's definitive proxy statement with respect to our 2013 Annual Meeting of Stockholders to be filed with the SEC within 120 days after the end of the fiscal year covered by this Form 10-K.

Item 13. Certain Relationships and Related Transactions, and Director Independence

Information responsive to this item is incorporated herein by reference to Ciena's definitive proxy statement with respect to our 2013 Annual Meeting of Stockholders to be filed with the SEC within 120 days after the end of the fiscal year covered by this Form 10-K.

Item 14. Principal Accountant Fees and Services

Information responsive to this item is incorporated herein by reference to Ciena's definitive proxy statement with respect to our 2013 Annual Meeting of Stockholders to be filed with the SEC within 120 days after the end of the fiscal year covered by this Form 10-K.

PART IV

Item 15. Exhibits and Financial Statement Schedules

(a) 1. The information required by this item is included in Item 8 of Part II of this annual report.

2. The information required by this item is included in Item 8 of Part II of this annual report.

3. Exhibits: See Index to Exhibits, which is incorporated by reference in this Item. The Exhibits listed in the accompanying Index to Exhibits are filed or incorporated by reference as part of this annual report.

(b) Exhibits. See Index to Exhibits, which is incorporated by reference in this Item. The Exhibits listed in the accompanying Index to Exhibits are filed or incorporated by reference as part of this annual report.

(c) Not applicable.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized on the 21st day of December 2012.

Ciena Corporation

By: /s/ Gary B. Smith

Gary B. Smith

President, Chief Executive Officer and Director

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the Registrant and in the capacities and on the date indicated.

Signatures	Title	Date
/s/ Patrick H. Nettles, Ph.D. Patrick H. Nettles, Ph.D.	Executive Chairman of the Board of Directors	December 21, 2012
/s/ Gary B. Smith Gary B. Smith (Principal Executive Officer)	President, Chief Executive Officer and Director	December 21, 2012
/s/ James E. Moylan, Jr. James E. Moylan, Jr. (Principal Financial Officer)	Sr. Vice President, Finance and Chief Financial Officer	December 21, 2012
/s/ Andrew C. Petrik Andrew C. Petrik (Principal Accounting Officer)	Vice President, Controller	December 21, 2012
/s/ Harvey B. Cash Harvey B. Cash	Director	December 21, 2012
/s/ Bruce L. Claflin Bruce L. Claflin	Director	December 21, 2012
/s/ Lawton W. Fitt Lawton W. Fitt	Director	December 21, 2012
/s/ Patrick T. Gallagher Patrick T. Gallagher	Director	December 21, 2012
/s/ Judith M. O'Brien Judith M. O'Brien	Director	December 21, 2012
/s/ Michael J. Rowny Michael J. Rowny	Director	December 21, 2012

INDEX TO EXHIBITS

Exhibit Number	Exhibit Description	Incorporated by Reference: Form and Registration or Commission No.	Exhibit	Filing Date	Filed Here-with (X)
2.1	Amended & Restated Asset Sale Agreement by and among Nortel Networks Corporation, Nortel Networks Limited, Nortel Networks, Inc. and certain other entities identified therein as sellers and Ciena Corporation, dated as of November 24, 2009 ("Nortel ASA")+	10-K (000-21969)	2.1	12/22/2009	
2.2	Amendment No. 1 to Nortel ASA dated as of December 3, 2009+	10-K (000-21969)	2.2	12/22/2009	
2.3	Amendment No. 2 to Nortel ASA dated as of December 23, 2009+	10-Q (000-21969)	2.1	3/5/2010	
2.4	Amendment No. 3 to Nortel ASA dated as of March 15, 2010	10-Q (000-21969)	2.1	6/10/2010	
2.5	Amendment No. 4 to the Nortel ASA dated as of March 15, 2010+	10-Q (000-21969)	2.2	6/10/2010	
2.6	Amendment No. 5 to the Nortel ASA dated as of March 19, 2010+	10-Q (000-21969)	2.3	6/10/2010	
2.7	Asset Sale Agreement (relating to the sale and purchase of certain Nortel assets in Europe, the Middle East and Africa) by and among the Nortel affiliates, Joint Administrators and Joint Israeli Administrators named therein and Ciena Corporation, dated as of October 7, 2009 ("Nortel EMEA ASA")+	10-K (000-21969)	2.3	12/22/2009	
2.8	Deed of Amendment, dated October 20, 2009, relating to the Nortel EMEA ASA+	10-K (000-21969)	2.4	12/22/2009	
2.9	Amending Agreement dated November 24, 2009 relating to the Nortel EMEA ASA+	10-K (000-21969)	2.5	12/22/2009	
2.10	Amending Agreement dated December 16, 2009 relating to the Nortel EMEA ASA+	10-K (000-21969)	2.6	12/22/2009	
2.11	Deed of Amendment (Amendment No. 4) dated January 13, 2010 relating to Nortel EMEA ASA+	10-Q (000-21969)	2.2	3/5/2010	
2.12	Deed of Amendment (Amendment No. 5) dated March 19, 2010 relating to Nortel EMEA ASA+	10-Q (000-21969)	2.1	6/10/2010	
3.1	Amended and Restated Certificate of Incorporation	8-K (333-17729)	3.1	3/27/2008	
3.2	Amended and Restated By-Laws of Ciena Corporation	8-K (000-21969)	3.1	8/28/2008	
4.1	Specimen Stock Certificate	10-K (000-21969)	4.1	12/27/2007	
4.2	Indenture dated as of April 10, 2006 between Ciena Corporation and The Bank of New York, as trustee, for 0.25% Convertible Senior Notes due 2013, including the Form of Global Note attached as Exhibit A thereto	8-K (000-21969)	4.7	4/10/2006	
4.3	Indenture dated June 11, 2007 between Ciena Corporation and The Bank of New York, as trustee, for 0.875% Convertible Senior Notes due 2017, including the Form of Global Note attached as Exhibit A thereto	8-K (000-21969)	4.7	6/12/2007	

Exhibit Number	Exhibit Description	Incorporated by Reference: Form and Registration or Commission No.	Exhibit	Filing Date	Filed Here-with (X)
4.4	Indenture dated March 15, 2010 between Ciena Corporation and The Bank of New York Mellon, as trustee, for 4.0% Convertible Senior Notes due 2015, including the Form of Global Note attached as Exhibit A thereto	8-K (000-21969)	4.1	3/19/2010	
4.5	Indenture dated as of October 18, 2010 between Ciena Corporation and The Bank of New York Mellon Trust Company, N.A., as trustee, for 3.75% Convertible Senior Notes due 2018, including the Form of Global Note attached as Exhibit A thereto	8-K (000-21969)	4.1	10/21/2010	
10.1	1999 Non-Officer Stock Option Plan and Form of Stock Option Agreement*	10-K (000-21969)	10.22	12/10/1999	
10.2	Amendment No. 1 to 1999 Non-Officer Stock Option Plan*	10-K (000-21969)	10.25	12/3/2001	
10.3	Catena Networks, Inc. 1998 Equity Incentive Plan, as amended*	10-Q (000-21969)	10.38	5/20/2004	
10.4	Internet Photonics, Inc. Amended and Restated 2000 Corporate Stock Option Plan*	10-Q (000-21969)	10.39	5/20/2004	
10.5	Ciena Corporation 2000 Equity Incentive Plan (Amended and Restated ONI Systems Corp. 2000 Equity Incentive Plan)*	10-K (000-21969)	10.37	12/11/2003	
10.6	Form of Stock Option Award Agreement for executive officers under Ciena Corporation 2000 Equity Incentive Plan*	8-K (000-21969)	10.1	11/4/2005	
10.7	Form of Restricted Stock Unit Agreement for executive officers under Ciena Corporation 2000 Equity Incentive Plan*	8-K (000-21969)	10.2	11/4/2005	
10.8	Form of Performance Stock Unit Award Agreement for executive officers under Ciena Corporation 2000 Equity Incentive Plan*	8-K (000-21969)	10.3	11/4/2005	
10.9	Form of Stock Option Award Agreement for directors under Ciena Corporation 2000 Equity Incentive Plan*	8-K (000-21969)	10.4	11/4/2005	
10.10	Form of Restricted Stock Unit Award Agreement for directors under Ciena Corporation 2000 Equity Incentive Plan*	8-K (000-21969)	10.5	11/4/2005	
10.11	Amended and Restated 2003 Employee Stock Purchase Plan (as amended on May 30, 2006 and September 10, 2010)*	10-K (000-21969)	10.11	12/22/2011	
10.12	1996 Outside Directors Stock Option Plan*	S-1 (333-17729)	10.4	12/12/1996	
10.13	Forms of 1996 Outside Directors Stock Option Agreement*	S-1 (333-17729)	10.5	12/12/1996	

Exhibit Number	Exhibit Description	Incorporated by Reference: Form and Registration or Commission No.	Exhibit	Filing Date	Filed Here-with (X)
10.14	Third Amended and Restated 1994 Stock Option Plan*	S-1 (333-17729)	10.2	12/12/1996	
10.15	Amended and Restated 1994 Stock Option Plan Forms of Employee Stock Option Agreement*	S-1 (333-17729)	10.3	12/12/1996	
10.16	2008 Omnibus Incentive Compensation Plan*	8-K (000-21969)	10.1	3/27/2008	
10.17	Amendment to Ciena Corporation 2008 Omnibus Incentive Plan*	8-K (000-21969)	10.1	4/15/2010	
10.18	Amendment to Ciena Corporation 2008 Omnibus Incentive Plan dated March 21, 2012	8-K (000-21969)	10.1	3/23/2012	
10.19	Form of 2008 Omnibus Incentive Plan Restricted Stock Unit Agreement (Employee)*	10-K (000-21969)	10.18	12/22/2011	
10.20	Form of 2008 Omnibus Incentive Plan Non-Qualified Stock Option Agreement (Employee)*	10-Q (000-21969)	10.2	6/4/2009	
10.21	Form of 2008 Omnibus Incentive Plan Restricted Stock Unit Agreement (Director)*	10-Q (000-21969)	10.3	6/4/2009	
10.22	World Wide Packets, Inc. 2000 Stock Incentive Plan, as amended*	S-8 (333-149520)	10.1	3/4/2008	
10.23	Form of Indemnification Agreement with Directors and Executive Officers*	10-Q (000-21969)	10.1	3/3/2006	
10.24	Amended and Restated Change in Control Severance Agreement between Ciena Corporation and Gary B. Smith*	10-K (000-21969)	10.23	12/22/2010	
10.25	Form of Amended and Restated Change in Control Severance Agreement between Ciena and Executive Officers*	10-K (000-21969)	10.24	12/22/2010	
10.26	Ciena Corporation Directors Restricted Stock Deferral Plan*	10-Q (000-21969)	10.1	8/31/2007	
10.27	Ciena Corporation Amended and Restated Incentive Bonus Plan, as amended December 15, 2011*	10-K (000-21969)	10.26	12/22/2011	
10.28	Ciena Corporation 2010 Inducement Equity Award Plan*	10-K (000-21969)	10.35	12/22/2009	
10.29	Form of 2010 Inducement Equity Award Plan Restricted Stock Unit Agreement*	10-Q (000-21969)	10.2	3/25/2009	
10.30	U.S. Executive Severance Benefit Plan*	10-Q (000-21969)	10.1	6/9/2011	
10.31	Lease Agreement dated as of March 19, 2010 between Ciena Canada, Inc. and Nortel Networks Technology Corp.#	10-Q (000-21969)	10.1	6/10/2010	
10.32	Lab 10 Lease Amending Agreement dated February 13, 2012 between Ciena Canada, Inc. and Public Works and Government Services Canada	8-K (000-21969)	1.1	2/15/2012	
10.33	Transition Services Agreement, dated as of March 19, 2010 between Ciena Corporation and Nortel Networks Corporation and certain affiliated entities#	10-Q (000-21969)	10.2	6/10/2010	
10.34	Intellectual Property License Agreement dated as of March 19, 2010 between Ciena Luxembourg S.a.r.l. and Nortel Networks Limited#	10-Q (000-21969)	10.3	6/10/2010	
10.35	Employee Stock Purchase Plan Enrollment Agreement*	10-K (000-21969)	10.33	12/22/2011	
10.36	Amended & Restated Employee Stock Purchase Plan dated March 21, 2012	8-K (000-21969)	10.2	3/23/2012	

10.37	Lease Agreement dated November 3, 2011 between Ciena Corporation and W2007 RDG Realty, L.L.C.	10-K (000-21969)	10.34	12/22/2011
10.38	ABL Credit Agreement, dated August 13, 2012, by and among Ciena Corporation, Ciena Communications, Inc. and Ciena Canada, Inc., as the borrowers, the lenders party thereto, Deutsche Bank AG New York Branch, as administrative agent and collateral agent, Bank of America, N.A., as syndication agent, and Morgan Stanley Senior Funding, Inc. and Wells Fargo Bank, National Association, as co-documentation agents +	10-Q (000-21969)	10.1	9/5/2012
10.39	Amendment to Credit Agreement, dated August 24, 2012, by and among Ciena Corporation, Ciena Communications, Inc. and Ciena Canada, Inc., as he borrowers, and Deutsche Bank AG New York Branch, as administrative agent +	10-Q (000-21969)	10.2	9/5/2012
10.40	Security Agreement, dated August 13, 2012, by and among Ciena Corporation and Ciena Communications, Inc., as assignors, and Deutsche Bank AG New York Branch, as collateral agent +	10-Q (000-21969)	10.3	9/5/2012
10.41	Pledge Agreement, dated August 13, 2012, by and among Ciena Corporation and Ciena Communications, Inc., as pledgers, and Deutsche Bank AG New York Branch, as collateral agent and pledgee +	10-Q (000-21969)	10.4	9/5/2012
10.42	U.S. Guaranty, dated August 13, 2012, by and among Ciena Corporation and Ciena Communications, Inc., as guarantors, and Deutsche Bank AG New York Branch, as administrative agent +	10-Q (000-21969)	10.5	9/5/2012
10.43	Canadian Security Agreement, dated August 13, 2012, by and between Ciena Canada, Inc., as assignor, and Deutsche Bank AG New York Branch, as collateral agent +	10-Q (000-21969)	10.6	9/5/2012
10.44	Canadian Guaranty, dated August 13, 2012, by and between Ciena Canada, Inc., as guarantor, and Deutsche Bank AG New York Branch, as administrative agent +	10-Q (000-21969)	10.7	9/5/2012

12.1	Computation of Earnings to Fixed Charges	—	—	—	X
21.1	Subsidiaries of registrant	—	—	—	X
23.1	Consent of Independent Registered Public Accounting Firm	—	—	—	X
31.1	Certification of Chief Executive Officer Pursuant to Rule 13a-14(a) under the Securities Exchange Act of 1934 as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002	—	—	—	X
31.2	Certification of Chief Financial Officer Pursuant to Rule 13a-14(a) under the Securities Exchange Act of 1934 as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002	—	—	—	X
32.1	Certification of Chief Executive Officer Pursuant to 18 U.S.C. Section 1350 as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002	—	—	—	X
32.2	Certification of Chief Financial Officer Pursuant to 18 U.S.C. Section 1350 as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002	—	—	—	X
101.INS**	XBRL Instance Document	—	—	—	X
101.SCH**	XBRL Taxonomy Extension Schema Document	—	—	—	X
101.CAL**	XBRL Taxonomy Extension Calculation Linkbase Document	—	—	—	X
101.DEF**	XBRL Taxonomy Extension Definition Linkbase Document	—	—	—	X
101.LAB**	XBRL Taxonomy Extension Label Linkbase Document	—	—	—	X
101.PRE**	XBRL Taxonomy Extension Presentation Linkbase Document	—	—	—	X

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* Represents management contract or compensatory plan or arrangement

** In accordance with Regulation S-T, XBRL (Extensible Business Reporting Language) related information in Exhibit No. (101) to this Annual Report on Form 10-K shall be deemed "furnished" and not "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, or otherwise subject to the liabilities of that section, and shall not be incorporated by reference into any registration statement pursuant to the Securities Act of 1933, as amended.

\+ Pursuant to Item 601(b)(2) of Regulation S-K certain schedules and exhibits referenced in the table of contents have been omitted. Ciena hereby agrees to furnish supplementally a copy of any omitted exhibit or schedule to the SEC upon request. In addition, representations and warranties included in these agreements, as amended, were made by the parties to one another in connection with a negotiated transaction. These representations and warranties were made as of specific dates, only for purposes of these agreements and for the benefit of the parties thereto. These representations and warranties were subject to important exceptions and limitations agreed upon by the parties, including being qualified by confidential disclosures, made for the purposes of allocating contractual risk between the parties rather than establishing these matters as facts. These agreements are filed with this report only to provide investors with information regarding its terms and conditions, and not to provide any other factual information regarding Ciena or any other party thereto. Accordingly, investors should not rely on the representations and warranties contained in these agreements or any description thereof as characterizations of the actual state of facts or condition of any party, its subsidiaries or affiliates. The information in these agreements should be considered together with Ciena's public reports filed with the SEC.

\# Certain portions of these documents have been omitted based on a request for confidential treatment submitted to the SEC. The non-public information that has been omitted from these documents has been separately filed with the SEC. Each redacted portion of these documents is indicated by a "[*]" and is subject to the request for confidential treatment submitted to the SEC. The redacted information is confidential information of the Registrant.

corporate information

corporate headquarters

Ciena Corporation
7035 Ridge Road
Hanover, MD 21076
Telephone: (800) 921-1144
or (410) 694-5700
www.Ciena.com

virtual annual meeting
Ciena's annual meeting of shareholders will be held at 3:00 PM (Eastern) on Wednesday, March 20, 2013. Please visit www.shareholdermeeting.com/ciena at least 10 minutes prior to the start time.

independent registered public accounting firm
PricewaterhouseCoopers LLP
Baltimore, MD

outside counsel
Hogan Lovells US LLP
Baltimore, MD

transfer agent
Computershare Trust Company, N.A.
P.O. Box 43078
Providence, RI 02940-3078
Stockholder Inquiries: (781) 575-2879
www.Computershare.com

common stock market data
Since its initial public offering on February 7, 1997, Ciena's Common Stock has traded on the Nasdaq Stock Market under the symbol "CIEN".

investor relations
For additional copies of this report or other financial information, contact:
Investor Relations
Ciena Corporation
7035 Ridge Road
Hanover, MD 21076
Telephone: (877) 243-6273
or (410) 694-5700

Additional information is available on Ciena's website at www.Ciena.com.

operating executive officers

Patrick H. Nettles, Ph.D.
Executive Chairman of the Board of Directors

Gary B. Smith
President, Chief Executive Officer and Director

James E. Moylan, Jr.
Chief Financial Officer, Senior Vice President, Finance

Stephen B. Alexander
Chief Technology Officer, Senior Vice President, Products and Technology

Rick Dodd
Senior Vice President, Global Marketing

James Frodsham
Senior Vice President, Chief Strategy Officer

François Locoh-Donou
Senior Vice President, Global Products Group

Philippe Morin
Senior Vice President, Global Field Operations

Andrew Petrik
Vice President and Controller

David M. Rothenstein
Senior Vice President, General Counsel and Secretary

outside board members

Harvey B. Cash
General Partner
InterWest Partners

Bruce L. Claflin
Chairman
AMD Corporation

Lawton W. Fitt
Retired Partner
Goldman Sachs

Patrick T. Gallagher
Independent Telecoms Industry Advisor

Judith M. O'Brien
Partner
King & Spalding LLP

Michael J. Rowny
Chairman
Rowny Capital

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ciena : the network specialist

7035 Ridge Road, Hanover, Maryland 21076 (410) 694-5700 (800) 921-1144 ciena.com

DNBi® Risk Management

Printed By: Terry Mandell
Date Printed: April 03, 2013

Live Report : CIENA COMMUNICATIONS, INC.

D-U-N-S® Number: 78-598-7798
Trade Names: (SUBSIDIARY OF CIENA CORPORATION, HANOVER, MD)
Endorsement/Billing Reference: tmandell@ciena.com

D&B Address

Address 7035 Ridge Rd
Hanover,MD - 21076
Phone 410 694-5700
Fax

Location Type Single (Subsidiary)
Web www.ciena.com

Added to Portfolio: 04/21/2011
Last View Date: 03/10/2013
Endorsement : tmandell@ciena.com

Company Summary

Currency: Shown in USD unless otherwise indicated

Score Bar

PAYDEX®	64
Commercial Credit Score Class	3
Financial Stress Score Class	4
Credit Limit - D&B Conservative	7,500.00
D&B Rating	--

D&B Company Overview

This is a single (subsidiary) location

Manager	GARY B SMITH, PRES
Year Started	1997
Employees	Undetermined
SIC	3661
Line of business	Mfg telephone/ telegraph apparatus
NAICS	334210
History Status	INCOMPLETE

Company News

Today: Wednesday, April 03, 2013

- **Ciena Corporation (CIEN): Telecommunications'**
  2013-03-25T20:16:48 EST 8:16 PM-TheStreet.com
- **CIENA Corp. - Shareholder/Analyst Call**
  2013-03-20T15:46:44 EST 3:46 PM-Seeking Alpha
- **Ciena Corporation (CIEN) PRESIDENT, CEO Gary**
  2013-03-14T18:08:44 EST 6:08 PM-Guru Focus
- **CIENA CORPORATION : SEACOM upgrades**
  2013-03-11T08:11:48 EST 8:11 AM-4-Traders
- **Ciena PT Raised to $20.00 at FBR Capital (CIEN)**
  2013-03-09T05:14:25 EST 5:14 AM-Localized USA
- **Ciena Corp. (CIEN) Jumped To A 6-Month High**
  2013-03-08T07:47:26 EST 7:47 AM-RTTNews
- **Ciena Corp. (CIEN) Has Leaped To A 6-Month**
  2013-03-07T14:04:41 EST 2:04 PM-RTTNews
- **Ciena (CIEN) Peers on Watch After Q1 Beat**
  2013-03-07T08:31:53 EST 8:31 AM-StreetInsider.com
- **UPDATE: Ciena Corp. (CIEN) Tops Q1 EPS by**
  2013-03-07T07:12:15 EST 7:12 AM-StreetInsider.com

Powered by FirstRain

Public Filings

The following data includes both open and closed

filings found in D&B's database on this company.

Record Type	Number of Records	Most Recent Filing Date
Bankruptcies	0	-
Judgments	0	-
Liens	0	-
Suits	0	-
UCCs	1	08/13/12

The public record items contained herein may have been paid, terminated, vacated or released prior to todays date.

Corporate Linkage

This is a **Single (Subsidiary)** location

CIENA COMMUNICATIONS, INC.
Hanover , MD
D-U-N-S® Number 78-598-7798

The Parent Company is
CIENA CORPORATION
Maryland
D-U-N-S® Number 80-666-9768

Detailed Trade Risk Insight™

Days Beyond Terms Past 3 Months
There is not sufficient reporting trading activity to generate 3 months Days Beyond Terms (a minimum of 3 trade experiences from at least 2 suppliers

Recent Derogatory Events

	Dec-12	Jan-13	Feb-13
Placed for Collection	-	-	-
Bad Debt Written Off	-	-	-

Corporate Linkage

Parent

Company	City , State	D-U-N-S® NUMBER
CIENA CORPORATION	HANOVER , Maryland	80-666-9768

Subsidiaries (International)

Company	City , Country	D-U-N-S® NUMBER
CIENA (Asia) Limited	NORTH POINT , HONG KONG	66-779-4457

Affiliates (Domestic)

Company	City , State	D-U-N-S® NUMBER
MULTIWAVE INVESTMENT INC	WILMINGTON , Delaware	01-874-8355
WORLD WIDE PACKETS, INC.	VERADALE , Washington	12-819-3625
ATI TELECOM INTERNATIONAL LTD	DULUTH , Georgia	87-937-9865
CIENA GOVERNMENT SOLUTIONS, INC.	HANOVER , Maryland	15-322-5938

Affiliates (International)

Company	City , Country	D-U-N-S® NUMBER
Ciena Canada, Inc	KANATA , CANADA	25-098-3251
CIENA LTD	London , UNITED KINGDOM	38-548-6915
CIENA COMMUNICATIONS SINGAPORE PTE. LTD.	SINGAPORE , SINGAPORE	59-528-4194
CIENA INDIA PRIVATE LIMITED	GURGAON , INDIA	65-006-4681
CIENA COMMUNICATIONS JAPAN CO.,LTD.	CHIYODA-KU , JAPAN	69-175-8705
Ciena Communications México, S.A. de C.V.	MEXICO CITY , MEXICO	81-268-9685
Ciena do Brasil Ltda.	SAO PAULO , BRAZIL	90-536-8726

Predictive Scores

Currency: Shown in USD unless otherwise indicated

Credit Capacity Summary

This credit rating was assigned because of D&Bs assessment of the companys creditworthiness. For more information, see the D&B Rating Key

D&B Rating : --

The blank rating symbol should not be interpreted as indicating that credit should be denied. It simply means that the information available to D&B does not permit us to classify the company within our rating key and that further enquiry should be made before reaching a decision. Some reasons for using a "-" symbol include: deficit net worth, bankruptcy proceedings, insufficient payment information, or incomplete history information.

Below is an overview of the companys rating history since 10-13-2006

D&B Rating	Date Applied
--	10-13-2006

Number of Employees Total: Undetermined

Payment Activity:	(based on 30 experiences)
Average High Credit:	76,393
Highest Credit:	1,000,000
Total Highest Credit:	1,757,600

D&B Credit Limit Recommendation

Conservative credit Limit	7,500
Aggressive credit Limit:	15,000

The Credit Limit Recommendation (CLR) is intended to serve as a directional benchmark for all businesses within the same line of business or industry, and is not calculated based on any individual business. Thus, the CLR is intended to help guide the credit limit decision, and must be balanced in combination with other elements which reflect the individual company's size, financial strength, payment history, and credit worthiness, all of which can be derived from D&B reports.
Risk is assessed using D&Bs scoring methodology and is one factor used to create the recommended limits. See Help for details.

Financial Stress Class Summary

The Financial Stress Score predicts the likelihood of a firm ceasing business without paying all creditors in full, or reorganization or obtaining relief from creditors under state/federal law over the next 12 months. Scores were calculated using a statistically valid model derived from D&Bs extensive data files.
The Financial Stress Class of 4 for this company shows that firms with this class had a failure rate of 0.84% (84 per 10,000), which is 1.75 times higher than the average of businesses in D & B's database.

Financial Stress Class : 4

(Lowest Risk:1; Highest Risk:5)

Moderate to high risk of severe financial stress, such as a bankruptcy, over the next 12 months.

Probability of Failure:

- Among Businesses with this Class: **0.84 %** (84 per 10,000)
- Financial Stress National Percentile : **5** (Highest Risk: 1; Lowest Risk: 100)
- Financial Stress Score : **1377** (Highest Risk: 1,001; Lowest Risk: 1,875)
- Average of Businesses in D&Bs database: **0.48 %** (48 per 10,000)

The Financial Stress Class of this business is based on the following factors:

- Low proportion of satisfactory payment experiences to total payment experiences.
- Low Paydex Score.
- High number of inquiries to D & B over last 12 months.
- UCC Filings reported.

Notes:

- The Financial Stress Class indicates that this firm shares some of the same business and financial characteristics of other companies with this classification. It does not mean the firm will necessarily experience financial stress.
- The Probability of Failure shows the percentage of firms in a given Class that discontinued operations over the past year with loss to creditors. The Probability of Failure - National Average represents the national failure rate and is provided for comparative purposes.
- The Financial Stress National Percentile reflects the relative ranking of a company among all scorable companies in D&Bs file.
- The Financial Stress Score offers a more precise measure of the level of risk than the Class and Percentile. It is especially helpful to customers using a scorecard approach to determining overall business performance.

Norms	National %
This Business	5
Region: SOUTH ATLANTIC	48
Industry: MANUFACTURING	52
Employee range:	UN
Years in Business: 11-25	68

This Business has a Financial Stress Percentile that shows:

Higher risk than other companies in the same region.

Higher risk than other companies in the same industry.

Higher risk than other companies with a comparable number of years in business.

Credit Score Summary

The Commercial Credit Score predicts the likelihood that a company will pay its bills in a severely delinquent manner (90 days or more past terms), obtain legal relief from creditors or cease operations without paying all creditors in full over the next 12 months. Scores are calculated using a statistically valid model derived from D&B's extensive data files.
The Credit Score class of 3 for this company shows that 18.4% of firms with this class paid one or more bills severely delinquent, which is

Credit Score Class : 3

Lowest Risk:1;Highest Risk :5

Incidence of Delinquent Payment

- Among Companies with this Classification: **18.40 %**
- Average compared to businesses in D&Bs database: **23.50 %**
- Credit Score Percentile : **62** (Highest Risk: 1; Lowest Risk: 100)
- Credit Score : **441** (Highest Risk: 101; Lowest Risk:670)

The Credit Score Class of this business is based on the following factors:

- Most recent amount past due.
- Low proportion of satisfactory payment experiences to total payment experiences.
- High proportion of past due balances to total amount owing.

Notes:

- The Commercial Credit Score Risk Class indicates that this firm shares some of the same business and financial characteristics of other companies with this classification. It does not mean the firm will necessarily experience severe delinquency.
- The incidence of delinquency shows the percentage of firms in a given percentile that are likely to pay creditors in a severely delinquent manner. The average incidence of delinquency is based on businesses in D&B's database and is provided for comparative purposes.
- The Commercial Credit Score percentile reflects the relative ranking of a firm among all scorable companies in D&B's file.
- The Commercial Credit Score offers a more precise measure of the level of risk than the Risk Class and Percentile. It is especially helpful to customers using a scorecard approach to determining overall business performance.

Norms	National %
This Business	62
Region: SOUTH ATLANTIC	41
Industry: MANUFACTURING	60
Employee range:	UN
Years in Business: 11-25	76

This business has a Credit Score Percentile that shows:

Lower risk than other companies in the same region.

Lower risk than other companies in the same industry.

Higher risk than other companies with a comparable number of years in business.

Trade Payments

Currency: Shown in USD unless otherwise indicated

D&B PAYDEX®

The D&B PAYDEX is a unique, weighted indicator of payment performance based on payment experiences as reported to D&B by trader references. Learn more about the D&B PAYDEX

Timeliness of historical payments for this company.

Current PAYDEX is	**64**	Equal to 19 days beyond terms (Pays more slowly than the average for its industry of 5 days beyond terms)
Industry Median is	**77**	Equal to 5 days beyond terms
Payment Trend currently is		Unchanged, compared to payments three months ago

Indications of slowness can be the result of dispute over merchandise, skipped invoices etc. Accounts are sometimes placed for collection even though the existence or amount of the debt is disputed.

Total payment Experiences in D&Bs File (HQ)	30
Payments Within Terms (not weighted)	78 %
Trade Experiences with Slow or Negative Payments(%)	33.33%

Total Placed For Collection	State of Utah	0
High Credit Average		76,393
Largest High Credit		1,000,000
Highest Now Owing		1,000,000
Highest Past Due		200,000

D&B PAYDEX® : 64

(Lowest Risk:100; Highest Risk:1)
When weighted by amount, payments to suppliers average 19 days beyond terms

3-Month D&B PAYDEX® : 80

(Lowest Risk:100; Highest Risk:1)
Based on payments collected over last 3 months.

When weighted by amount, payments to suppliers average within terms

D&B PAYDEX® Comparison

Current Year

PAYDEX® of this Business compared to the Primary Industry from each of the last four quarters. The Primary Industry is Mfg telephone/telegraph apparatus , based on SIC code 3661 .

Shows the trend in D&B PAYDEX scoring over the past 12 months.

	5/12	6/12	7/12	8/12	9/12	10/12	11/12	12/12	1/13	2/13	3/13	4/13
This Business	76	76	76	76	76	63	63	63	63	64	64	64
Industry Quartiles												
Upper	.	80	.	.	80	.	.	80	.	.	.	.
Median	.	77	.	.	77	.	.	77	.	.	.	.
Lower	.	67	.	.	68	.	.	68	.	.	.	.

- Current PAYDEX for this Business is 64 , or equal to 19 days beyond terms
- The 12-month high is 76 , or equal to 6 DAYS BEYOND terms
- The 12-month low is 63 , or equal to 20 DAYS BEYOND terms

Previous Year

Shows PAYDEX of this Business compared to the Primary Industry from each of the last four quarters. The Primary Industry is Mfg telephone/telegraph apparatus , based on SIC code 3661 .

Previous Year	06/11 Q2'11	09/11 Q3'11	12/11 Q4'11	03/12 Q1'12
This Business	62	69	67	76
Industry Quartiles				
Upper	80	80	80	80
Median	77	77	77	77
Lower	67	67	67	67

Based on payments collected over the last 4 quarters.
- Current PAYDEX for this Business is 64 , or equal to 19 days beyond terms
- The present industry median Score is 77 , or equal to 5 days beyond terms
- Industry upper quartile represents the performance of the payers in the 75th percentile
- Industry lower quartile represents the performance of the payers in the 25th percentile

Payment Habits

For all payment experiences within a given amount of credit extended, shows the percent that this Business paid within terms. Provides number of experiences to calculate the percentage, and the total credit value of the credit extended.

$ Credit Extended	# Payment Experiences	Total Amount	% of Payments Within Terms
Over 100,000	3	1,500,000	59%
50,000-100,000	1	80,000	0%
15,000-49,999	5	135,000	70%
5,000-14,999	4	30,000	66%
1,000-4,999	5	9,500	100%
Under 1,000	5	2,550	56%

Based on payments collected over last 24 months.
All Payment experiences reflect how bills are paid in relation to the terms granted. In some instances, payment beyond terms can be the result of disputes over merchandise, skipped invoices etc.

Payment Summary

There are 30 payment experience(s) in D&Bs file for the most recent 24 months, with 3 experience(s) reported during the last three month period.

The highest **Now Owes** on file is 1,000,000 . The highest **Past Due** on file is 200,000

Below is an overview of the companys currency-weighted payments, segmented by its suppliers primary industries:

	Total Revd (#)	Total Amts	Largest High Credit	Within Terms (%)	Days Slow <31 (%)	31-60 (%)	61-90 (%)	90> (%)
Top Industries								
Detective/guard svcs	4	29,250	25,000	57	43	0	0	0
Public finance	3	6,750	5,000	89	11	0	0	0
Whol computers/softwr	2	1,250,000	1,000,000	50	10	40	0	0
Mfg computers	2	330,000	250,000	76	0	24	0	0
Trucking non-local	2	15,050	15,000	50	50	0	0	0
Nonclassified	1	40,000	40,000	50	50	0	0	0
Telephone communictns	1	30,000	30,000	100	0	0	0	0
Books-print/publish	1	25,000	25,000	100	0	0	0	0
Scheduled air trans	1	10,000	10,000	50	0	0	50	0
Whol service paper	1	10,000	10,000	50	50	0	0	0
Photocopying service	1	5,000	5,000	100	0	0	0	0
Mfg comp peripherals	1	2,500	2,500	100	0	0	0	0
Prepackaged software	1	2,500	2,500	100	0	0	0	0
Mfg fluid power pumps	1	750	750	50	0	50	0	0
Misc equipment rental	1	250	250	100	0	0	0	0
Other payment categories								
Cash experiences	7	550	100					
Payment record unknown	0	0	0					
Unfavorable comments	0	0	0					
Placed for collections	0	N/A	0					
Total in D&B's file	30	1,757,600	1,000,000					

Accounts are sometimes placed for collection even though the existence or amount of the debt is disputed.

Indications of slowness can be result of dispute over merchandise, skipped invoices etc.

Date Reported (mm/yy)	Paying Record	High Credit	Now Owes	Past Due	Selling Terms	Last Sale Within (month)
02/13	Ppt	30,000	5,000	0		1 mo
	(002)	100			Cash account	1 mo
01/13	(003)	50			Cash account	6-12 mos
12/12	Ppt-Slow 30	15,000	0	0		2-3 mos
10/12	(005)	100			Cash account	2-3 mos
09/12	Ppt	250,000	250,000	0		1 mo
	Ppt	5,000	2,500	0		1 mo
	Ppt	2,500	1,000	0		1 mo
	Ppt	2,500	2,500	0		1 mo
	Ppt	2,500	2,500	0		1 mo
	Ppt	1,000	1,000	0		1 mo
	Ppt	750	750	0		1 mo
	Ppt	250	50		Lease Agreemnt	
	Ppt	50	50	0		1 mo
	Ppt-Slow 15	10,000	7,500	0		1 mo
	Ppt-Slow 30	250,000	40,000	250	N30	1 mo
	Ppt-Slow 30	40,000	40,000	0		1 mo
	Ppt-Slow 30	25,000	25,000	12,500		1 mo
	Ppt-Slow 60	1,000,000	1,000,000	200,000	N45	1 mo
	Ppt-Slow 60	750	750	0		1 mo
	Ppt-Slow 90	10,000	1,000	50		1 mo
	Slow 60	80,000	75,000	0		1 mo
07/12	Ppt	25,000	0	0	N30	6-12 mos
06/12	(024)	100	100		Cash account	1 mo
	(025)	100	100		Cash account	1 mo
02/12	(026)	50			Cash account	1 mo
11/11	Ppt	1,000				1 mo
06/11	(028)	50			Cash account	1 mo
04/11	Ppt	5,000				1 mo
	Slow	750				1 mo

Payments Detail Key: 30 or more days beyond terms

Payment experiences reflect how bills are paid in relation to the terms granted. In some instances payment beyond terms can be the result of disputes over merchandise, skipped invoices, etc. Each experience shown is from a separate supplier. Updated trade experiences replace those previously reported.

Public Filings

Currency: Shown in USD unless otherwise indicated

Summary

The following data includes both open and closed filings found in D&B's database on this company.

Record Type	# of Records	Most Recent Filing Date
Bankruptcy Proceedings	0	-
Judgments	0	-
Liens	0	-
Suits	0	-
UCCs	1	08/13/12

The following Public Filing data is for information purposes only and is not the official record. Certified copies can only be obtained from the official source.

UCC Filings

Collateral	Negotiable instruments including proceeds and products - Inventory including proceeds and products - Assets including proceeds and products - Account(s) including proceeds and products - and OTHERS
Type	Original
Sec. Party	DEUTSCHE BANK AG NEW YORK BRANCH, NEW YORK, NY
Debtor	CIENA COMMUNICATIONS, INC.
Filing No.	2012 3123348
Filed With	SECRETARY OF STATE/UCC DIVISION, DOVER, DE
Date Filed	2012-08-13
Latest Info Received	09/06/12

History & Operations

Currency: Shown in USD unless otherwise indicated

Company Overview

Company Name:	CIENA COMMUNICATIONS, INC.
Doing Business As :	(SUBSIDIARY OF CIENA CORPORATION, HANOVER, MD)
Street Address:	7035 Ridge Rd Hanover , MD 21076
Phone:	410 694-5700
URL:	http://www.ciena.com
History	Is incomplete
Present management control	16 years

History

The following information was reported: **10/30/2012**

Officer(s):	GARY B SMITH, PRES
DIRECTOR(S) :	THE OFFICER(S)

The Delaware Secretary of State's business registrations file showed that Ciena Communications, Inc. was registered as a corporation on October 21, 1997.
Business started 1997.
GARY B SMITH. Work history unknown.

Business address has changed from 1201 Winterson Road , Linthicum Heights , MD, 21090 to 900 Elkridge Landing Rd Ste 120, Linthicum Heights , MD, 21090.

Business address has changed from 900 Elkridge Landing Rd Ste 120, Linthicum Heights , MD, 21090 to 7035 Ridge Rd, Hanover, MD, 21076.

Operations

10/30/2012

Description:	Subsidiary of Ciena Corporation, Hanover, MD. As noted, this company is a subsidiary of Ciena Corporation, Duns number 80-666-9768, and reference is made to that report for background information on the parent and its management. Manufactures telephone or telegraph apparatus (100%). Terms are undetermined. Sells to are undetermined. Territory : Undetermined.
Employees:	Undetermined.
Facilities:	Occupies premises in a building.

SIC & NAICS

SIC:
Based on information in our file, D&B has assigned this company an extended 8-digit SIC. D&B's use of 8-digit SICs enables us to be more specific about a company's operations than if we use the standard 4-digit code.
The 4-digit SIC numbers link to the description on the Occupational Safety & Health Administration (OSHA) Web site. Links open in a new browser window.
3661 0000 Telephone and telegraph apparatus
NAICS:

334210 Telephone Apparatus Manufacturing

Financials

Currency: Shown in USD unless otherwise indicated

Company Financials: D&B

Additional Financial Data

As of October 30, 2012, attempts to contact the management of this business have been unsuccessful. Outside sources verified active operations. Incomplete history caption has been applied due to the following factor(s)
-- Stock ownership and/or nature of legal ownership has not been clearly established.

Request Financial Statements

Requested financials are provided byCIENA COMMUNICATIONS, INC.and are not DUNSRight certified.

Key Business Ratios

D & B has been unable to obtain sufficient financial information from this company to calculate business ratios. Our check of additional outside sources also found no information available on its financial performance.

View Snapshots

Snapshot (04/21/2011) D-U-N-S Number 78-598-7798	**CIENA COMMUNICATIONS INC** 900 Elkridge Landing Rd Ste 120 Linthicum Heights, MD 21090 United States Of America	04/21/2011	Terry Mandell
Snapshot (07/15/2011) D-U-N-S Number 78-598-7798	**CIENA COMMUNICATIONS INC** 900 Elkridge Landing Rd Ste 120 Linthicum Heights, MD 21090 United States Of America	07/15/2011	Terry Mandell
Snapshot (10/07/2011) D-U-N-S Number 78-598-7798	**CIENA COMMUNICATIONS INC** 900 Elkridge Landing Rd Ste 120 Linthicum Heights, MD 21090 United States Of America	10/07/2011	Terry Mandell
Snapshot (11/07/2011) D-U-N-S Number 78-598-7798	**CIENA COMMUNICATIONS INC** 900 Elkridge Landing Rd Ste 120 Linthicum Heights, MD 21090 United States Of America	11/07/2011	Terry Mandell
Snapshot (01/18/2012) D-U-N-S Number 78-598-7798	**CIENA COMMUNICATIONS INC** 900 Elkridge Landing Rd Ste 120 Linthicum Heights, MD 21090 United States Of America	01/18/2012	Terry Mandell
Snapshot (02/14/2012) D-U-N-S Number 78-598-7798	**CIENA COMMUNICATIONS INC** 900 Elkridge Landing Rd Ste 120 Linthicum Heights, MD 21090 United States Of America	02/14/2012	Terry Mandell
Snapshot (05/01/2012) D-U-N-S Number 78-598-7798	**CIENA COMMUNICATIONS INC** 900 Elkridge Landing Rd Ste 120 Linthicum Heights, MD 21090 United States Of America	05/01/2012	Terry Mandell
Snapshot (06/06/2012) D-U-N-S Number 78-598-7798	**CIENA COMMUNICATIONS INC** 900 Elkridge Landing Rd Ste 120 Linthicum Heights, MD 21090 United States Of America	06/06/2012	Terry Mandell
Snapshot (06/11/2012) D-U-N-S Number 78-598-7798	**CIENA COMMUNICATIONS INC** 900 ELKRIDGE LANDING RD STE 120 LINTHICUM HEIGHTS, MD 210902950 United States Of America	06/11/2012	Terry Mandell
Snapshot (08/29/2012) D-U-N-S Number 78-598-7798	**CIENA COMMUNICATIONS INC** 900 ELKRIDGE LANDING RD STE 120 LINTHICUM HEIGHTS, MD 210902950 United States Of America	08/29/2012	Terry Mandell
Snapshot (12/17/2012) D-U-N-S Number 78-598-7798	**CIENA COMMUNICATIONS INC** 900 ELKRIDGE LANDING RD STE 120 LINTHICUM HEIGHTS, MD 210902950 United States Of America	12/17/2012	Terry Mandell
Snapshot (03/07/2013) D-U-N-S Number 78-598-7798	**CIENA COMMUNICATIONS INC** 900 ELKRIDGE LANDING RD STE 120 LINTHICUM HEIGHTS, MD 210902950 United States Of America	03/07/2013	Terry Mandell
Snapshot (04/03/2013) D-U-N-S Number 78-598-7798	**CIENA COMMUNICATIONS INC** 900 ELKRIDGE LANDING RD STE 120 LINTHICUM HEIGHTS, MD 210902950 United States Of America	04/03/2013	Terry Mandell

Detailed Trade Risk Insight™

Detailed Trade Risk Insight provides detailed updates on over 1.5 billion commercial trade experiences collected from more than 260 million unique supplier/purchaser relationships.

Days Beyond Terms - Past 3 & 12 Months

There is not sufficient reported trading activity to generate 3 month Days Beyond Terms (a minimum of 3 trade experiences from at least 2 companies).

Derogatory Events Last 11 Months from Apr 12 to Feb 13

No Derogatory trade Event has been reported on this company for the past 13 Months

Total Amount Current and Past Due - 11 month trend from Apr 12 to Feb 13

Status	Apr-12	May-12	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13
Total	13,289	15,558	16,518	12,138	15,565	15,473	17,560	19,162	27,181	25,803	13,289
Current	13,289	15,558	16,518	12,138	15,565	15,473	17,560	19,162	17,679	14,403	13,289
1-30 Days Past Due	-	-	-	-	-	-	-	-	9,492	6,644	-
31-60 Days Past Due	-	-	-	-	-	-	-	-	10	4,756	-
61-90 Days Past Due	-	-	-	-	-	-	-	-	-	-	-
90+ Days Past Due	-	-	-	-	-	-	-	-	-	-	-

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ciena : the network specialist

Ciena Specialist Services

Maximize your network infrastructure investment to increase revenue, improve profitability, and accelerate time to market.

Ciena Specialist Services

Ciena Specialist Services is a comprehensive services practice designed to help you maximize your network infrastructure investment. We offer an extensive team of specialists who collaborate with you to build a system of resources you can trust to achieve your critical objectives with best-of-breed solutions that optimize network efficiency and performance.

The Ciena Specialist Services portfolio provides the flexibility and level of expertise needed to address today's and tomorrow's operations requirements, so you can choose precisely how you'd like to engage with us. The portfolio is divided into four unique service suites—Consult and Design, Implement, Manage and Maintain, and Ciena Learning Solutions—that combine to provide unparalleled support throughout the entire service lifecycle.

C&D consult & design

Consult and Design Services Suite

The Consult and Design Services Suite offers flexible resources and expertise to drive the very best performance from your network. Whether you're looking to optimize or upgrade your network to next-generation technology, design a new application, or build new infrastructure, these services leverage our subject-matter experts to provide strategic analyses and customized solutions that address your specific needs and challenges.

Consulting Services

Consulting Services enable you to leverage our professional resources, in-depth technical networking knowledge, and best-practice methodologies to add value to your operation through a variety of project roles. We provide a range of specialized skill sets that can be leveraged remotely or on site. Consulting Services include:

› Program Management

Our experienced program managers help you implement your most challenging projects, including the management of complex custom deployments with multi-vendor products and applications across geographies. Through a methodical yet flexible approach, our program managers ensure your project is completed successfully within desired timelines and budget requirements.

› Operations, Administration and Maintenance Solutions

Integrated Operations Support Systems (OSS) are critical to fast and efficient operations management. Our specialists develop integration adaptors and provide OSS interworking consultancy to enable the integration of higher level OSS management systems. We consult, develop, test and integrate tailored solutions related to custom reporting, Service Level Agreement (SLA) management, fault correlation, traffic grooming tools, and capacity management.

› Network Solutions

Through a consultative approach with your engineering team, we develop a custom field testing program to assess your network and isolate trouble spots—ensuring optimal operation. We provide a blueprint for operations staff to roll out new network infrastructure parts, and quickly troubleshoot and isolate issues that may arise during normal ongoing network operations.

› Test Planning and Verification

We offer an end-to-end testing regime including the validation of network design and testing to ensure a defect-free network. We plan testing in consultation with your engineering team, and may include laboratory and field testing at appropriate times in the project schedule. Testing typically includes synchronization and timing, traffic and protocols, backup and restoration, performance monitoring, protection switching, and other operational testing as needed.

› Technology Introduction

To optimize your return on investment with newly deployed hardware or software technology, our consultant engineers conduct a comprehensive analysis that includes network discovery, verification and testing, deployment planning and migration, and post-deployment verification.

› Customized Consulting

Three levels of engineering expertise enable you to complement or supplement in-house resources:

- *Network Engineers* provide technical assistance with project-related activities through planning, deployment, activation, operations, and optimization services.
- *Consulting Engineers* provide technical and project leadership to ensure solutions are designed and delivered according to industry best practices and key customer requirements.
- *Principal Consultants* are subject-matter experts providing consultative leadership to guide technical and business customer teams with strategic market solutions, technical, operational, and business programs.

C&D consult & design

Design and Audit Services

Design and Audit Services utilize field-proven best practices and design specialists to drive optimal network performance. Our specialists, in remote or on-site collaboration with your team, can assist with a wide range of network design and audit services. Design and Audit Services include:

› Network Architecture Design

Our specialists help you expand or optimize existing network infrastructure, or build a network from scratch by delivering optimized designs that address your technical and commercial challenges, given your requirements and a careful examination of traffic forecasts. This service includes: capacity and bandwidth planning; link budget and wavelength design; Operations, Administration, Maintenance, and Provisioning (OAM&P) design; Data Communications Network (DCN) design; and network element planning.

› Detailed Network Design

Detailed Network Design enables rapid network deployment on a right-first-time basis. The deliverable document typically includes connectivity schema, racking and card-slotting details, amplifier and nodal commissioning data, synchronization design details, and more. Often, this service is coupled with Deployment Services to enable a seamless and comprehensive rollout service.

› Data Communications Network Design and Implementation

Your DCN provides your Network Management System's (NMS) window on the network. Our consultants provide assistance where you need it most, and make architectural design recommendations based upon network size, topology, protection requirements, and available budget.

› Network Audit and Assessment

We offer a multi-faceted audit for network performance including capacity and bandwidth management, inventory usage, protection, and resilience schemes. Our detailed recommendations provide a benchmark to launch network improvement and optimization programs that lead to greater end-user satisfaction, improved network availability and operational efficiency, reduction in operational expenditure, and deferment of capital expenditure.

› Fiber Characterization

Optical technologies such as 40G and 100G are placing greater demands on the existing fiber plant—making fiber testing a critical input into the design process. Our fiber testing services incorporate industry standard tests performed by experienced field engineering teams, and provide analysis and recommendations when poor fiber performance is detected.

C&D consult & design

Operations Services

Operations Services enable you to realize the full potential of your network infrastructure and applications. We can assist with basic operational aspects such as backups, upgrades, and reconfiguration; traffic migration planning, maintenance planning, and methods of procedures; or rolling out a new feature. We also can provide specific operational recommendations, operational knowledge transfer, and a broad range of network management-related integration support. Operations Services include:

› Reconfiguration and Migration

Network reconfiguration and migration events can present a significant challenge to day-to-day operations and strain on resources. We utilize a step-by-step approach to address reconfiguration and migration projects with experienced engineering consultants who understand the risks involved with migrating live traffic circuits for a successful and risk-free conclusion.

› Remote Ethernet Configuration

A best-practice approach to network element configuration for our Carrier Ethernet Service Delivery (CESD) Portfolio. The service eliminates the steep learning curve for one-time configuration events that can impose an unacceptable delay and strain on resources. We perform configuration and testing per network element, and follow-up by providing as-built design and configuration packs.

› Circuit Provisioning

On-site or remote consulting engineers supplement your existing resources to perform circuit provisioning tasks, including order administration and the data fill activities associated with placing a new circuit in service.

› Network Management System (NMS) Software Upgrade

An NMS software upgrade often requires specialized skills and experience. We provide leadership, consultancy, project management, and completion of the upgrade to minimize downtime and reduce the risk of a prolonged outage. We tailor best-practice Methods of Procedure for your NMS system upgrade. Engineers are available on site during the procedure to resolve any immediate issues and finalize the upgrade.

› Network Element Software Upgrade

A network-wide software upgrade can present significant challenges to your operations teams. We provide leadership, consultancy, project management, and completion of the upgrade to ensure a risk-free path to new software features. We tailor best-practice Methods of Procedure to ensure an exact fit with your network requirements and provide on site engineers to solve immediate issues and finalize the upgrade.

IMP implement

Implement Services Suite

The Implement Services Suite provides the essential knowledge and support resources needed to ensure your network is deployed and commissioned accurately, within budget and planned timelines. We provide global and local technical resources to install, test, and turn up your network solution efficiently and effectively—minimizing implementation costs, reducing risk, increasing velocity, and improving time to revenue.

Deployment Services

The availability of a variety of implementation service levels allows you to select the option that best suits your current deployment practices and requirements. Each service level progressively utilizes our in-house expertise to provide turnkey deployment and a comprehensive end-to-end offering. Deployment Services include:

› Turn-up and Test

Turn-up and Test service takes advantage of our technical expertise during the most critical phase of deployment. Once you have performed all site preparation, build-out plan, and installation activities, Ciena personnel will perform recommended testing of the equipment prior to local configuration and commissioning.

› Install, Turn-up, and Test

Install, Turn-up, and Test service adds the racking and installation of the equipment, including grounding, power, fiber and communications cable connections, and local configuration ready for NMS Management.

› Turn-key Deployment

This is a comprehensive, end-to-end offering including site survey, site engineering, detailed network design, equipment installation, cabling, turn-up and test, and local configuration ready for NMS Management.

Complementary Deployment Services

To enhance our Deployment Services, we provide an array of ancillary service offerings. Complementary Deployment Services include:

› On-Site Technical Support

To relieve or supplement existing staff, we provision technician-level engineers on site to support complex remote activities such as migration and reconfiguration.

› Equipment Dismantling and Recycling

Typically coupled with Reconfiguration and Migration, this offering includes the final dismantling, removal, and recycling of legacy equipment—performed to comply with local government standards and guidelines.

› Equipment Staging

To reduce deployment costs, we provide centralized equipment build, custom configuration, and test prior to site delivery, minimizing truck rolls and time spent on site. Equipment Staging optimizes deployment simplicity, reduces the risk of on-site equipment failure, and improves on-site deployment cycles.

› Preventive Maintenance

On-site preventive maintenance is a significant contributor to greater network availability and reduced outage time. This service provides field expertise to perform on-site preventive maintenance routines consistent with best practices and your individual site requirements.

M&M manage & maintain

Manage and Maintain Services Suite

Ciena's Manage and Maintain Services Suite leverages our specialist engineers as virtual members of your team to deliver critical network operations and support functions. Our specialists work with you to combine specific services into a comprehensive operations and maintenance package that offers a turnkey or managed service solution, designed around your unique requirements and expectations.

Technical Support Service

Technical Support includes our technical helpdesk facility, where you can gain 24 x 7 x 365 access to all levels of Ciena experts. When a trouble ticket is submitted, we provide the answers you need, or will intervene and troubleshoot on your behalf. Technical Support Services assist with network availability and the resolution of your issues.

SmartSupport Software Subscription Service

SmartSupport Software Subscription Service provides the latest major software features as soon as they are released so you can capitalize on operational and networking benefits immediately.

Parts Management Services

Field logistics are essential to network operations and ensure rapid resolution of on-site issues. We have a trained and experienced field force and the economies of scale and broad geographic coverage to provide SLAs—ranging from four hours on-site to next-business day, for both parts and engineer dispatch. Leveraging this capability, we also provide logistics services involving the management of customer-owned or multi-vendor spares, and the provision of short-lead-time inventory for success-based business. Parts Management Services include:

› Repair Service

We provide genuine OEM parts, repair quality, and subsequent warranty coverage to ensure your network assets are repaired with genuine components, to our design standards. Our Repair Service ensures you won't experience repeat repair scenarios or lose valuable spares inventory.

› Managed Spares

Field logistics are vitally important to ensure rapid resolution of on-site hardware issues to maintain network availability and customer satisfaction. We offer the economies of scale and geographical coverage required to meet demanding SLAs.

› Engineer Dispatch

We have a trained, experienced, and geographically dispersed field force able to meet SLAs, ranging from four hours on-site to next-business day. Engineer Dispatch can be operationally coordinated with Managed Spares to ensure swift remediation of on-site fault conditions.

› Managed Logistics

Leverage our economies of scale and broad geographic coverage to manage your spares needs and ensure spares are delivered within required SLAs. This service provides warehousing, forward stocking management, and rapid site delivery for customer-owned spares, including equipment parts from other vendors.

› Vendor Managed Inventory

We provide deployment inventory at shortened lead-times to enable success-based business—a real market differentiator for any network provider.

Network Operations Services

Network Operations Services provide end-to-end management, including 24 x 7 x 365 surveillance, fault identification and alarm handling, troubleshooting, and fault resolution.

› Remote Network Management

Continuous, proactive network surveillance is essential for detecting problems as they happen, identifying performance degradation prior to network failure, and solving critical issues around network availability and business continuity. Ciena experts work from a 24-hour Network Operations Center (NOC) to offer comprehensive, end-to-end fault management.

› Basic Network Monitoring

Supports network management by providing 24-hour monitoring of the network infrastructure. In the case of a fault condition, Ciena will notify your support engineers and provide initial alarm details. Basic Network Monitoring is designed for customers who have a 24-hour or on-call operations organization that can respond rapidly to issues once notified.

CLS ciena learning solutions

Ciena Learning Solutions

Ciena Learning Solutions provide best-in-class education solutions, custom knowledge transfer, and supporting documentation to help you leverage your network to the strategic advantage of your business. These solutions offer proven and up-to-date curricula for best-practices applications as well as customized learning solutions for your specific environment or advanced solution. All of our offerings are developed and delivered by professionals to ensure your team receives the expert attention it requires to help you fully realize the value of your Ciena solution.

Training Programs to Support Ciena Products

Ciena Learning Solutions offers industry-based "scope of work-specific" training programs. Through the application of our standard training offerings or customized learning solutions, Ciena's Training Engineers provide best-in-class instruction on Ciena product lines. Training experts are available to identify and develop learning plans to meet your specific learning needs.

Ciena's product training programs are delivered by a team of highly qualified instructors with years of practical industry experience. Each instructor completes an extensive product-specific training program before being scheduled for any customer or partner engagement. Our training services include:

› Product Overview Training

Online product overviews that include these learning objectives:

- Product functionality and network applications
- Detailed descriptions of hardware
- Software features

› First Line Maintenance Certification

Certifies students to perform basic troubleshooting, replace hardware, and report issues as required. This certification covers basic operations and troubleshooting to enable first line support.

› Installation and Deployment Certification

Certifies students to populate shelves, perform initial turn-up of Ciena systems, and render the system(s) ready for customer acceptance, including initial provisioning, optical balancing, and full system acceptance testing.

› Technical Support/Network Management

Certifies students to perform OAM&P functions, including remote network monitoring, fault isolation and resolution, service provisioning, database maintenance, software upgrades, and troubleshooting systems for common problems.

› Train-the-Trainer Certification

Certifies customer or partner trainers to teach Ciena product courses and certify students. Candidates must complete standard training successfully on each product and scope of work (as previously described) before proceeding to the Train-the-Trainer program. Train-the-Trainer certifications include a right-to-reproduce license for Ciena product training course materials.

› "Delta" Training

Students may require refresher training, as identified by Ciena, to maintain and renew existing certification. This training may consist of online courses, classroom training, and/or field training, as needed.

› Customized Training

Flexible, solutions-based training programs to address specific customer equipment configurations and unique learning needs.

About Ciena

Ciena is the network specialist. We collaborate with customers worldwide to unlock the strategic potential of their networks and fundamentally change the way they compete. With focused innovation, Ciena brings together the reliability and capacity of optical networking with the flexibility and economics of Ethernet, unified by a software suite that delivers the industry's leading network automation. We routinely post recent news, financial results and other important announcements and information about Ciena on our Website. For more information, visit **www.ciena.com.**

To learn more about Ciena Specialist Services,
call (800) 207-3714 US
or +44-20-7012-5555 International,
or visit us at **www.ciena.com**

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MASTER SALES AND LICENSE AGREEMENT

THIS MASTER SALES AND LICENSE AGREEMENT (the "Agreement") is made as of the last date signed below (the "Effective Date"), by and between **Ciena Communications, Inc.**, ("Ciena"), a Delaware corporation having its principal office at 7035 Ridge Road, Hanover, Maryland, 21076, and **{Name}**("Buyer"), a {state of incorporation} company having its principal office at {address}. Buyer and Ciena are each referred to herein as "Party" and, collectively, the "Parties." The Parties agree as follows:

1. Purchase and Sale. In accordance with the terms of this Agreement, Buyer may purchase from Ciena the following, at the prices set forth herein (or as otherwise quoted by Ciena to Buyer in writing) when they become generally available:

(a) the networking equipment and related electronic, electrical, optical and mechanical equipment, including the equipment listed on **Annex A** (the "Hardware");

(b) the software, in object code form, which is owned or licensed by Ciena and may be licensed hereunder, including software embedded in Hardware and software provided for network management, design planning or otherwise licensed on a stand-alone basis, including the software listed on **Annex B** (the "Software"); and

(c) installation, training, maintenance, consulting, professional support and other services provided by Ciena in accordance with the terms and conditions referenced on **Annex C**, a valid Ciena quotation or pursuant to the applicable statement of work governing Ciena's services (the "Services').

2. Commercial Sales; No Resale. Buyer will purchase Hardware and license Software hereunder solely for use in commercial applications. Buyer will purchase Hardware and license Software exclusively for its own use, and it shall not sell, resell, lease, transfer, assign, distribute or otherwise dispose of Hardware or Software without Ciena's prior written consent.

3. Purchase Orders. Sales under this Agreement shall be made pursuant to purchase orders submitted from time to time by Buyer. Buyer shall send purchase orders, via facsimile to Ciena in accordance with Ciena's order entry instructions, unless another electronic format (e.g., eBusiness or web-based) is mutually agreed upon. Purchase orders shall include the following:

(a) Date of issuance;
(b) Purchase order number;
(c) Part numbers, descriptions and quantity related to Hardware, Software and Services;
(d) Purchase price;
(e) Proposed date(s) of delivery to the common carrier
(f) Shipping instructions, common carrier information and destination/delivery address, as applicable;
(g) Billing instructions, including address for invoices;
(h) Reference to this Agreement;
(i) Reference to Ciena quote or statement of work, as applicable.

This Agreement does not require Buyer to submit, or Ciena to accept, any purchase orders. No purchase order will be binding on Ciena until Ciena accepts it in writing. Ciena shall accept or reject purchase orders, by written notice to Buyer, within ten (10) business days of receipt. The parties may, by mutual agreement, make changes to a purchase order. The party asking for a change shall describe in writing the details of the requested change. Ciena shall provide in writing to Buyer a summary of any and all adjustments to the charges and other changes resulting from the Change Order Request. In no event shall any change be effective or acted upon in any way until such time as (i) an authorized representative of each party has agreed to the terms of the Change Order Request in writing and (ii) Ciena has received a purchase order from Buyer for any additional charges resulting from the Change Order Request. This Agreement shall govern all terms and conditions of purchase and sale and pre-printed terms on purchase orders or acceptances shall have no effect on sales under this Agreement. In the event of any conflict between this Agreement and a purchase order, the terms of this Agreement shall control.

4. Shipment. Shipment of Hardware and Software hereunder (including spares and replacement parts not covered by an applicable Warranty) shall be FCA (Ciena Factory) (INCOTERMS 2010). Buyer shall be the importer of record for all such Hardware and Software for destinations outside the United States. If any such charges are paid by Ciena, Ciena shall invoice Buyer for such amounts which shall be reimbursed by Buyer. Unless otherwise agreed by the parties in writing, Buyer shall be responsible for the coordination of delivery arrangements required to comply with project schedule dates and for freight,

insurance, handling and any other applicable charges from Buyer's initial delivery location to any installation sites. Ciena will pack and package items, in accordance with its commercial standards, for ground and air shipment only.

5. Title. Title to Hardware shall pass upon delivery by Ciena to the common carrier at Ciena's designated point of shipment. Buyer shall be responsible for the cost and procurement of insurance thereafter. Until receipt of applicable amounts due from Buyer, Buyer grants to Ciena a purchase money security interest in all Hardware sold hereunder for deployment in the United States. Buyer authorizes Ciena to file, and will cooperate fully with Ciena regarding, any documents needed to perfect a security interest with the appropriate jurisdiction(s).

6. Software; Right To Use License; Ownership.

6.1 Software and Documentation Licenses. Ciena grants to Buyer a personal, non-exclusive, non-transferable, non-sublicensable license to internally use, subject to any applicable authorized usage levels or license grants, (i) the Software provided by Ciena solely on the Hardware for which it is designated, and for its intended purposes as set forth in the applicable documentation, and (ii) documentation provided to Buyer in connection with the Software or Hardware ("Documentation") solely in the operation thereof, in each case in the country where the Software was delivered and in accordance with this Right To Use License Section (the "RTU License"). Buyer may make one copy of Software and one copy of the Documentation solely for backup and archival purposes. Buyer agrees to maintain and make available to Ciena, upon request, an accurate record of the whereabouts of the Software and any backup copy. If any Software is subject to a free or open source license that provides the end user with rights to use, copy or modify a software program that are broader than the RTU License above, then such rights shall take precedence.

6.2 Restrictions; Beneficiaries. Except with Ciena's prior written consent or as expressly authorized in accordance with the RTU License, Buyer shall not (a) use, copy, adapt, translate, publish, display, sublicense, rent, lend, transfer, distribute, make derivatives (including without limitation improvements, enhancements, revisions, modifications) of the Software, Documentation, or any copy thereof; or (b) merge, link, compile or combine the Software or any part thereof, or any copy thereof, with any other software or other item(s). Buyer shall not decompile, disassemble, reverse engineer or otherwise attempt to derive the source code of the Software or any part thereof, or any copy thereof. Buyer acknowledges that the Software and Documentation are and/or contain trade secrets and agrees to treat the same as Confidential Information subject to the confidentiality obligations of this Agreement. Buyer may not upload onto the Internet, permit downloading from the Internet or otherwise make the Software accessible to third parties via the Internet. Buyer shall not destroy, remove or otherwise alter any copyright or similar notices on the Software and Documentation or any copy thereof, and agrees to reproduce any such notices on any permitted copies. To the extent the Software includes software licensed to Ciena by third parties, those third parties are third party beneficiaries of, and may enforce, the applicable elements of this provision.

6.3 Title; Ownership. Except for any license expressly granted to Buyer herein, Ciena and its licensors (as applicable) retain all right, title and interest in the Software and Documentation and any derivative works or copies thereof. All copyrights, patents, trade secrets, or other intellectual property rights associated with any change or improvement to the Hardware and/or Software, and ideas, concepts, techniques, inventions, processes, or works of authorship related to the Hardware and/or Software developed or created by Ciena or Buyer or its personnel shall belong exclusively to Ciena. No transaction regarding Software hereunder shall be deemed a sale of goods. Buyer shall not, without Ciena's prior written consent, sublicense, assign or otherwise transfer any license granted hereunder. Buyer acknowledges that any license granted hereunder is subject to Section 365 of the U.S. Bankruptcy Code, and requires Ciena's consent to any assignment in connection with a bankruptcy proceeding.

7. Payment.

(a) Ciena may invoice Buyer for the total purchase price of Hardware and Software upon shipment (or if Software is delivered electronically, upon transmission by Ciena). Ciena may invoice Buyer for installation, training, consulting and professional support services upon completion of the Service or any discrete element thereof, however if the Service continues beyond thirty (30) days, Ciena may elect to invoice Buyer at the end of each month for Services performed in that month. Ciena may invoice Buyer for maintenance and support Services annually in advance.

(b) All prices and amounts owed hereunder shall be in U.S. dollars and due and payable net thirty (30) days from the date of invoice. Buyer shall pay Ciena in one of three ways: (i) by check or wire transfer; (ii) by pre-payment accompanying the purchase order; or (iii) by letter of credit.

(c) Ciena's obligation to continue to deliver Hardware or Software, and perform Services, pursuant to an accepted purchase order is subject to Buyer's compliance with this Agreement and continued creditworthiness and prompt payment of invoices. Upon Ciena's reasonable request, Buyer shall furnish Ciena with financial or other information sufficient to enable Ciena to determine Buyer's current creditworthiness and willingness to pay. Ciena reserves the right to establish credit limits for Buyer and may require full or partial payment prior to shipment of Hardware, Software or commencement of Services provided hereunder. Further, Ciena may base a determination that there is reasonable doubt about payment on Buyer's being in arrears by more than thirty (30) days on an invoice or Buyer's failure to make timely payment of two or more invoices.

(d) Buyer shall pay Ciena any applicable license fees and support fees described in **Annex B** or otherwise mutually agreed (collectively, the "Fees")**.** Ciena shall have the right, upon reasonable notice and during normal business hours, to conduct an audit of any software licenses and Fees due, not more than once a year.

(e) Invoicing disputes must be identified in writing within twenty-one (21) days of receipt of invoice. Payments of any disputed amount are due and payable upon resolution. All other amounts remain due in accordance with this Section 7. Without limitation of Ciena's remedies for nonpayment or late payment, Buyer shall pay interest on overdue amounts at the rate of one and one-half percent (1.5%) per month. Buyer shall be responsible for all costs (including reasonable attorneys' fees) incurred by Ciena in the collection of any overdue amount.

(f) Quoted prices exclude costs of freight, insurance and similar charges for the transport of the Hardware and Software to Buyer's specified delivery destination. Buyer is responsible for, and all prices are quoted exclusive of, any sales and use taxes, VAT tariffs, duties, fees or other taxes or charges, imposed by any government authority and based on the value or amount sold or licensed under this Agreement, with the exception of any taxes based on the net income of Ciena. If any such taxes, freight, or similar charges are paid by Ciena, Ciena shall invoice Buyer for such amounts and Buyer shall immediately reimburse Ciena upon receipt of such invoice.

8. Hardware and Software Warranty.

8.1. Hardware Warranty. Ciena warrants that, for one year after delivery of Hardware to the common carrier at Ciena's designated point of shipment (the "Hardware Warranty Period"), the Hardware will remain free from material defects in materials and workmanship under normal use and service and will substantially conform in all material respects to Ciena's applicable specifications. The Hardware service entitlements, including repair and replacement of defective Hardware, and other assumptions and exclusions set forth in Ciena's Standard Hardware Warranty and Repair Services Statement of Work, attached to **Annex C** hereto, shall apply at no additional charge during the Hardware Warranty Period. Following the Hardware Warranty Period, Ciena may offer, and Buyer may elect to purchase, an extension or increase of these service entitlements.

8.2 Software Warranty. Ciena warrants, for a period of one year (except for CESD product software, for which the warranty period will be 90 days) (the "Software Warranty Period") from the date of shipment, by Ciena or download by Buyer (as applicable), with respect to Software licensed by Buyer that: (a) the media on which the Software is furnished (as applicable) shall be free from defects in material and workmanship under normal use, and (b) the Software will substantially conform to Ciena's software release documentation. Ciena will replace defective media at no charge if it is returned during the Software Warranty Period. In the event the Software does not materially conform to this warranty, Ciena will, at its sole discretion, provide a suitable fix, patch or workaround for the problem, which may be included in a future release, or provide a replacement version of Software that conforms to published software release documentation. The Software support service entitlements and other assumptions and exclusions set forth in Ciena's Standard Software Warranty Service Statement of Work, attached to **Annex C** hereto, shall apply at no additional charge during the Software Warranty Period. Ciena does not warrant that the Software will operate in the third party hardware or software combinations that the Buyer may select. Ciena is not obligated to remedy any Software defect that cannot be reproduced. This warranty applies only to the version of Software licensed, provided such version is within one major software release level of Ciena's then-current software version.

8.3 Exclusions. Ciena does not warrant that operation of the Hardware or Software will be uninterrupted or error-free, or that it will meet all of Buyer's requirements. The warranty does not apply to defects or errors in Hardware or Software that are caused by: (a) Buyer's failure to follow Ciena's environmental, installation, operation or maintenance instructions or procedures set forth in the Documentation provided by Ciena; (b) Buyer's mishandling, misuse, negligence, or improper installation, deinstallation, storage, servicing or operation of Hardware or Software (including use with incompatible hardware or software), (c) alterations, modifications or repairs not made by or authorized by Ciena in writing, (d) inability to operate in conjunction with other hardware or software not provided by Ciena or not specifically indicated as compatible in the

Documentation; and (e) power failures, surges, fire, flood, lightning, accident, actions of third parties or other like events outside Ciena's reasonable control. The warranty also does not apply to items or supplies that are 'used up' or consumed during normal product operation, such as fiber jumpers, interconnection cables, attenuators, fuses, light bulbs, air filters, fan filters or blanks. Ciena reserves the right to void the warranty in situations where an installation or application has not been performed by Ciena or its subcontractors, and in instances where it determines that Hardware or Software has been the subject of misuse, accident, damage, alteration or modification (including tampering with the serial number), failure to maintain proper physical or operating environment, use of unauthorized parts or components or improper Buyer installation or maintenance. Ciena reserves the right to audit any service activities conducted on Hardware or Software by a non-Ciena party.

8.4 EXCLUSIVE REMEDY. THESE WARRANTIES AND REMEDIES, AND THE SERVICES' WARRANTY AND REMEDY PROVIDED IN ANNEX C, ARE (1) BUYER'S SOLE WARRANTIES AND REMEDIES AND CIENA'S SOLE LIABILITY FOR DEFECTIVE OR NONCONFORMING ITEMS, AND ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS, IMPLIED OR STATUTORY INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE; AND (2) BETWEEN CIENA AND BUYER (AS THE ORIGINAL PURCHASER OF THE HARDWARE AND SOFTWARE) AND MAY NOT BE TRANSFERRED OR ASSIGNED, WHETHER BY OPERATION OF LAW OR OTHERWISE, WITHOUT CIENA'S PRIOR WRITTEN CONSENT.

9. Intellectual Property Indemnity.

9.1 Indemnification. Ciena will defend or settle at its own expense any suit or proceeding which may be brought against Buyer by a third party alleging that any Hardware or Software infringes the patents, copyrights or trade secrets of that party in any jurisdiction to which Ciena shipped such Hardware or Software. Ciena will indemnify and hold harmless Buyer from and against all damages and costs which may be adjudged or decreed against Buyer on account of such infringement; provided, however, that Buyer shall have given prompt written notice to Ciena of the commencement of the suit or proceeding or any written threat to bring a suit or proceeding and shall cooperate with Ciena to facilitate the defense of any such suit, proceeding or threat. If Buyer seeks indemnification under this Section, Ciena shall have the right by its counsel to control the defense and any settlement of the suit or proceeding. Buyer shall not settle or compromise any such suit or proceeding without the prior written consent of Ciena.

9.2 Further Remedy. If any Hardware or Software becomes the subject of a claim of infringement, or in Ciena's opinion is likely to become the subject of a claim, Ciena may, at its option, either (a) procure for Buyer the right to continue using the Hardware or Software, (b) modify or replace the Hardware or Software to make it noninfringing, (c) replace the Hardware or Software with functionally equivalent, non-infringing Hardware or Software; or (d) require Buyer to return the Hardware or Software and refund the purchase price paid for it, less depreciation on a straight line basis over a three-year period.

9.3 Exclusion. Ciena shall have no liability or obligation, including, without limitation, to defend or indemnify Buyer, with respect to any claim arising out of (a) use of other than the most current release of the Hardware or Software, unless the infringing portion is also in that release; (b) improper use of the Hardware or Software or use outside the scope of the Documentation or RTU License; (c) use of the Hardware or Software in combination with non-Ciena hardware or software, if the infringement claim would not have arisen but for such combination; or (d) any modification, alteration or derivation of the Hardware or release of the Software not specifically authorized in writing by Ciena.

9.4 Sole Remedy. THE FOREGOING STATES THE SOLE LIABILITY OF CIENA AND THE SOLE REMEDY FOR BUYER RELATING TO INFRINGEMENT OR CLAIMS OF INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER PROPRIETARY RIGHT BY THE HARDWARE, SOFTWARE OR DOCUMENTATION.

10. Government Use. The Hardware and Software and accompanying and related Documentation, including manuals and technical data (collectively, "Delivered Items") delivered pursuant to this Agreement are commercial products within the meaning of applicable civilian and/or military U.S. Federal Acquisition Regulations and any supplement thereto and were developed fully at private expense. Services provided pursuant to this Agreement are commercial Services. If any user of these Delivered Items is an agency, department, employee, or other entity of the U.S. Government, the use, duplication, reproduction, release, modification, disclosure, or transfer of the product is restricted by the terms, conditions, and covenants contained in this Agreement. All other use is prohibited. In accordance with U.S. Federal Acquisition Regulation 12.212 for civilian agencies, and U.S. Defense Federal Acquisition Regulation Supplement 227.7202 for military agencies, Software delivered pursuant to this Agreement is commercial computer software subject to the terms of the RTU License set forth in this Agreement or provided with the applicable products. For the avoidance of doubt, the provisions of FAR 52.227-19 commercial Computer Software License shall not apply. Notwithstanding anything in this Agreement, its attachments, schedules or any

purchase order issued hereunder to the contrary, any FAR or DFAR clauses incorporated herein (if any) shall (i) apply only to the extent expressly incorporated herein and applicable to the type of Delivered Items being delivered by Ciena hereunder and required to be flowed down to Ciena and (ii) are further subject to any applicable exemptions or exceptions available to Ciena.

11. Term and Termination. The term of this Agreement shall be one year from the date first set forth above, unless earlier terminated as provided below. This Agreement shall thereafter renew automatically in one-year increments, unless either Party notifies the other in writing at least 90 days before the end of the then-current term that it intends not to renew.

11.1 Either Party may terminate this Agreement by written notice to the other Party upon the occurrence of any of the following:

(a) If either Party commits a material breach of this Agreement and such breach or default, if capable of cure, is not cured within thirty (30) days of written notice thereof. No cure period shall apply to a breach by Buyer of Section 13 or where either Party has previously been notified in writing of such breach of the same or similar type of duty or obligation.

(b) If either Party becomes insolvent under local law, makes a general assignment for the benefit of creditors, is adjudicated a bankrupt or insolvent, files a voluntary petition in bankruptcy or for a reorganization or to effect a plan or other arrangement with its creditors, files an answer to a creditor's petition or other petition against it for an adjudication in bankruptcy or thereof, or applies for or permits the appointment of a receiver, trustee, or custodian for any substantial portion of its properties or assets.

(c) If an order is entered by any court approving an involuntary petition seeking reorganization of either the Party, or appointing a receiver, trustee or custodian for any substantial portion of its assets or business or if for any reason either a Party voluntarily or involuntarily suspends transaction of its business or ceases to function as a going concern.

11.2 Ciena may terminate the Agreement and/or the RTU Licenses granted hereunder and exercise all available rights by giving Buyer written notice, effective immediately, if within ten (10) days of Buyer's receipt of a reasonably detailed written request to cure, Buyer has not cured all breaches of the RTU License limitations or restrictions. Upon such termination, Buyer will immediately pay all Fees outstanding, cease the use of all Software, return or delete, at Ciena's request, all copies of the Software in the Buyer's possession, and certify compliance with all obligations in this paragraph to Ciena in writing.

12. **Limitation of Liability.** EXCEPT WITH RESPECT TO SECTION 6 AND SECTION 13, NEITHER PARTY SHALL BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM OR ARISING OUT OF THIS AGREEMENT, INCLUDING LOST PROFITS, COST OF CAPITAL, COST OF SUBSTITUTE FACILITIES OR EQUIPMENT, DOWNTIME COSTS OR CLAIMS OF CUSTOMERS, WHETHER OR NOT SUCH PARTY HAD BEEN ADVISED, KNEW OR SHOULD HAVE KNOWN OF THE POSSIBILITY OF SUCH DAMAGES. THE LIABILITY OF CIENA UNDER OR IN RELATION TO THIS AGREEMENT, WHETHER ARISING OUT OF BREACH OF CONTRACT (INCLUDING BUT NOT LIMITED TO BREACH OF WARRANTY) OR TORT (INCLUDING BUT NOT LIMITED TO NEGLIGENCE AND STRICT LIABILITY) OR UNDER AN INDEMNIFICATION PROVISION SHALL IN NO EVENT EXCEED THE AGGREGATE AMOUNT PAID BY BUYER TO CIENA DURING THE TWELVE (12) MONTH PERIOD PRIOR TO THE DATE THAT THE LOSS OR DAMAGE OCCURRED FOR THE PRODUCTS FROM WHICH SUCH LOSS OR DAMAGE DIRECTLY AROSE. This limitation on direct damages will not apply to claims for damages for bodily injury (including death) and damage to real property for which Ciena is legally liable.

13. Confidential Information.

13.1 Obligations. This Agreement, any purchase orders, any Hardware, Software, and Documentation provided by Ciena, and any information exchanged between the Parties is confidential and proprietary information ("Confidential Information") subject to the terms of the Non-Disclosure Agreement between the parties dated {NDA DATE}, which shall remain in effect for three (3) years following the last exchange of Confidential Information.

13.2 Restrictions. The Parties acknowledge that Hardware and Software and performance of Services, involve the use of Confidential Information of Ciena. Buyer shall not reverse-engineer, decompile, or disassemble any Hardware or Software, and shall not remove, overprint or deface any notice of copyright, trademark, logo, legend or other notice of ownership from any originals or copies of Confidential Information it obtains from Ciena.

13.3 Safeguards. Each of the Parties warrants that it maintains reasonable safeguards against the unauthorized disclosure of confidential and proprietary information and agrees to protect Confidential Information received from the other Party in the same manner and to the same degree that it protects its own confidential and proprietary information. A receiving Party will not give its employees, agents, or advisors access to Confidential Information received from the other Party until the receiving Party has ensured that they are aware of this Agreement and are under an obligation to honor it.

13.4 Equitable Relief. The Parties acknowledge that money damages may not be a sufficient remedy for any breach of this Agreement and that a Party is entitled to seek injunctive or other equitable relief to remedy or prevent any breach or threatened breach of this Section. Such relief shall not be the exclusive remedy, but shall be in addition to any other rights and remedies available at law or in equity.

14. Compliance. Both Parties agree to comply at their own expense with all applicable federal, state, local and foreign laws and regulations relating to the performance of this Agreement. Without limitation to the foregoing, Buyer acknowledges that the export and re-export of Hardware, Software and other covered technical data are subject to restrictions under applicable export control laws and regulations. Buyer shall comply with all applicable laws and regulations that govern the export and sale of such Hardware, Software and technical data. Buyer agrees not to export, either directly or indirectly, any such Hardware, Software or other covered technical information without having first obtained clearance or a license to re-export from the United States, European Union and/or Canadian Governments, as required under their respective export regulations. Buyer shall cooperate with Ciena in any inspection, audit or inquiry in respect of the same. Buyer acknowledges that is shall obtain any required building, facility or similar site licenses or permits related to the installation and operation of the Hardware and that its failure to obtain such items shall not relieve Buyer of its payment obligation hereunder.

15. Miscellaneous.

15.1 Notices. Any notice required or permitted under this Agreement shall be given in writing to the address or facsimile number provided for a Party below (or such other address or number as any Party may provide to the other in writing in the manner contemplated hereby).

If to Ciena, to:	If to Buyer, to:
Ciena Communications, Inc.	_____
Attn: General Counsel	Attn: _____
7035 Ridge Road	_____
Hanover, Maryland 21076	_____
Telephone (410) 865-8500	Telephone _____
Facsimile (410) 865-8001	Facsimile _____

15.2 Force Majeure. Neither Party shall be liable for delays in or failures of performance (excluding failure to pay) under this Agreement due to unforeseen circumstances or causes beyond its reasonable control (an "excusable delay"), including, but not limited to, war (including civil war), riots, embargoes, acts (whether sovereign or contractual) of civil or military authorities, acts or failures to act of any government, acts of terrorism, fires, floods, explosions, the elements, epidemics, quarantine restrictions or strikes. In the event of an excusable delay as defined above, the affected Party shall promptly notify the other Party in writing of such delay and an equitable adjustment shall be made in the completion schedules and any other affected terms of this Agreement.

15.3 Governing Law. This Agreement shall be governed by the laws of New York (without regard to the conflict of laws provision thereof). This Agreement and the duties and obligations of the Parties hereunder shall be enforceable against any of the Parties in the courts of New York. The United Nations Convention on Contracts for the International Sale of Goods shall not apply to this Agreement.

15.4 Assignment and Delegation. Neither Party may assign or transfer this Agreement nor any rights granted under it, nor delegate to a third person any duties or obligations under this Agreement, without the prior written consent of the other Party. Notwithstanding the foregoing, either Party shall, without consent of the other, have the right to assign or transfer all of its rights and obligations under this Agreement incident to a merger or sale of all or substantially all of its assets so long as the assignee/transferee shall have a net worth not less than the assigning Party and such assignee/transferee agrees to be bound by the terms and conditions of this Agreement. In no event, however, may this Agreement be assigned to a competitor of Ciena or an affiliate of a competitor without Ciena's prior written consent.

15.5 Waiver. No failure of either Party to exercise any power given to it hereunder or to insist upon strict compliance by the other with any obligation or provisions hereunder, and no custom or practice of the Parties at variance with the terms

hereunder shall constitute a waiver of the right to demand exact compliance with the terms hereof. Waiver by a non-defaulting Party of any right arising from a default of the other Party shall not affect or impair the rights of the non-defaulting Party with respect to any subsequent default by the other Party of the same or of a different nature.

15.6 Entire Agreement; Amendments; Counterparts. This Agreement, including the Annexes specifically incorporated herein by reference, constitute the entire agreement of the Parties with respect to its subject matter and supersedes all prior agreements, whether oral or written, including press releases, advertising and sales material. No amendment of this Agreement shall be binding upon the Parties unless evidenced in writing and signed by both Parties. In the event of a conflict between this Agreement and a Statement of Work, the terms of the SOW shall prevail unless otherwise expressly agreed to in writing. This Agreement may be signed in two or more counterparts.

15.7 No Agency. Neither Party is authorized by this Agreement to make any representation, warranty, or commitment, or to assume any obligation or liability on behalf of the other.

15.8 Personnel. Ciena and Buyer are each responsible for the supervision, direction, compensation and control of their own employees and subcontractors. Ciena may subcontract any portion or all of the Services to subcontractors selected by Ciena provided that Ciena will remain fully responsible for the performance of such Services and its obligations hereunder.

15.9 Headings; Severability; Survival. The headings of the Sections of this Agreement are inserted for convenience only and do not form a part or affect the meaning hereof. If any provision of this Agreement is held invalid, the remainder of this Agreement shall not be affected. The Right to Use License, Limitation of Liability, Confidential Information provisions of this Agreement, and any other provision that by its nature would be intended to survive shall survive expiration or termination of this Agreement.

15.10 Public Announcements. The Parties agree to issue a mutually agreed press release announcing execution of this Agreement; provided that neither Party shall make any other press release or public announcement concerning this Agreement or the transactions which are the subject hereof without consent of the other Party. Notwithstanding the foregoing, Buyer hereby acknowledges that Ciena may reference its Buyer relationship with Buyer in any and all filings with the U.S. Securities and Exchange Commission and any documents distributed in connection with any financing transactions.

15.11 Joint Work Product. The Parties, who have both been represented by legal counsel, have jointly participated in negotiating and drafting this Agreement, including its Annexes, and any attachments. In the event an ambiguity or question of intent or interpretation arises, this Agreement shall be construed as if jointly drafted by the Parties and no presumption, inference or burden of proof shall arise favoring or disfavoring a Party by virtue of authorship of any or all of the Agreement provisions.

All of which is agreed to by the duly authorized undersigned as of the Effective Date.

[CONFIRM CIENA ENTITY GUIDE IN BAAP] **_____ ("BUYER")**

BY: _____	BY: _____
NAME: _____	NAME: _____
TITLE: _____	TITLE: _____
DATE: _____	DATE: _____

SCHEDULE OF ANNEXES:

Annex A Hardware and Pricing
Annex B Software and Pricing
Annex C Services, Services Pricing and SOWs

State of Utah
Request for Proposal

Legal Company Name (include d/b/a if applicable) Ciena Communications, Inc.	Federal Tax Identification Number 52-2055579	State of Utah Sales Tax ID Number	
Ordering Address 900 International Drive	City Linthicum	State MD	Zip Code 21090
Remittance Address (if different from ordering address) PO Box 281267	City Atlanta	State GA	Zip Code 30384
Type Corporation ☑ Partnership ☐ Proprietorship ☐ Government ☐	Company Contact Person Jim Riley		
Telephone Number (include area code) 303-249-1134	Fax Number (include area code)		
Company=s Internet Web Address www.ciena.com	Email Address jriley@ciena.com		
Discount Terms (for bid purposes, bid discounts less than 30 days will not be considered)	Days Required for Delivery After Receipt of Order (see attached for any required minimums)		

The undersigned certifies that the goods or services offered are produced, mined, grown, manufactured, or performed in Utah. Yes ☐ No ☑ . If no, enter where produced, etc. Mexico

Offeror=s Authorized Representative=s Signature	Date
Robert Newman	08/29/13
Type or Print Name	**Position or Title**
Robert New man	Sr. Director, Regional Commercial Ma

Supplier: **Ciena**

STATE OF UTAH

SOLICITATION NO. JP14001

WSCA-NASPO Data Communications Products & Services

RESPONSES DUE NO LATER THAN:

Aug 30, 2013 11:00:00 AM MDT

RESPONSES MAY BE SUBMITTED ELECTRONICALLY TO:

www.bidsync.com

RESPONSES MAY BE MAILED OR DELIVERED TO:

State of Utah
Division of Purchasing
3150 State Office Building, Capitol Hill
Salt Lake City, Utah 84114-1061

Supplier: **Ciena**

State of Utah
Request for Proposal

Legal Company Name (include d/b/a if applicable) **Ciena Communications, Inc.**	Federal Tax Identification Number **52-2055579**	State of Utah Sales Tax ID Number	
Ordering Address **900 International Drive**	City **Linthicum**	State **MD**	Zip Code **21090**
Remittance Address (if different from ordering address) **PO Box 281267**	City **Atlanta**	State **GA**	Zip Code **30384**
Type Corporation ☐ Partnership ☐ Proprietorship ☐ Government ☐	Company Contact Person **Jim Riley**		
Telephone Number (include area code) **303-249-1134**	Fax Number (include area code)		
Company=s Internet Web Address **www.ciena.com**	Email Address **jriley@ciena.com**		
Discount Terms (for bid purposes, bid discounts less than 30 days will not be considered)	Days Required for Delivery After Receipt of Order (see attached for any required minimums)		
The undersigned certifies that the goods or services offered are produced, mined, grown, manufactured, or performed in Utah. Yes No ☐ . If no, enter where produced, etc. **Mexico**			

Offeror=s Authorized Representative=s Signature	Date **08/29/13**
Type or Print Name **Robert Newman**	Position or Title **Sr. Director, Regional Commercial Management**

N O T I C E

When submitting a response (proposal, quote or bid) electronically through BidSync, it is the sole responsibility of the supplier to ensure that the response is received by BidSync prior to the closing date and time. Each of the following steps in BidSync MUST be completed in order to place an offer:

A. Login to www.bidsync.com;
B. Locate the bid (solicitation) to which you are responding;
   a. Click the "Search" tab on the top left of the page;
   b. Enter keyword or bid (solicitation) number and click "Search";
C. Click on the "Bid title/description" to open the Bid (solicitation) Information Page;
D. "View and Accept" all documents in the document section;
E. Select "Place Offer" found at the bottom of the page;
F. Enter your pricing, notes, other required information and upload attachments to this page;
G. Click "Submit" at the bottom of the page;
H. Review Offer(s); and
I. Enter your password and click "Confirm".

Note that the final step in submitting a response involves the supplier's acknowledgement that the information and documents entered into the BidSync system are accurate and represent the supplier's actual proposal, quote or bid. This acknowledgement is registered in BidSync when the supplier clicks "Confirm". BidSync will post a notice that the offer has been received. This notice from BidSync MUST be recorded prior to the closing date and time or the response will be considered late and will not be accepted.

Be aware that entering information and uploading documents into BidSync may take considerable time. Please allow sufficient time to complete the online forms and upload documents. Suppliers should not wait until the last minute to submit a response. It is recommended that suppliers submit responses a minimum of 24 hours prior to the closing deadline. The deadline for submitting information and documents will end at the closing time indicated in the solicitation. All information and documents must be fully entered, uploaded, acknowledged (Confirm) and recorded into BidSync before the closing time or the system will stop the process and the response will be considered late and will not be accepted.

Responses submitted in BidSync are completely secure. No one (including state purchasing staff) can see responses until after the deadline. Suppliers may modify or change their response at any time prior to the closing deadline. However, all modifications or changes must be completed and acknowledged (Confirm) in the BidSync system prior to the deadline. BidSync will post a notice that the modification/change (new offer) has been received. This notice from BidSync MUST be recorded prior to the closing date and time or the response will be considered late and will not be accepted.

Utah Code 46-4-402(2) Unless otherwise agreed between a sender (supplier) and the recipient (State Purchasing), an electronic record is received when: (a) it enters an information processing system that the recipient has designated or uses for the purpose of receiving electronic records or information of the type sent and from which the recipient is able to retrieve the electronic record; and (b) it is in a form capable of being processed by that system.

REQUEST FOR PROPOSAL - INSTRUCTIONS AND GENERAL PROVISIONS

1. SUBMITTING THE PROPOSAL: (a) The Utah Division of Purchasing and General Services (DIVISION) prefers that proposals be submitted electronically. Electronic proposals may be submitted through a secure mailbox at BidSync (formerly RFP Depot, LLC) (www.bidsync.com) until the date and time as indicated in this document. It is the sole responsibility of the supplier to ensure their proposal reaches BidSync before the closing date and time. There is no cost to the supplier to submit Utah's electronic proposals via BidSync. (b) Electronic proposals may require the uploading of electronic attachments. The submission of attachments containing embedded documents is prohibited. All documents should be attached as separate files. (c) If the supplier chooses to submit the proposal directly to the DIVISION in writing: The proposal must be signed in ink, sealed, and delivered to the Division of Purchasing, 3150 State Office Building, Capitol Hill, Salt Lake City, UT 84114-1061 by the "Due Date and Time." The "Solicitation Number" and "Due Date" must appear on the outside of the envelope. All prices and notations must be in ink or typewritten. Each item must be priced separately. Unit price shall be shown and a total price shall be entered for each item offered. Errors may be crossed out and corrections printed in ink or typewritten adjacent and must be initialed in ink by person signing offer. Unit price will govern, if there is an error in the extension. Written offers will be considered only if it is submitted on the forms provided by the DIVISION. (d) Proposals, modifications, or corrections received after the closing time on the "Due Date" will be considered late and handled in accordance with the Utah Procurement Rules, section R33-3-209. (e) Facsimile transmission of proposals to DIVISION will not be considered.

2. PROPOSAL PREPARATION: (a) Delivery time of products and services is critical and must be adhered to as specified. (b) Wherever in this document an item is defined by using a trade name of a manufacturer and/or model number, it is intended that the words, "or equivalent" apply. "Or equivalent" means any other brand that is equal in use, quality, economy and performance to the brand listed as determined by the DIVISION. If the supplier lists a trade name and/or catalog number in the offer, the DIVISION will assume the item meets the specifications unless the offer clearly states it is an alternate, and describes specifically how it differs from the item specified. All offers must include complete manufacturer=s descriptive literature if quoting an equivalent product. All products are to be of new, unused condition, unless otherwise requested in this solicitation. (c) Incomplete proposals may be rejected. (d) Where applicable, all proposals must include complete manufacturer=s descriptive literature. (e) By submitting the proposal the offeror certifies that all of the information provided is accurate, that they are willing and able to furnish the item(s) specified, and that prices offered are correct. (f) This proposal may not be withdrawn for a period of 60 days from the due date.

3. FREIGHT COST: Suppliers are to provide line item pricing FOB Destination Freight Prepaid. Unless otherwise indicated on the contract/purchase order, shipping terms will be FOB Destination Freight Prepaid.

4. SOLICITATION AMENDMENTS: All changes to this solicitation will be made through written addendum only. Answers to questions submitted through BidSync shall be considered addenda to the solicitation documents. Bidders are cautioned not to consider verbal modifications.

5. PROTECTED INFORMATION: Suppliers are required to mark any specific information contained in their offer which they are claiming as protected and not to be disclosed to the public or used for purposes other than the evaluation of the offer. Each request for non-disclosure must be made by completing the "Confidentiality Claim Form" located at: http://www.purchasing.utah.gov/contract/documents/confidentialityclaimform.doc with a specific justification explaining why the information is to be protected. Pricing and service elements of any proposal will not be considered proprietary. All material becomes the property of the DIVISION and may be returned only at the DIVISION 's option.

6. BEST AND FINAL OFFERS: Discussions may be conducted with offerors who submit proposals determined to be reasonably susceptible of being selected for award for the purpose of assuring full understanding of, and responsiveness to, solicitation requirements. Prior to award, these offerors may be asked to submit best and final offers. In conducting discussions, there shall be no disclosure of any information derived from proposals submitted by a competing offeror.

7. SAMPLES: Samples of item(s) specified in this offer, brochures, etc., when required by the DIVISION, must be furnished free of expense to the DIVISION. Any item not destroyed by tests may, upon request made at the time the sample is furnished, be returned at the offeror's expense.

8. AWARD OF CONTRACT: (a) The contract will be awarded with reasonable promptness, by written notice, to the responsible offeror whose proposal is determined to be the most advantageous to the DIVISION, taking into consideration price and evaluation factors set forth in the RFP. No other factors or criteria will be used in the evaluation. The contract file shall contain the basis on which the award is made. Refer to Utah Code Annotated 65-

56-408. (b) The DIVISION may accept any item or group of items, or overall best offer. The DIVISION can reject any or all proposals, and it can waive any informality, or technicality in any proposal received, if the DIVISION believes it would serve the best interests of the DIVISION. (c) Before, or after, the award of a contract the DIVISION has the right to inspect the offeror's premises and all business records to determine the offeror's ability to meet contract requirements. (d) The DIVISION will open proposals publicly, identifying only the names of the offerors. During the evaluation process, proposals will be seen only by authorized DIVISION staff and those selected by DIVISION to evaluate the proposals. Following the award decision, all proposals become public information except for protected information (see number 5 above). A register of proposals and contract awards are posted at http://purchasing.utah.gov/vendor/bidtab.html. (e) Estimated quantities are for bidding purposes only, and not to be interpreted as a guarantee to purchase any amount. (f) Utah has a reciprocal preference law which will be applied against offerors offering products or services produced in states which discriminate against Utah products. For details see Section 63G-6-404 and 63G-6-405, Utah Code Annotated. (g) Multiple contracts may be awarded if the DIVISION determines it would be in its best interest.

9. DEBRIEFING OF UNSUCCESSFUL OFFERORS:
State Purchasing does not conduct face to face or teleconference debriefings. All debriefings are to be conducted in writing. A debrief request must be submitted in writing to the Purchasing Agent within seven (7) calendar days of the award notification or rejection notification made through written correspondence or posted on BidSync. The debrief response will be limited to critiquing the strength/weakness of an offeror's proposal based on the evaluation criteria. The debriefing is intended as a courtesy to offerors, providing feedback to be used for future opportunities. Comparisons between proposals or evaluations of other proposals will not be allowed.

10. DIVISION APPROVAL: Contracts written with the State of Utah, as a result of this proposal, will not be legally binding without the written approval of the Director of the DIVISION.

11. DEBARMENT: The CONTRACTOR certifies that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction (contract) by any governmental department or agency. If the CONTRACTOR cannot certify this statement, attach a written explanation for review by the DIVISION.

12. ENERGY CONSERVATION AND RECYCLED PRODUCTS: The contractor is encouraged to offer Energy Star certified products or products that meet FEMP (Federal Energy Management Program) standards for energy consumption. The State of Utah also encourages contractors to offer products that are produced with recycled materials, where appropriate, unless otherwise requested in this solicitation.

13. GOVERNING LAWS AND REGULATIONS: All State purchases are subject to the Utah Procurement Code, Title 63 Chapter 56 U.C.A. 1953, as amended, and the Procurement Rules as adopted by the Utah State Procurement Policy Board. These are available on the Internet at www.purchasing.utah.gov. By submitting a bid or offer, the bidder/offeror warrants that the bidder/offeror and any and all supplies, services equipment, and construction purchased by the State shall comply fully with all applicable Federal and State laws and regulations, including applicable licensure and certification requirements.

14. SALES TAX ID NUMBER: Utah Code Annotated (UCA) 59-12-106 requires anyone filing a bid with the state for the sale of tangible personal property or any other taxable transaction under UCA 59-12-103(1) to include their Utah sales tax license number with their bid. For information regarding a Utah sales tax license see the Utah State Tax Commission's website at www.tax.utah.gov/sales. The Tax Commission is located at 210 North 1950 West, Salt Lake City, UT 84134, and can be reached by phone at (801) 297-2200.

(Revision Date: 05 Nov 2012 - RFP Instructions)