Capital Markets Day

Spirent Communications plc

5 May 2017

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Capital Markets Day Agenda

Welcome & Introduction	Eric Hutchinson
Business Focus	James Armstrong
Driving Improved Returns	Paula Bell
Q&A	
Coffee Break & Product Demonstrations	
Key Growth Initiatives	
Lifecycle Service Assurance	Dave Stehlin
High-Speed Ethernet/IP, Cloud & Virtualization	Neil Holmquist
Security for the Connected Future	John Weinschenk
Summary & Conclusion	Eric Hutchinson
Final Q&A	
Lunch & Product Demonstrations	

Today's Presenters

Eric Hutchinson, CEO

Paula Bell, CFO

James Armstrong
COO & EVP, Products

Dave Stehlin
GM, LSA

Neil Holmquist
VP, Marketing

John Weinschenk
GM, AppSec

Connecting a Smarter Future

Eric Hutchinson
Chief Executive Officer

Connecting a Smarter Future

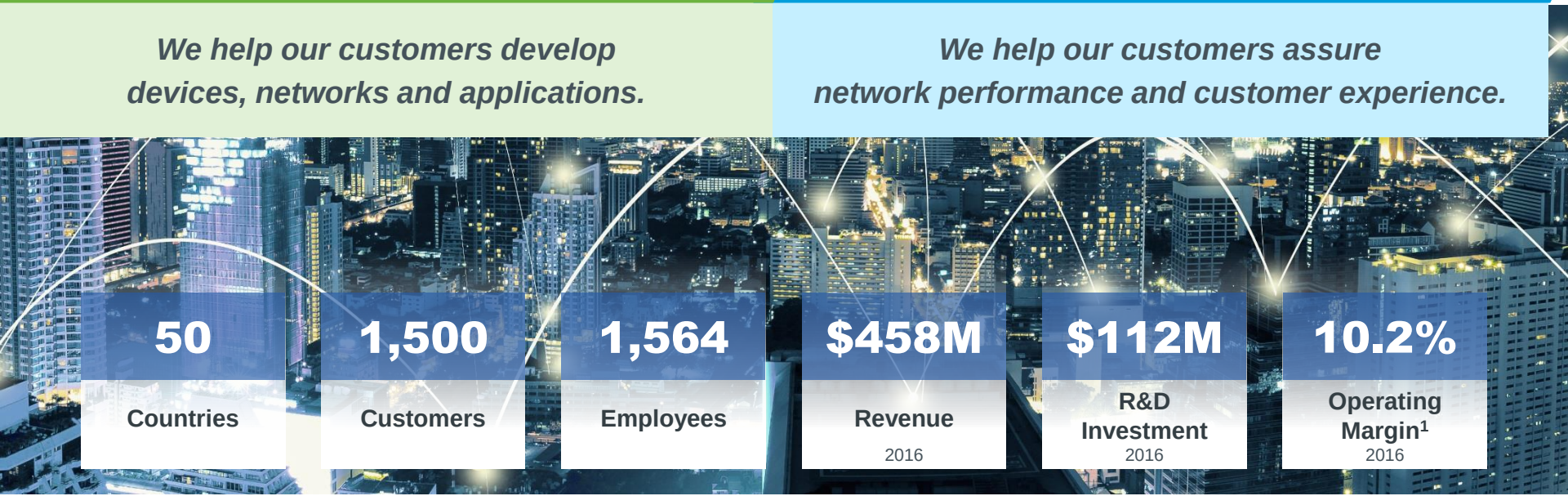
Innovative products and services
to help the world communicate and collaborate faster, better and securely.

Develop

We help our customers develop devices, networks and applications.

Operate

We help our customers assure network performance and customer experience.



50	1,500	1,564	$458M	$112M	10.2%
Countries	Customers	Employees	Revenue 2016	R&D Investment 2016	Operating Margin[1] 2016

(1) Before exceptional and other items

Our Customers

A diversified customer base with blue chip client relationships

Develop | **Operate**

Wireless & Positioning Device Manufacturers

Innovative, quality & secure products

Network Equipment Manufacturers

Reliable, high-performance & secure products

Network Operators

Reliable & secure networks meeting service level agreements

Enterprises & Governments

Reliable & secure networks & applications

Spirent Differentiation

CONNECT

PERFORM

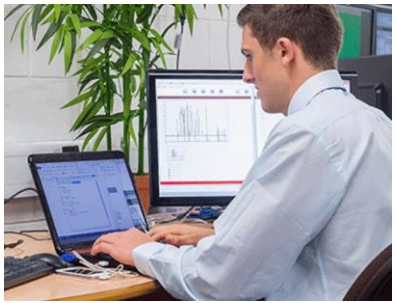
SECURE

Competencies that provide our competitive differentiation

Test Methodologies

Active Test

Analytics



Automation

The Smarter Future

Smart Industry (4.0)

$195 billion market (2022)1

Smart Home

$121 billion market (2022)2

Smart Enterprise

$255 billion market (2019)3

Smart Cities

9.7 billion connected things (2020)4

$156 trillion market (2020)5

Autonomous Vehicles

Intelligent Transportation Systems

Connected Cars

$152 billion market (2020)7

Fleet Management

$27.9 billion market (2021)8

380 million Connected Cars on the road (2021)6

Unmanned Aerial Vehicles

Drones

$28.2 billion market (2022)9

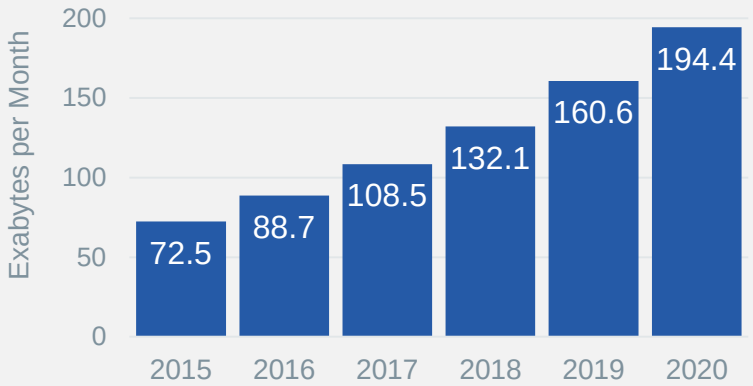
Dominant Market Trends

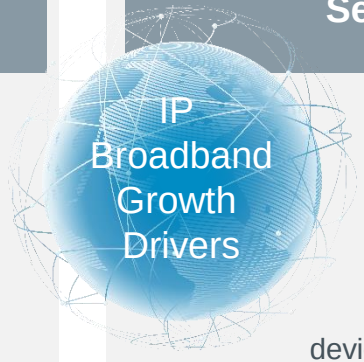
Relentless Traffic Growth

Global IP Traffic

3x increase 2015 - 2020

CAGR 22%





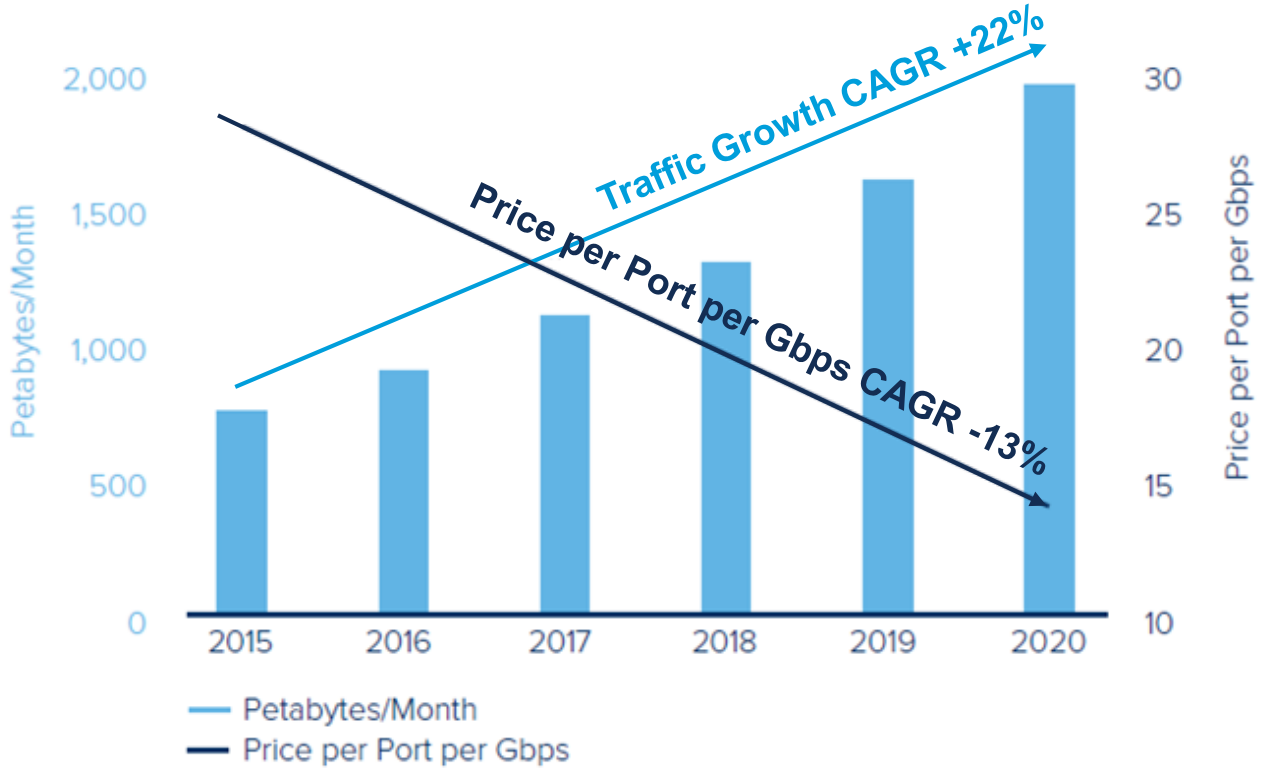
Service Adoption Drivers

		2015	2020
More internet users		3.0 billion	4.1 billion
More devices and connections		16.3 billion	26.3 billion
Faster broadband speeds		24.7 Mbps	47.4 Mbps
More video viewing		70% of traffic	82% of traffic

Source: Cisco VNI Global IP Traffic Forecast 2015-2020 (June 7, 2016)

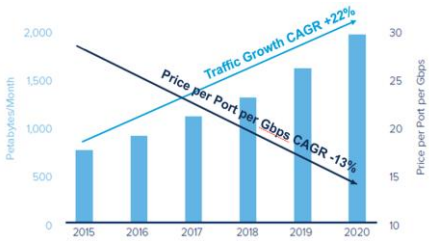
Dominant Market Trends

Business imperative to reduce operating costs and capital expenditures



Source: IHS. Market Insights “RESEARCH NOTE. Telecom Capex Languishes in Flatland” (November 21, 2016)

Market Dynamics



Market Challenges

- Relentless traffic growth (video)
- Business imperative to radically reduce expenses

Market Disruptions

Cybersecurity

Virtualization

Internet of Things

5G

Spirent Strategic Direction

Vision

Experts in methodologies and solutions for the development and management of communication networks, connected devices and applications

Strategy

- Innovate easy-to-use test products & services
- Provide specialized and consultative sales & support

Strategic Objectives

- Lead in high-speed Ethernet/IP and positioning
- Accelerate growth in cybersecurity and network virtualization
- Grow lifecycle service assurance business
- Explore new areas for future growth: 5G, autonomous vehicles
- Expand in large enterprise customers

Business Focus

James Armstrong
Chief Operating Officer & EVP, Products

The Smarter Future – Our Focus

Develop → **Operate**

Connected Devices

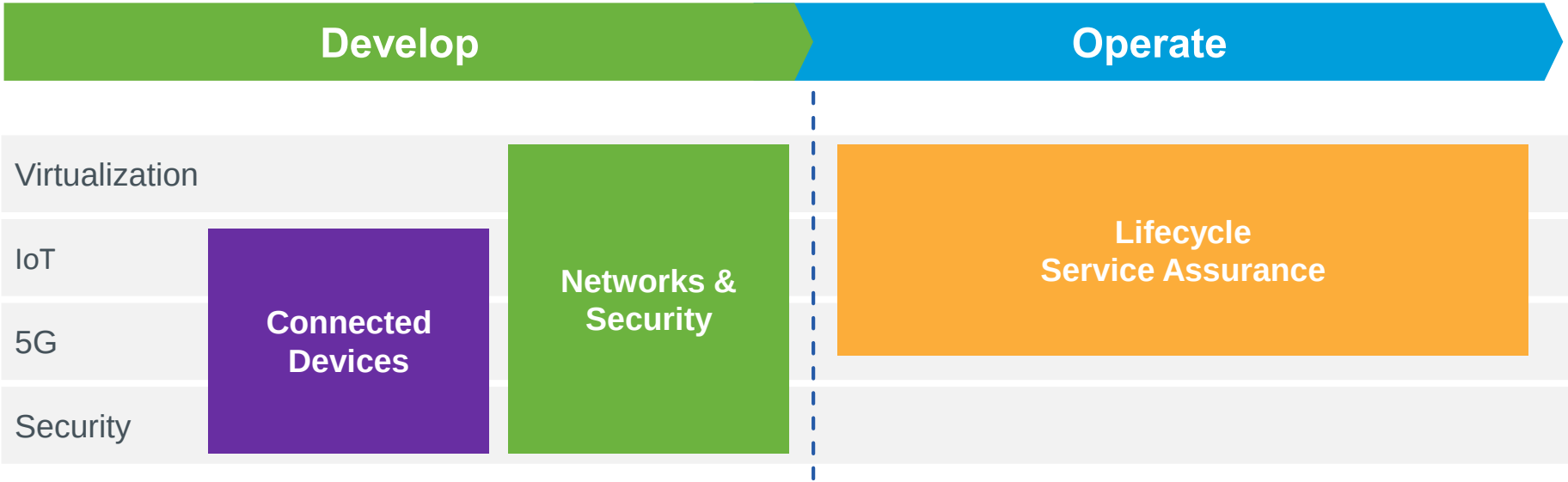
Networks & Security

Lifecycle Service Assurance

Connecting a smarter future …. Connect. Perform. Secure.

Re-segmenting for Focus - Rationale

- **Accelerate Product Development.** Group business units that collaborate on developments or leverage expertise and technology to develop new products and services.
- **Streamline Go To Market.** Business units in the same segment target similar customers, job function and phase of the technology lifecycle.
- **Cost Savings.** Rationalise organisational structure.



Organised for Sharp Focus on Target Market Opportunities

Networks & Security

Driven by virtualization and security

Automated performance and security test systems to accelerate development & deployment of networks and applications.

Lifecycle Service Assurance

Driven by virtualization, mobile networks and the Internet of Things

Active test and analytics solutions for service turn-up, network performance improvement & customer experience management.

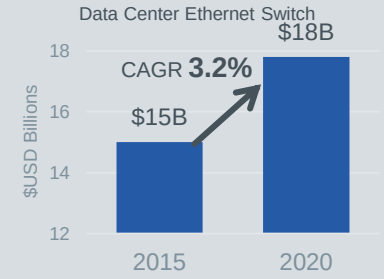
Connected Devices

Driven by the Internet of Things and 5G

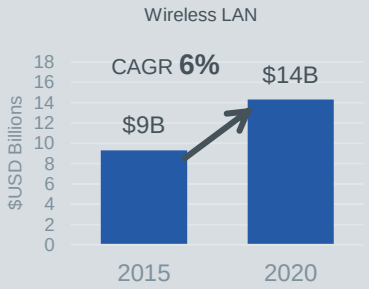
Automated test systems to accelerate the development & deployment of connected devices.

Networks & Security

High-Speed Ethernet/IP

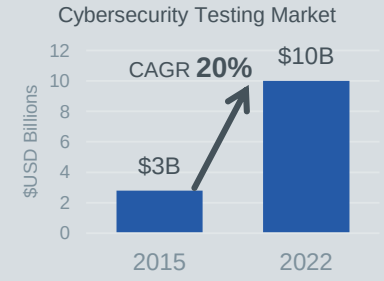


Source: Technavio (March 2016)



Source: Dell'Oro (Jan 2017)

Cybersecurity



Computers vulnerable to attack: 99%

Cost of cyber-crime (global): $100 billion per year

Increase in number of cyber-attacks to organizations (USA): +176%

Source: STRATISTICS MRC (January 2017)

Networks & Security

Market	**$1170M**
Market Growth	**10%**
Revenue	**$262M**
Market Share	**22%**
Operating Profit[1]	**$47.2M**
Operating Margin[1]	**18%**

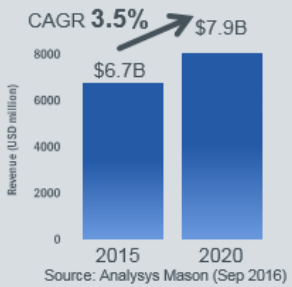
For 2016. Growth is CAGR 2016-2019

(1) Before exceptional items

Lifecycle Service Assurance

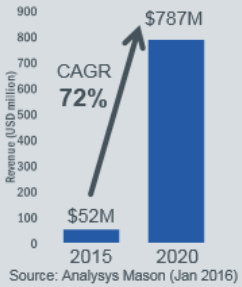
Service Assurance

Global Service Assurance Systems



Source: Analysys Mason (Sep 2016)

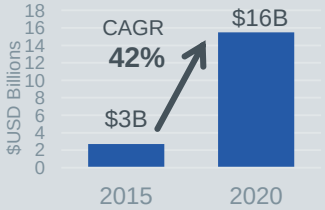
… for NFV and SDN



Source: Analysys Mason (Jan 2016)

Virtualization

Network Functions Virtualization Market



- Moving from hardware to software
- Deliver exponentially more data cost effectively
- Adapt rapidly to changing network conditions

Source: IHS (July 2016)

Lifecycle Service Assurance

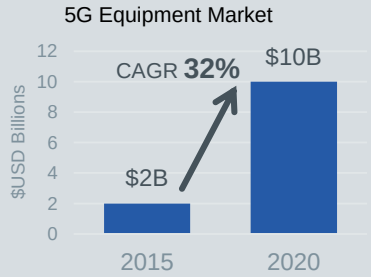
Market	**$805M**
Market Growth	**7%**
Revenue	**$99M**
Market Share	**12%**
Operating Profit[1]	**$11.2M**
Operating Margin[1]	**11%**

For 2016. Growth is CAGR 2016-2019

(1) Before exceptional items

Connected Devices

5G



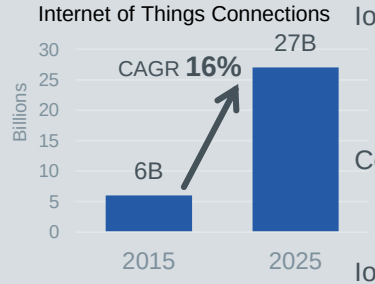
Enable new applications requiring ultra-low latency or extreme bandwidth: virtual reality and augmented reality

Early adoption: Korean Olympics (2018)

Standards: 2018-2020

Source: Technavio (October 2016)

Internet of Things (IoT)



IoT connections (2015):

Connected Business	29%
Connected Home	26%
Consumer Electronics	21%

Cellular IoT connections:
334 million in 2015 to 2.2 billion in 2025;
Connected cars will be 45%.

IoT Application Revenue (2025): $1.3 Trillion

Source: Machina Research (August 2016)

Connected Devices

Market	**$550M**
Market Growth	**(3%)**
Revenue	**$97M**
Market Share	**18%**
Operating Loss[1]	**($4.4M)**
Operating Margin[1]	**(5%)**

For 2016. Growth is CAGR 2016-2019

(1) Before exceptional items

Market Opportunity

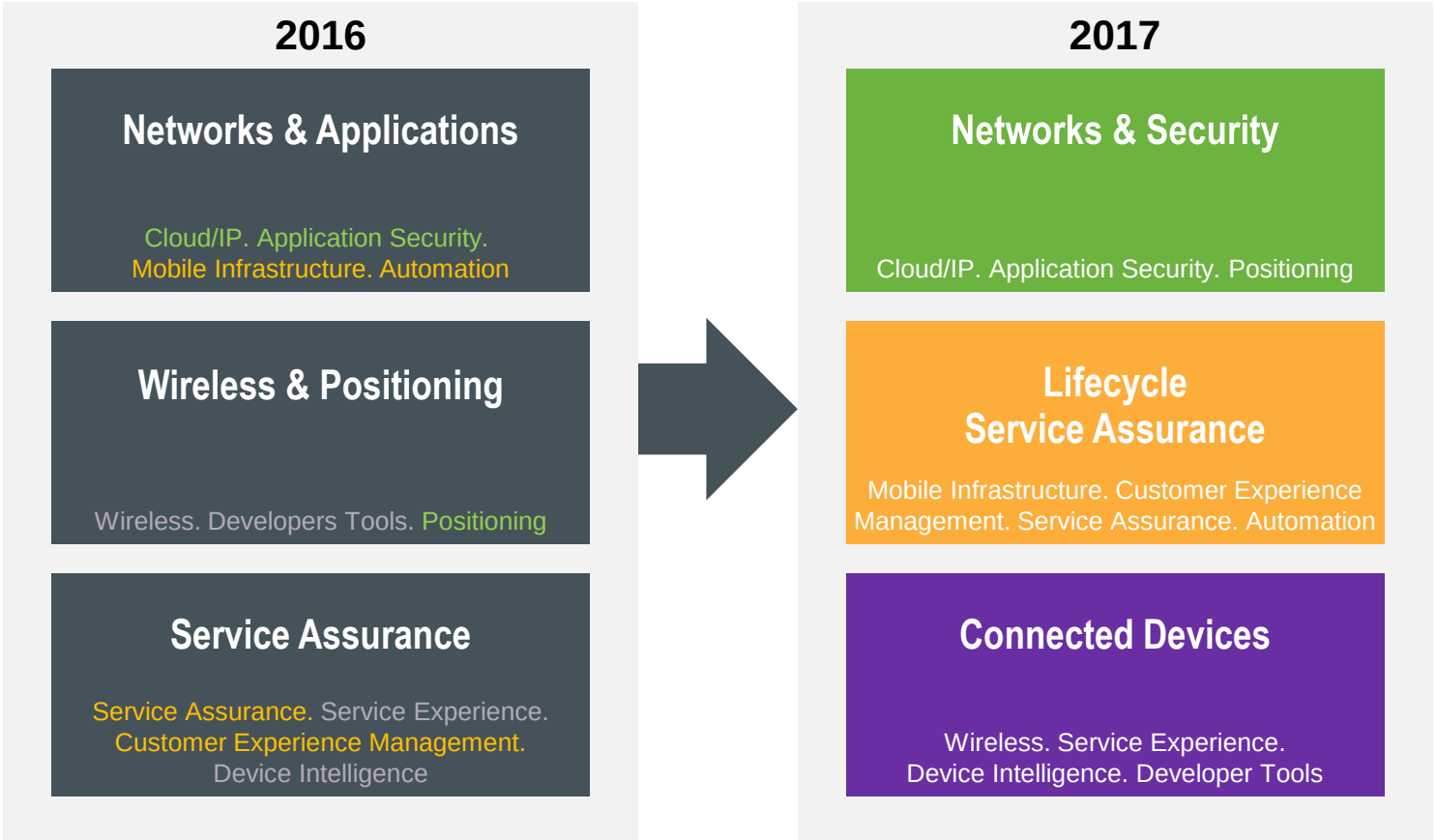
2016	Networks & Security	Lifecycle Service Assurance	Connected Devices	Spirent
Market	$1170M	$805M	$550M	$2525M
Market Growth CAGR 2016-2019	10%	7%	(3%)	6%
Revenue	$262M	$99M	$97M	$458M
Market Share	22%	12%	18%	18%

Driving Improved Returns

Paula Bell

Chief Financial Officer

Re-segmenting for Focus on Target Business Opportunities



Financial Summary Recap

$ million	2016	2015
Revenue	457.9	477.1
Gross profit	324.3	331.8
Gross margin (%)	70.8	69.5
Operating profit[1]	46.5	42.1
Operating margin[1] (%)	10.2	8.8
Cash	96.1	102.0
Basic EPS[1,2] (cents)	5.29	5.00

2016 Segments

$ million	Revenue	Gross margin (%)	Operating profit/(loss)[1]	Operating margin[1] (%)
Networks & Security	262.2	71	47.2	18
Lifecycle Service Assurance	99.2	78	11.2	11
Connected Devices	96.5	64	(4.4)	(5)
Corporate			(7.5)	
Total Group	**457.9**	**71**	**46.5**	**10**

(1) Before exceptional and other items
(2) Before impairment of investment in associate, prior year tax and tax on items in note (1)

Cash Generation

$ million	2016	2015
Free cash flow	25.9	35.3
Dividend paid	24.2	23.5
Dividend (cents)	3.89	3.89
Dividend (pence)	3.07	2.67
Cash	96.1	102.0
Cash conversion ratio[1]	0.8	1.2

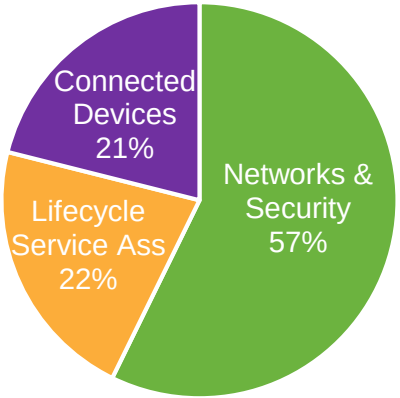
Strong balance sheet focus:

- Most of free cash flow distributed in dividends
- Strong Q1 2017, $115.8 million cash balance at 31 March

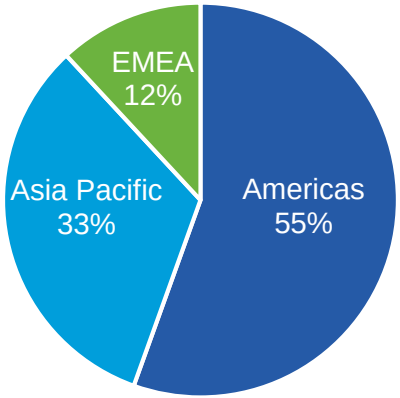
(1) Free cash flow divided by adjusted earnings

Strong Diversification

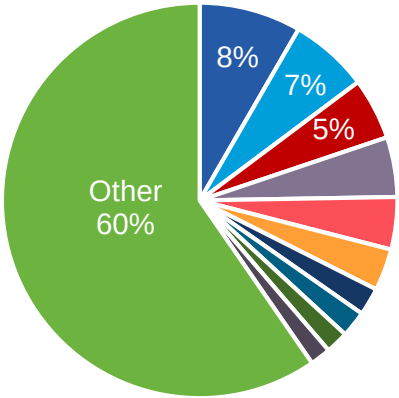
Revenue by Segment[1]



Revenue by Geography[1]



Revenue by Customer[1]



(1) 2016 data

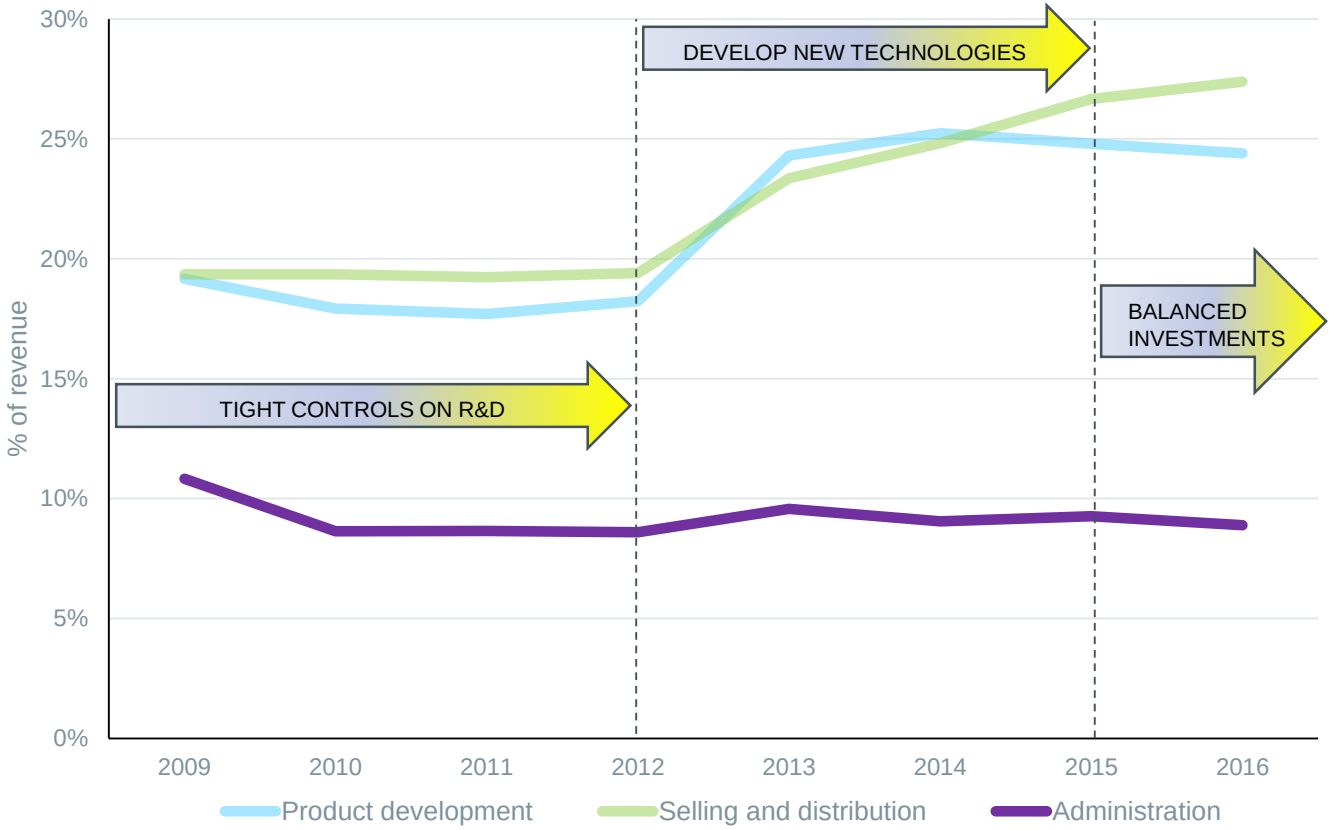
Managing an Effective Cost Base

$ million	2016	2015
Product development	111.7	118.3
Selling and distribution	125.4	127.2
Administration	40.7	44.2
Total overhead costs[1]	**277.8**	**289.7**

- Deploy external benchmarking
- Sales reorganisation underway, complete during 2017
- Focus on driving effectivity… more for less

(1) Before exceptional and other items

Investing for Sustainable Earnings



- Sales reorganisation underway
- New customer approach evolving
- Developing key account management
- Engaging with key customer - insights
- Further developing ROI metrics
- Synergies from new organisation

How We Decide Where to Invest

Invest in areas where the following criteria are met… to drive improving margins

Returns will be delivered by:

- Focused strategy
- Plans built on market growth drivers and disruption
- Maintaining leading technology
- Transition to more software sales will drive improved margins
- Being efficient - cost management focus: sales re-organisation, combining of business units
- Strong cash conversion

Focused Investments

Driving Growth

- Strong demand for Ethernet testing
  - Leading edge technology
- Recent investments driving new product launches
  - High-speed Ethernet portfolio additions
  - Application Security – Cyberflood, SecurityLabs
  - Positioning – multi constellation simulators, new interference detectors
  - VisionWorks assurance products and services

Networks & Security

Market growth	10%
Revenue	$262M
Gross margin	71%
Operating margin[1]	18%

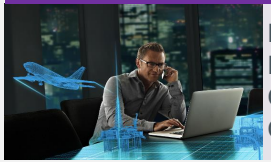
Lifecycle Service Assurance

Market growth	7%
Revenue	$99M
Gross margin	78%
Operating margin[1]	11%

Managing Technology Change

- Legacy to growth
  - Device testing decline
  - New 5G channel emulator investment

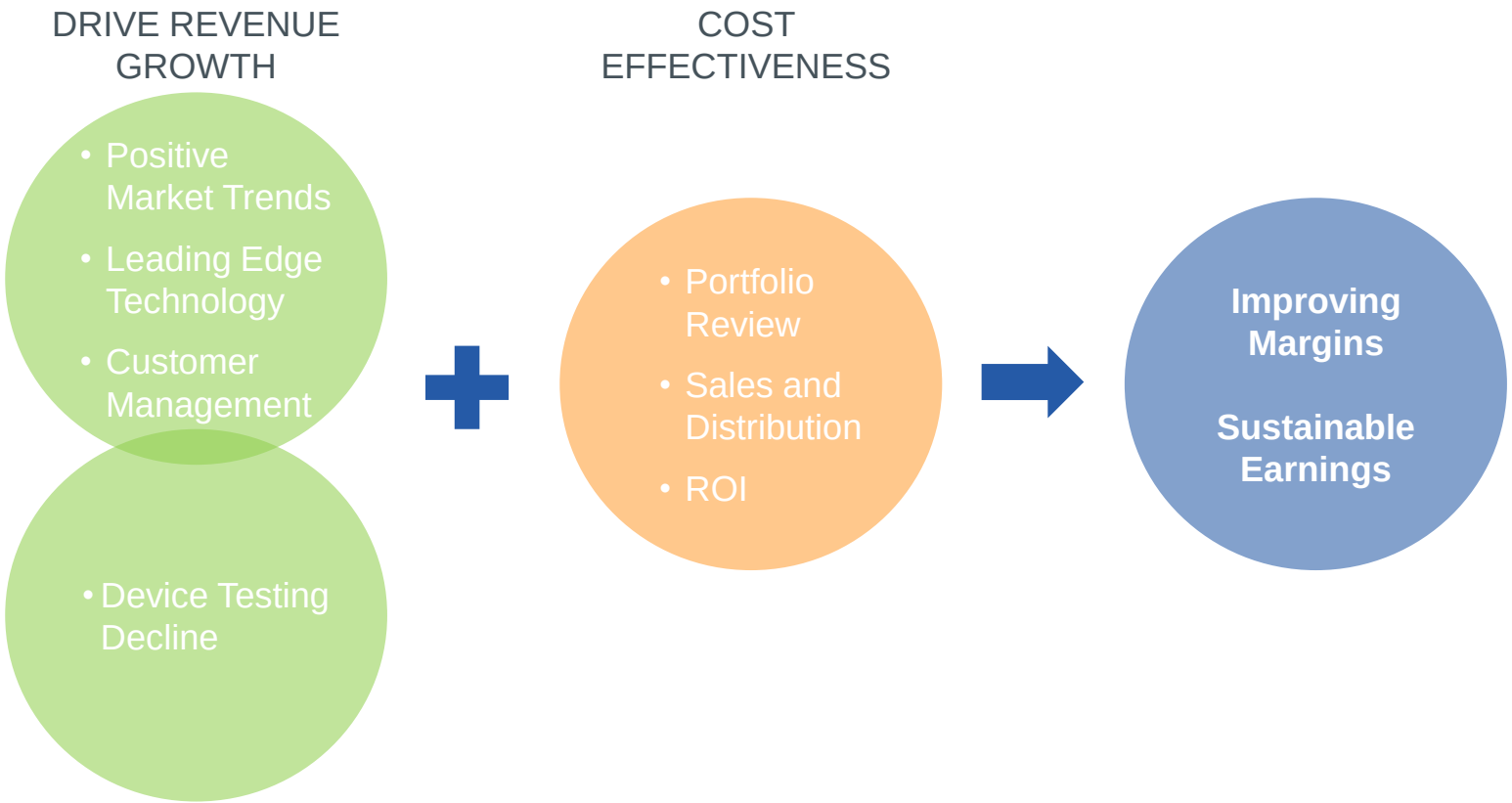
Connected Devices



Market decline	(3)%
Revenue	$97M
Gross margin	64%
Operating margin[1]	(5)%

(1) Before exceptional and other items

Actions are clear



Q&A

Coffee Break and Product Demonstrations

Product Demonstrations

Lifecycle Service Assurance	Dave Stehlin
Cloud & Virtualization Testing	Neil Holmquist
Cyber Security	John Weinschenk

Key Growth Initiatives

Spirent Strategic Direction

Vision

Experts in methodologies and solutions for the development and management of communication networks, connected devices and applications

Strategy

- Innovate easy-to-use test products & services
- Provide specialized and consultative sales & support

Strategic Objectives

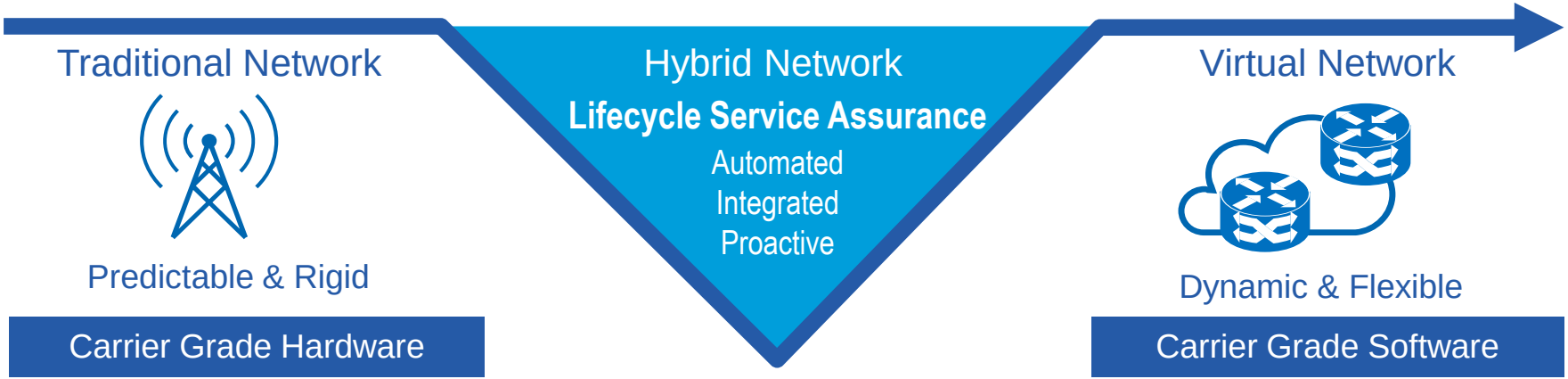
- Lead in high-speed Ethernet/IP and positioning
- Accelerate growth in cybersecurity and network virtualization
- Grow lifecycle service assurance business
- Explore new areas for future growth: 5G, autonomous vehicles
- Expand in large enterprise customers

Lifecycle Service Assurance

Dave Stehlin
General Manager

The Service Provider Material Economic Problem

SP's need to bring services to market faster and lower operating expense



Spirent LSA solutions deliver these benefits by automating lab & production testing and integrating proactive service quality assurance in physical, virtual & hybrid networks

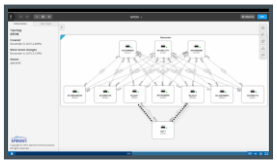
Our Differentiation/Competitive Advantage

Design | On-Board | Deploy | Operate | Maintain

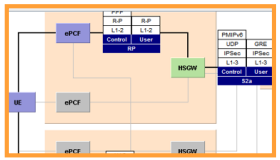
Development | Pre-Production | Production

Network Validation | Service Testing | Operational Assurance

iTest / Velocity

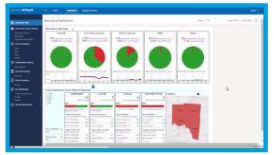


Landslide



Lumos

Analytics



Combining Products to Win in the Virtual Era

To create a platform uniquely positioned for the high-growth production NFV assurance market

We're combining lab & production solutions

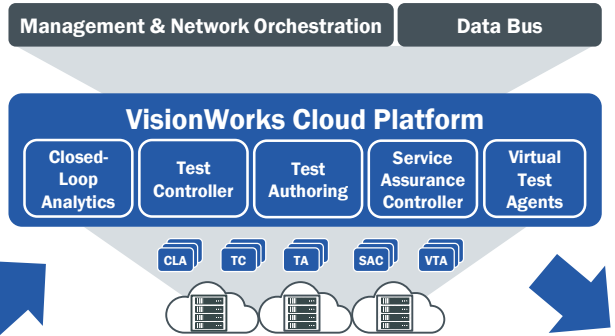
- Velocity
- iTest
- Landslide
- Cloud & IP
- Wireless & SE

Historically lab-focused solutions

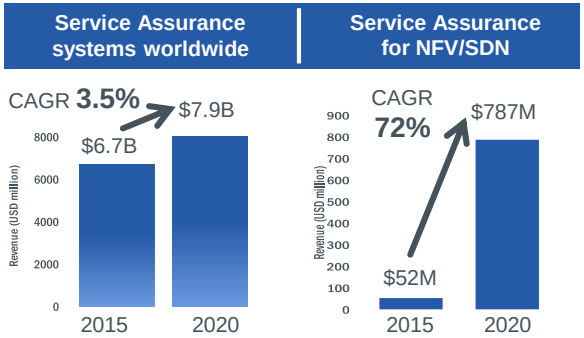
+

- InTouch
- Lumos
- 3rd Party
- Open

Production network solutions



- Rapid On-Boarding
- Reduced OPEX & CAPEX
- Differentiated Experience



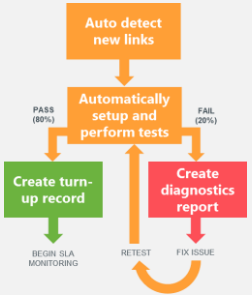
Source: Analsys Mason (Jan 2016)

Case Study: Large Improvements in Speed and Cost

The Challenge

- Roll out 50k+ small cells
- Use existing team to activate
- Activate >100 small cells / day
- Legacy process: <10 cells / day

Spirent's Solution



- Automate activation workflow
- Back-office system integration
- Integrated backhaul testing
- Auto-detect & test new links

Benefits Achieved

$ Reduced small cell operational deployment costs by millions

- *No additional staff*
- *Vendor agnostic improves efficiency*
- *Reduces manual testing by 95%*

Onboarded services faster, accelerating time to revenue

- *Activate >1,000 small cells per week due to automated process*
- *More than 10x faster time to revenue vs. traditional process*

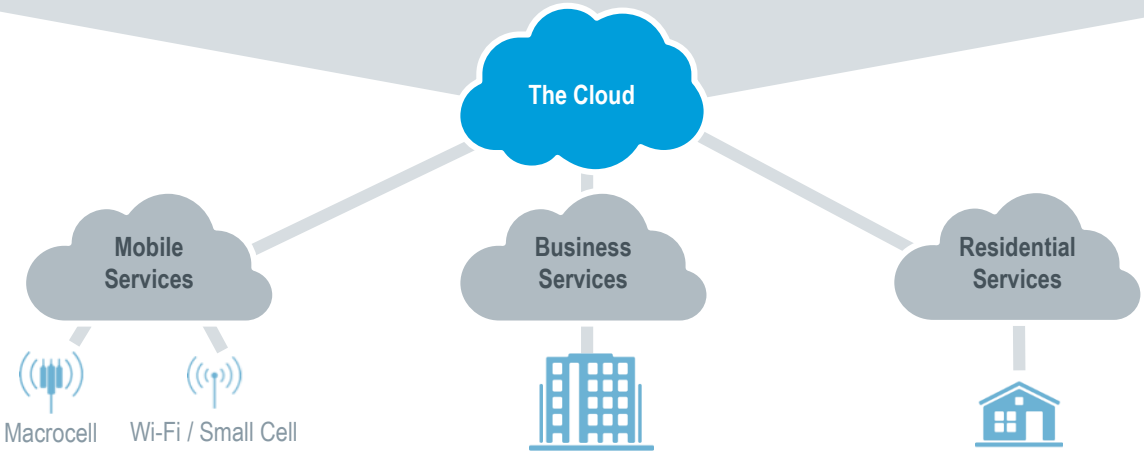
Deployed network faster, improving service experience

- *Small cells provide coverage in critical unserved areas*
- *Ability to deploy faster significantly improves service experience*

Providing Significant Value for our Customers

Actual benefits experienced by Communication Service Providers, Network Equipment Providers and Enterprises in lab & production environments

$30M+	$20M+	50%+	15%+	10x	80%+
Annual savings due to faster MTTR	Annual savings due to reduced SLA violations	Increase in Trouble Ticket Resolutions	Increase in first call resolutions	Faster releases, upgrades & turn-up	Increase in testing workflow efficiency



Summary: Well Positioned for the Shift to Virtualization

Accelerate & automate the entire service lifecycle

- Build on strong installed base with leading customers
- Create valuable synergy by integrating our broad set of network test elements
- Enable successful transformation to virtualized services with our holistic testing capabilities

High-Speed Ethernet/IP, Cloud & Virtualization

Neil Holmquist

Vice President, Marketing

Target Market Segments

Technology Providers

NEMs

Cloud/NFV Platform

3rd Party Test Labs

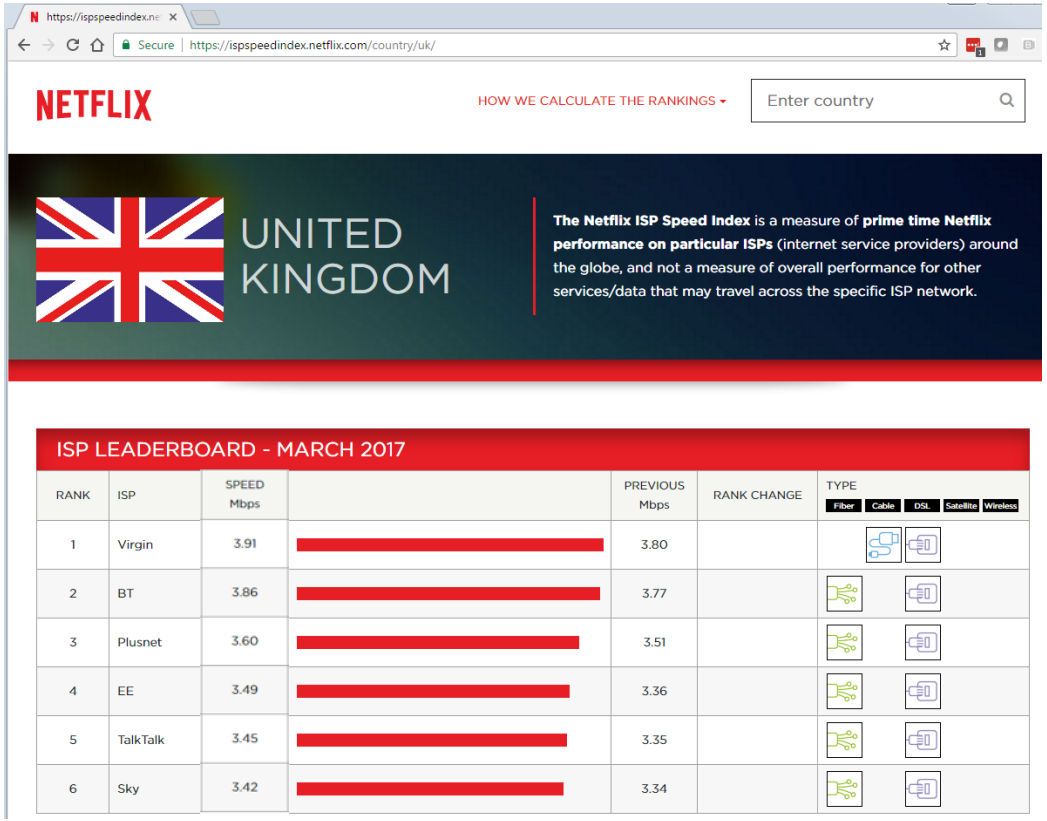
Service Providers

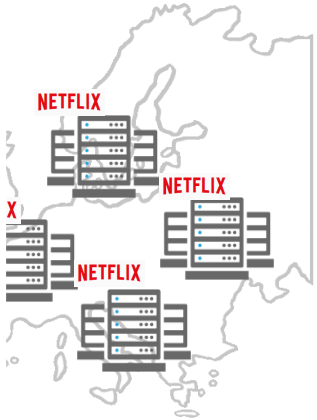
XaaS Providers

Enterprise & Government

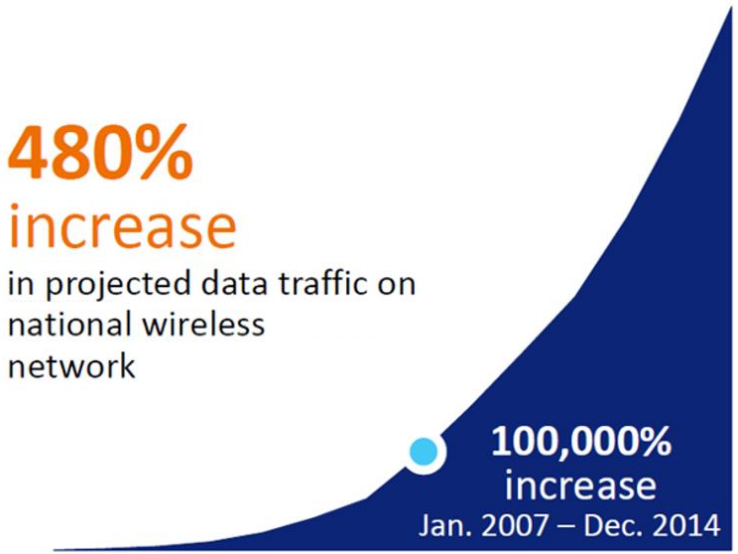
Our Insatiable Appetite for Content is Requiring Networks to be Upgraded…Constantly.

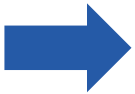
NETFLIX recommended speed	
SD	3.0 Mbps
HD	5.0 Mbps
Ultra-HD	25 Mbps

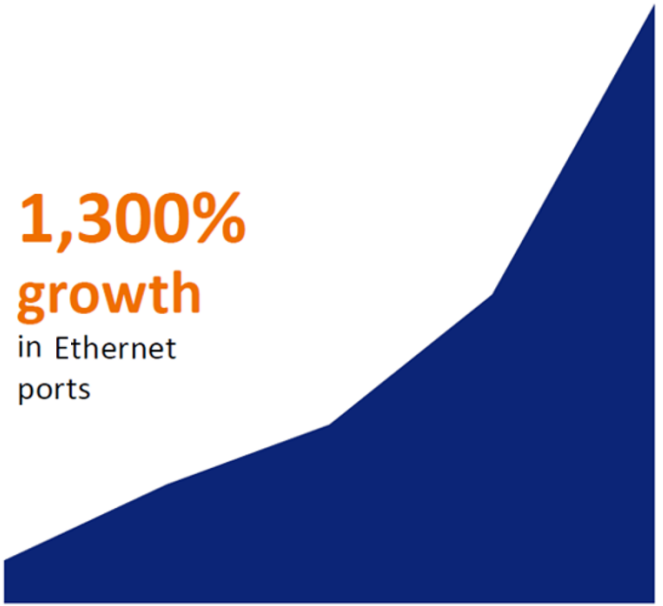




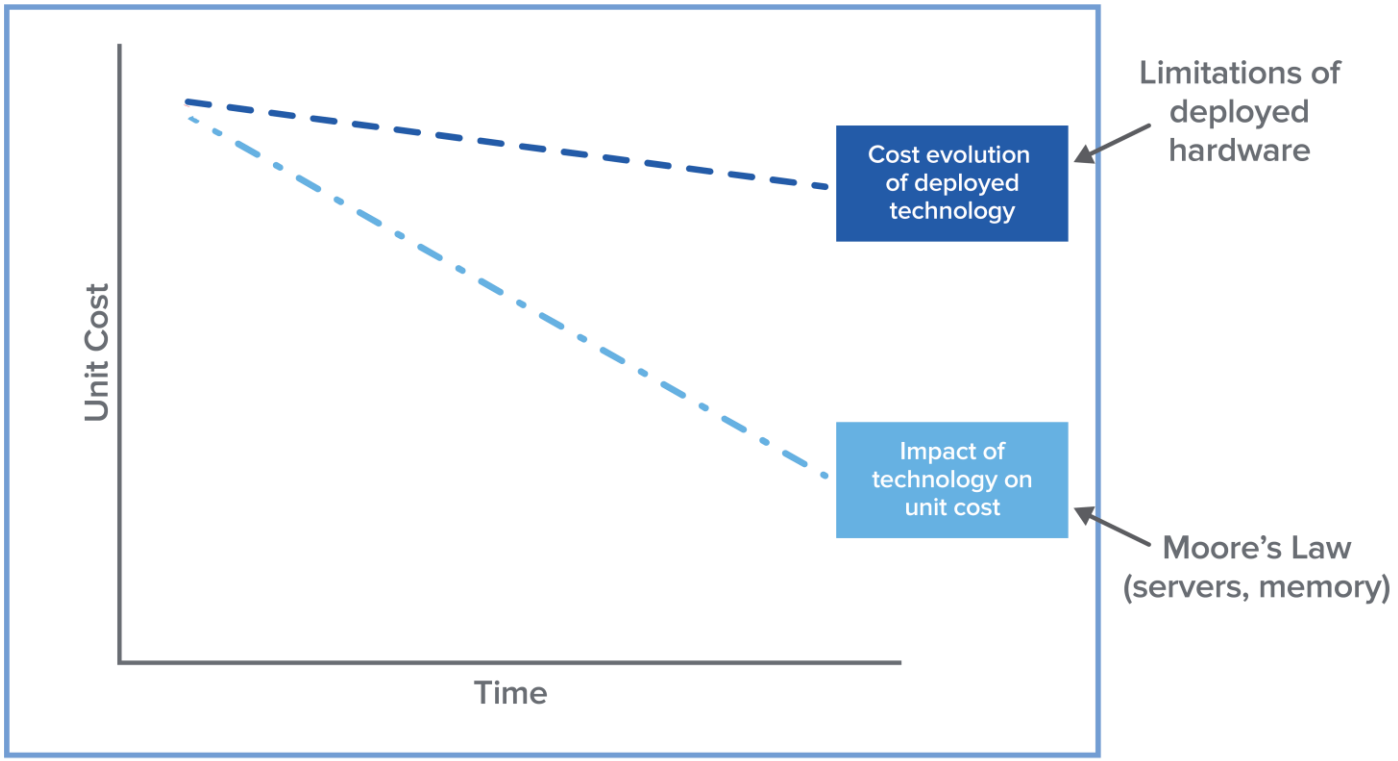
North America Service Provider Data Traffic Growth Projections





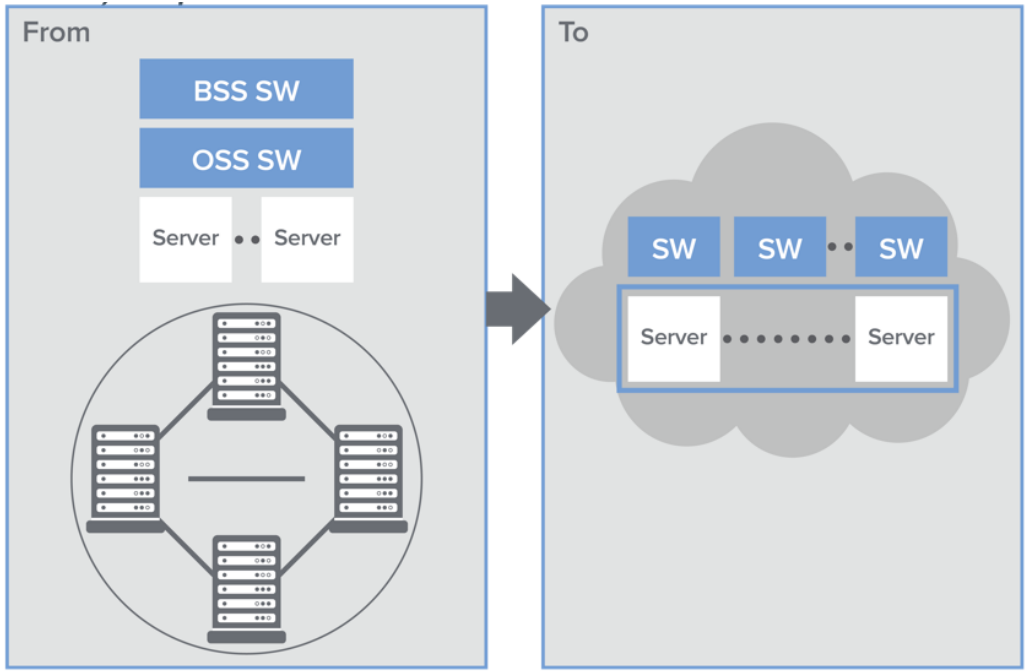


The Problem for Carriers: Traffic Growth vs. Cost Savings



The Solution: Move from Hardware to Software

Eliminate (or minimize) dependence on custom built hardware



When there is Innovation there is Change…

Where there is Change, there is a need to make sure it works

TESTED WITH SPIRENT

High-Speed Ethernet Product Portfolio

Industry-Leading Layer 2-7 Traffic Generation

DX
Data Density

FX
Flexible Functionality

MX
Multiprotocol Performance

Developing Technology for Tomorrow

Seven Speed Test Module with Fiber Channel
FX3 and MX3 (100/50/40/25/10GbE) with 16G & 32G FC

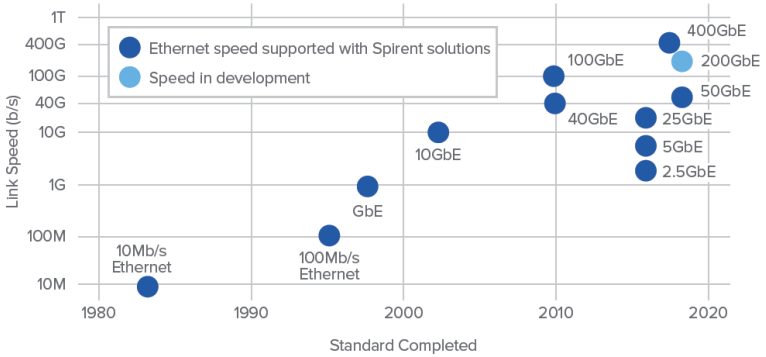
Twelve ports of DX3 100/50/40/25/10GbE

To Meet Your Testing Needs

Industry's highest density test systems including 400G since April 2016

Releasing 200G test modules in 2017

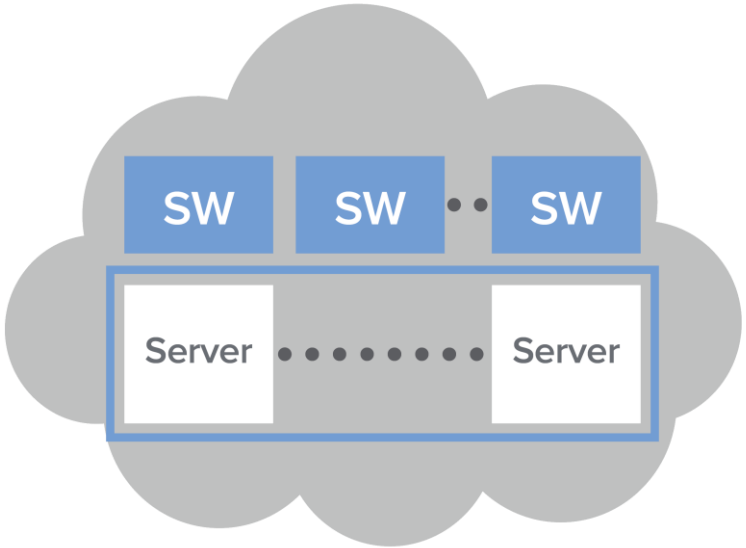
Evolution of Ethernet

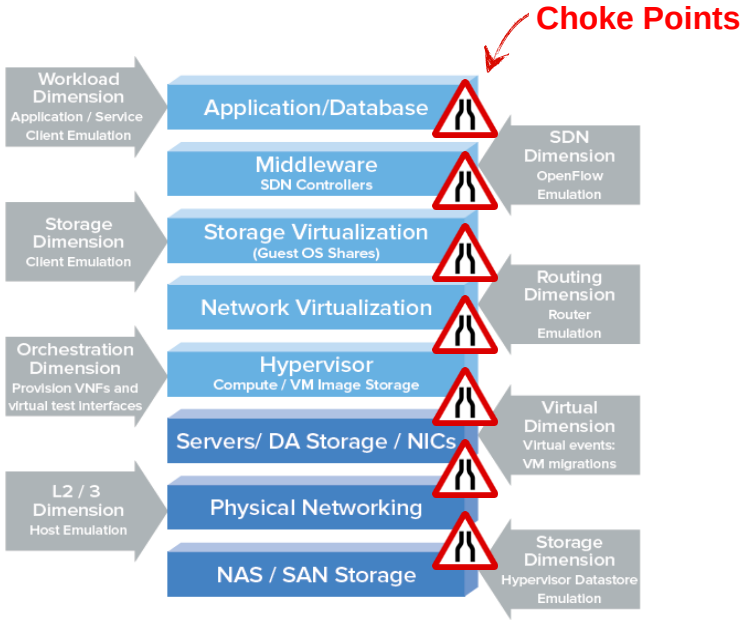


Helping our Customers build the Networks of Tomorrow

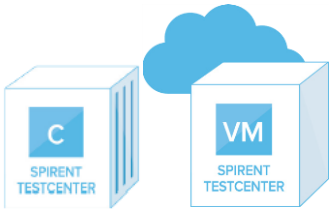
Networks will be Hybrid as not all services can be Virtualized – 99.999% reliability is required

Yet, Virtualization poses a complex new challenge





Virtual and Cloud Product Portfolio



CloudStress
One Click Cloud Validation

CloudScore
Cloud Health Check

All new speeds – 25G and 40G

- Industry's first 25G and 40G Virtual testing solution!
- Unparalleled throughput for ESXi and OpenStack based clouds

First to market advantage

docker
LXC
kubernetes

Cloud Native Ready

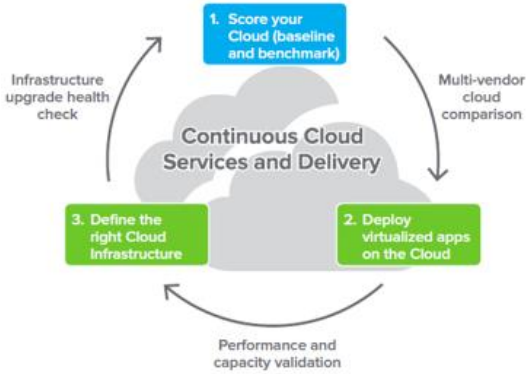
Spirent Virtual
on Amazon Marketplace

amazon web services

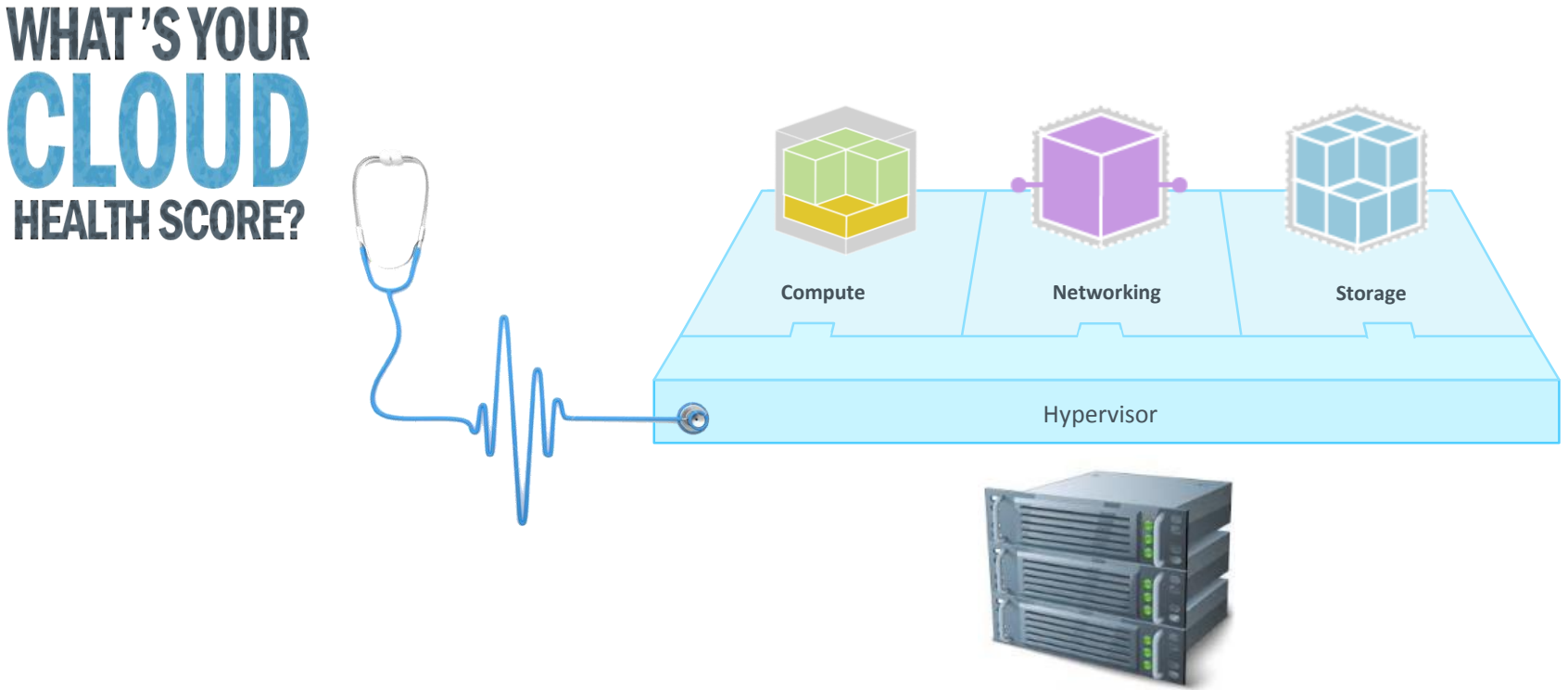
Spirent Virtual
on Azure Marketplace

Azure

Help build a better Cloud



Customer Situation/Use Case for Cloud Infrastructure



CLOUD HEALTH SCORE? **3.7**

Compute: 3.4
Network: 3.6
Storage: 4.0

Compute Networking Storage

openstack™ (Kilo)

DELL + intel

CLOUD HEALTH SCORE? **3.5**

Compute: 3.4
Network: 3.2 !
Storage: 4.0

Compute Networking Storage

openstack™ (Mitaka)

DELL + intel

CLOUD HEALTH SCORE? **3.8**

Compute: 3.6
Network: 3.8
Storage: 4.0

Compute Networking Storage

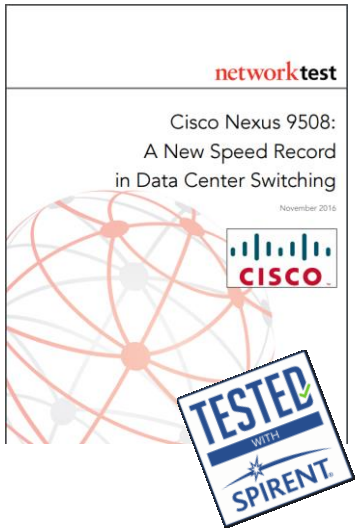
openstack™ (Mitaka)

Hewlett Packard Enterprise + Mellanox TECHNOLOGIES

SPIRENT

Customer Situation/Use Case for Network Test

Cisco positioning their products over bare-metal switches



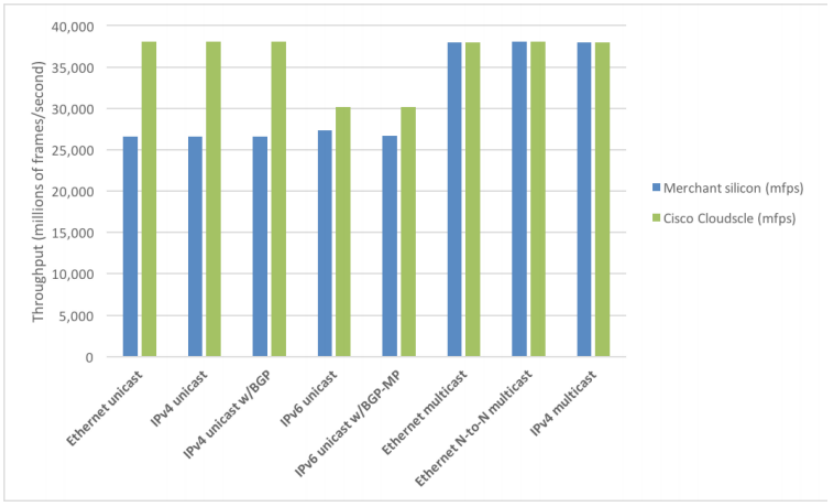
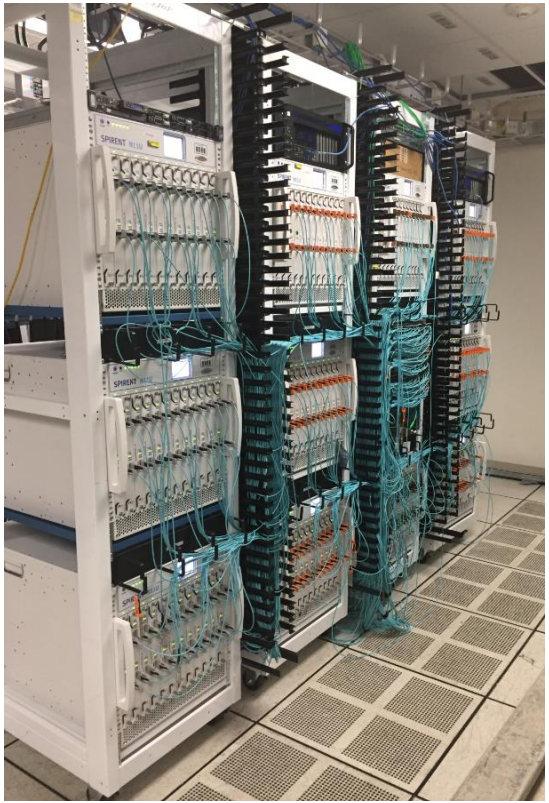


Figure 2: Comparing Cisco Cloudscale and merchant silicon throughput



Summary

- Spirent innovating with new technology for testing tomorrow's networks
- Established leadership in High-Speed Ethernet testing platforms
- Extensive existing customer base continuing to invest
- Expanding our customer base with cloud solutions
- Excited with opportunities of growth in our core and new markets

Security for the Connected Future

John Weinschenk
General Manager

About Spirent Security

Spirent reduces risk from hackers with Security solutions

- Helps customers proactively understand their security risk
  - Validating security arsenal can defend global threats while maintaining performance and reliability
- Provide consolidated intelligence needed to balance performance with security
- Addresses unique needs for core markets
  - equipment manufacturers, service providers, government entities and enterprises in regulated markets

Importance of Application Security

The connected world communicates through applications

- Security demand outpaces budget growth
- Ever changing threat landscape
- Deploying too many point solutions create information overload

Consolidated Security and Performance Intelligence – The Next Frontier

Hacking is like playing Chess

Single corporate email account password compromised

- Weak corporate policies make passwords easier to compromise

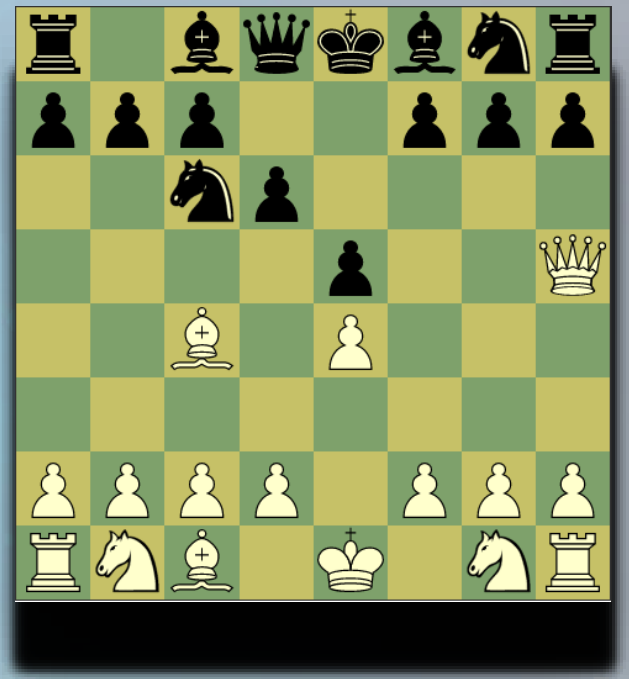
Compromised credentials used to gain access to GAL

- Should restrict access on computers able to connect to corporate GAL

Hacker tests all email addresses in GAL for weak passwords

- Should restrict who can export of GAL

Hacker able to leverage 100s of compromised credentials to access confidential systems



Evolving Our Value to our Customers

Security a natural progression

Validate network systems effectiveness

Test application authentication and authorization

Device hardware testing for unauthorized access

Mobile application & infrastructure security validation

Address unique security vulnerabilities presented in virtual and cloud environments

Security Solutions

Spirent Performance and Service Assurance Testing

Wireless & Positioning Device Manufacturers	Network Equipment Manufacturers	Network Operators	Enterprises & Governments

Spirent Security Solutions

Strengthen security for the connected future

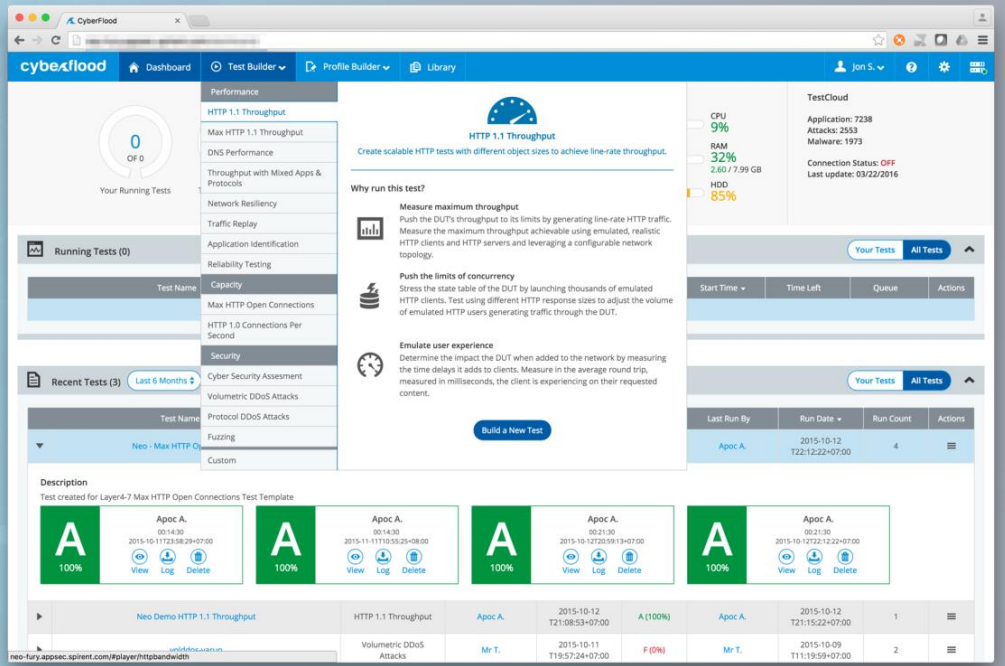
- validate security arsenal and mitigate risk
- intelligence to stay ahead of global threats
- maintain performance and reliability

Security and Performance Testing for App-Aware Solutions

Extending Your Cyber Security Team to Identify and Mitigate Risk

CyberFlood: Extending Our Core Expertise

- Advanced L4-7 Testing
  - Security Focused
  - Network Load/Performance
- Fast Growing Industry Verticals
  - Enterprise Security
  - IoT / Automotive
  - Virtual / Cloud
  - Critical Infrastructure
- Ease of use
  - Team testing
  - Intuitive user interface

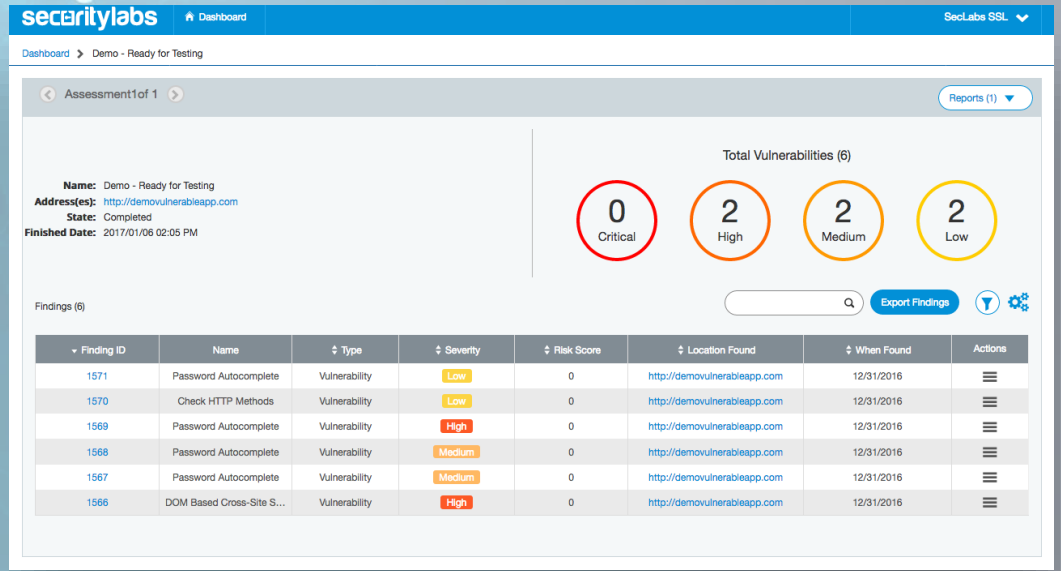


cyberflood

SecurityLabs Overview

Managed Vulnerability Scanning & Penetration Testing

- **Network** and Wireless
- Web and Mobile **Applications**
- **Devices** (SmartHome, Network Devices, Banking, Automotive)



securitylabs

Case Study: Automotive Infotainment System Manufacturer

- Unmet business need:
  - Test infotainment system for potential security vulnerabilities.
- Spirent solution:
  - Holistic penetration test to identify potential areas of compromise.
  - Ability to test for vulnerabilities within current technologies leveraged in connected cars to provide over the air updates (3G and 4G networks).
- Why we won:
  - The reputation of our SecurityLabs consultants as thought leaders in the Connected Car Security space.

Case Study: Large Regional US Hospital

- Unmet business need:
  - Security testing of NextGen operational surgical device used by hospital.
- Spirent solution:
  - Identification & impact of threats, and vulnerabilities, and map findings to HIPAA requirements.
- Why we won:
  - Real world understanding of complexities within hospital environment from mission critical components and secure network integrations with University partners.

Summary & Conclusion

Eric Hutchinson
Chief Executive Officer

Summary & Conclusion

Sharp focus on target market opportunities that matter most to our customers

- We have developed new products and services to meet the key market disruptions
- Shifted investments to selected priorities:
  - High-speed Ethernet
  - Cyber Security
  - Virtualization
  - Automated active test and analytics for service assurance
  - 5G wireless

Positioned to serve the needs to develop the smarter future

Final Q&A

Lunch & Product Demonstrations

Product Demonstrations	
Lifecycle Service Assurance	Dave Stehlin
Cloud & Virtualization Testing	Neil Holmquist
Cyber Security	John Weinschenk

Thank you

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Appendix

Sources

(1) Markets & Markets (M&M)
Report: Industrial IoT Market by Device & Technology, Software, Vertical, and Geography - Global Forecast to 2022 - February 2017
M&M forecast that "the Industrial IoT (IIoT) market was valued at USD 113.71 Billion in 2015 and is estimated to reach **USD 195.47 Billion by 2022**, at a CAGR of 7.89% during the forecast period." "The market for camera systems is expected to grow at the highest rate during the forecast period."

(2) Markets & Markets
Report: Smart Home Market by Product, Software & Service, and Geography - Global Forecast to 2022 – May 2016
M&M forecast that "the The global smart home market is expected to grow from USD 46.97 Billion in 2015 to **USD 121.73 Billion by 2022**, at a CAGR of 14.07% between 2016 and 2022." "Lighting control, security & access control, HVAC control, entertainment & other controls, home healthcare, and smart kitchen are the different hardware products used in the smart home market"

(3) BI Intelligence
Report: The Enterprise Internet Of Things Report for the Top IoT Sectors – November 2014
BI Intelligence forecast that "spending on enterprise IoT products and services will reach **$255 billion globally by 2019**, up from $46.2 billion this year, according to our estimates. This represents a 5-year CAGR of 40%.

(4) Gartner
Press Release: Gartner Says Smart Cities Will Use 1.1 Billion Connected Things in 2015 - March 2015
Gartner, Inc. estimates that "1.1 billion connected things will be used by smart cities in 2015 (see Table 1), rising to **9.7 billion by 2020**.
Smart homes and smart commercial buildings will represent 45 percent of total connected things in use in 2015, due to investment and service opportunity, and Gartner estimates that this will rise to 81 percent by 2020."

(5) Frost & Sullivan (F&S)
Conference: Connectivity and the Emergence of Smart Cities at Growth, Innovation & Leadership Congress (GIL) - November 2014, Australia
F&S forecast that "the global smart city market will be valued at **US$1.565 trillion in 2020**. Over 26 Global Cities are expected to be Smart Cities in 2025, with more than 50% of these smart cities from Europe and North America."

(6) BI Intelligence
Report: The Connected-Car Report: The Transformation of the Automobile – April 2016
BI Intelligence forecast that "over **380 million connected cars** will be on the road by 2021"

(7) BI Intelligence
Report: The Connected-Car Report: The Transformation of the Automobile – April 2016
BI Intelligence forecast that "Connected Car hardware and software will bring in **$152 billion by 2020**"

(8) Markets & Markets (M&M)
Report: Fleet Management Market by Deployment Type, Solution, Connectivity Technology, Industry, Service, and Region - Global Forecast to 2021 – September 2016
M&M forecast that "the fleet management market size is expected to grow from USD 9.54 Billion in 2016 to **USD 27.90 Billion by 2021**, at a Compound Annual Growth Rate (CAGR) of 23.9% during the forecast period. The major growth drivers of the market include the regular scheduled maintenance of fleet and the need to meet compliance requirements."

(9) Markets & Markets (M&M)
Report: Unmanned Aerial Vehicle (UAV) Market, by Application, Class, SubSystem, Energy Source, Material Type, Payload and Region - Global Forecast to 2022 – November 2016
M&M forecast that "the UAV (Unmanned Aerial Vehicle) market is estimated to be USD 13.22 Billion in 2016 and is projected to reach **USD 28.27 Billion by 2022**, at a CAGR of 13.51% during the forecast period."
"Based on application, the civil & commercial application segment of the UAV market is projected to grow at the highest CAGR, as UAVs offer attractive platforms for a broad range of potential applications, such as aerial remote sensing, greenhouse emission monitoring, and precision agriculture, among others."