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April 2004 - March 2005

Worldwide Satellite Magazine

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Magnetic variation *	AUTO	Antenna mispointing dB	0.3	
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Centre trequency GHz	14.5	Ad, salette int dil	27	
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Sain climatic cone	C	ES HPA 080 dB	1.0	
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EDITORIAL

Silvano Payne **Publisher**

Virgil Labrador

Managing Editor

and Editor, The Americas

Chris Forrester
Editor, Europe, Middle East
and Africa

Bernardo Schneiderman **Editor, Latin America**

John Puetz, Bruce Elbert
Dan Freyer, Howard Greenfield
Contributing Writers,
The Americas

David Hartshorn, Martin Jarrold Contributing Writers, Europe

Baden Woodford

Contributing Writer, Africa

Peter Galace
Art and Production Editor

Jill Durfee (jill@satmagazine.com) Advertising Sales

Joyce Schneider (joyce@satnews.com) Advertising Sales

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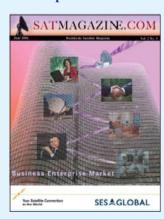
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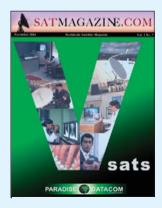
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PanAmSat is the leading distributor of television channels and HDTV signals in the world. The BBC, CNN, China Central Television, Fox Entertainment Group, MTV Networks, HBO, Sony, Starz Encore and ABCDisney are but a few of the world's leading broadcasters and cable programmers who utilize PanAmSat's satellites and ground infrastructure to distribute programming worldwide.

In addition, Internet service providers from Australia to Zambia access the U.S. Internet backbone over PanAmSat's global satellite system. Companies such as BT, Dacom, Direct-On-PC, Hughes Network Systems, IBM, Japan Telecom, Reuters, Telstra and Virgin Technologies all rely on the support and strength of the PanAmSat network for global connectivity.

As the world's first international operator of commercial satellites, PanAmSat has always been an industry innovator. PanAmSat pioneered the concept of dedicating satellites to



cable programming in the early 1980s, a distribution method that has since become an industry standard. The Company's Galaxy cable neighborhood combines the quality and costefficiency of its digital video distribution MCPC services with its prime domestic U.S. cable neighborhoods, which reach every cable system in the nation.

PanAmSat leverages its world-class satellite fleet and a 22,000-mile video fiber network to provide a range of services that include:

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Orbital Life Extension



Comtech EF Data: Optimizing Satellite Communications



Comtech EF Data designs and manufacturers a broad range of data and RF satellite communications equipment deployed in commercial and government applications around the globe.

As a subsidiary of Comtech Telecommunications (NASDAQ: CMTL), our mission is to be a worldwide supplier of high quality, high value satellite communications equipment.

With products installed in more than 160 countries, we have a solid reputation for providing unparalleled quality and reliability. Comtech EF Data is recognized as a technology leader and innovator, with offerings such as the industry's most bandwidth efficient forward error correction, an array of modulation techniques plus advanced IP-centric features for maximizing satellite communications links.

Typical Deployments

Comtech EF Data products are utilized to optimize satellite links in a variety of applications. Typical deployments include satellite operators, broadband and cellular service providers plus organizations with large or evolving satellite bandwidth requirements – enterprise, government, military education, oil & energy, maritime, enterprise, and more.

Data Products

The line-up of data products encompasses Satellite Modems, Monitor & Control Software and Performance Enhancement

Proxies. Available with countless configurations and options, our family of bandwidth efficient Satellite Modems provide:

- L-Band or 70/140 MHz
- Data rates from 2.4 kbps to 100 Mbps
- Selection of modulation techniques – BPSK, QPSK, OQPSK, 8-PSK, 8-QAM and 16-QAM
- Variety of Forward Error Correction – Viterbi, Sequential, Reed-Solomon, Pragmatic Trellis Coding Modulation, Turbo Product Coding & Low-Density Parity-Check Codes
- Bandwidth Doubling Technology

 DoubleTalkTM Carrier-in-CarrierTM
- Range of interfaces EIA422/5
 30, V.35, EIA232 and G.703 T1/E1, 10/100 Ethernet, ASI, LVDS & HSSI
- Local and remote management SNMP, Web, M&C port, front panel

With the flexibility and advanced feature set of our modems, customers are increasing satellite link efficiency, optimizing bandwidth and reducing the overall costs associated with satellite communications.

The IP-centric Modems take bandwidth optimization to a new level – improving transmission quality, enabling significant

bandwidth savings and increasing control of bandwidth provisioning. Combine turboIP® or turboVR TM into the equation and performance of TCP traffic over impaired satellite links can be accelerated, restoring network efficiency.

In conjunction with sister division, Comtech Vipersat Networks, we offer the Vipersat Management System, providing a seamless IP-based infrastructure for satellite networking. This advanced system automates bandwidth utilization based on application, load or schedule. It is scalable, designed to accommodate future growth and enable centrally managed networks.

RF Products

Comtech EF Data's RF products include Converters, Solid State Power Amplifiers (SSPAs), Transceivers and Accessories for a range of frequencies, including L-, C-, X- and Ku-Bands. Deployed globally, our cost-effective RF products provide the performance and reliability required to support your satellite communications needs.

<u>Memotec – Subsidiary of Comtech</u> EF Data

Memotec enhances our ability to deliver network optimization and bandwidth efficiencies. The enterprise and carrier products provide new ways to reduce network costs without sacrificing service integrity. The CX enterprise products deliver access solutions that maximize satellite transport network efficiencies, dramatically reduce bandwidth requirements, and preserve the integrity of legacy and nextgeneration applications and technologies.

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ANACOM, INC.

naCom, Inc., the industry Aleader manufacturing of outdoor Transceivers for VSAT and Satellite Communications, manufactures a complete line of Outdoor Transceivers for Satellite Applications in C-band (Extended and Super Extended, Insat, Palapa, and Russian configurations) and Ku-band (Standard, Extended and Super Extended configurations). Most major telecommunications companies rely on our robust satellite products to connect customers in the farthest reaches of the Arctic Circle to the most remote stations in Antarctica, and all around the Equator.

AnaCom has brought its technical expertise and vast experience from producing VSAT transceivers to a new family of L-band BUC products. Similar to the present family of transceivers, the L-band product has the same rugged construction for continuous outdoor performance in all types of harsh environments. The product is easily suited for SCPC, MCPC, IP, VoIP and DAMA applications. With breakthrough design and manufacturing innovations, AnaCom is a pioneer in making affordable next-generation communications services a reality.

Our C and Ku-Band VSAT transceivers are highly integrated outdoor units. Equipped with full-featured monitor and control functions. They are available in single or redundant configurations. Available C-band power levels include 0 dBm drivers, up to 100W units. Available Ku-band power levels include 0 dBm drivers, up to 125W units.



Anacom 125 Watt Ku-Band transceiver

The Company has an excellent reputation for consistently developing products that lead the industry in terms of quality, reliability and ease of use. Its strong design and engineering capabilities allows AnaCom to maintain lower product costs for its efficient system design. Product offering covers all satellite commercial frequencies.

Headquarters is located in a
Technology Park in Los Gatos,
California, which resides in the heart of
Silicon Valley. AnaCom has worldwide
distribution network that both
integrates and resells the company
products. These transceivers are used
in approximately 75 countries
worldwide, and are certified for use in
most of the world's satellite systems.
The Company also has strong service
and maintenance centers through its
partners in China, Europe, India,
Korea, Latin America, Taiwan and
Thailand.

AnaCom's growth strategy is to continue to offer high performance, software-controlled products, which provide the most effective use of satellite power and bandwidth, as well as compatibility with the most

advanced satellite networking technologies.

The Company's leadership team has extensive experience in the satellite communications industry. A group of high skilled engineers are responsible for the design, engineering and customization of the VSAT transceivers. AnaCom has also developed proprietary software that allows full maintenance of the VSAT transceiver from a remote location, lowering maintenance costs. AnaCom's transceiver products are known for their efficient design, reliability, ease of use, and low cost. They provide excellent reliability in a wide range of environments and functions. The current product line, designed for outdoor installation, performs with excellent reliability in environments ranging from desert to artic, humid to dry and stationary to mobile.

In today's market, AnaCom is ahead of the race in the competitive satellite communications market due to its ability to continue to offer high-performance, software-oriented satellite transmitters, which provide the most effective use of satellite power and bandwidth, as well as compatibility with the most advanced satellite networking technologies. AnaCom, Inc. – where Customer Satisfaction is Priority # 1 and where you find the solution for all your transceiver applications.

For the latest in transceiver technology, check out www.anacominc.com

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Globecast

Innovating satellite content distribution with new technologies

About GlobeCast

GlobeCast – a subsidiary of France Telecom – owns and operates the largest global content distribution network spanning five continents and serving a diverse base of customers, including broadcast, enterprise, retail and government.

The company's ground assets include 15 teleports and technical operations centers interconnected by a proprietary fiber ring, all of which operate seamlessly to push content over150 satellite transponders on more then 10 satellite systems worldwide. The end result is a one-stop global shop for cable and DTH delivery, contribution services, enterprise networks and new leading-edge applications such as IPTV.

Wireless Content Management

At NAB, GlobeCast is announcing its latest contribution delivery service WING - Wireless Content Exchange Network – a proprietary global IP-based contribution exchange using fiber and satellite to manage global content ingest, storage and live-to-air streaming direct from the laptop. The service will initially target news organizations to capture a growing demand for laptop newsgathering, an increasingly preferred method for television reporters to file, edit and broadcast news reports over the Internet from the field.

File-based content exchange networks allow reporters to file



stories – live or recorded – directly from any laptop or workstation over any wired or wireless Internet connection to a central exchange hub, which controls and routes the news flow to the newsroom. WING exchange servers will be based at GlobeCast's transmission centers around the globe and content will flow to customers via satellite and fiber depending on configuration, in a fully secured environment.

IPTV for Broadband

On the IPTV front, GlobeCast has joined forces with Eagle Broadband, a leading provider of broadband technologies to introduce IPTV CompleteTM, the first, turnkey IPTV product that enables telephone companies, municipalities, utilities, universities & real estate developers to rapidly deliver more than 200 channels of the highest quality, IPTV video services anywhere in America. The offer includes the largest IPTV package of standard, premium and high definition television programming, video-on-demand, pay per view and digital music available in America with full IP multicast video content rights for distribution over fiber, DSL and

other private IP networks. The all-inclusive also provides IP headend, middleware, satellite distribution and set top boxes with integration and installation within 60 days.

Store & Broadcast To support migration

by programmers to non-linear content distribution, GlobeCast is transforming its teleports to Store & Broadcast facilities, to allow broadcasters to store their video and push content via DVB servers housed on GlobeCast premises. Transmission and content management are controlled remotely by the customer through secured Internet links.

Migrating Transmission Standards One of the greatest challenges facing programmers is how to migrate between multiple transmission standards to satisfy headend and last mile delivery for a diverse end-user market. GlobeCast is re-engineering its technical facilities to manage content in MPEG-4 and Windows Media 9 as well as in various HDTV and IPTV standards, in addition to traditional MPEG-2 and analog. The result is a global teleport and fiber network capable of ingesting any distributing and broadcast standard worldwide.

For more information on GlobeCast and its diverse portfolio, visit: www.globecast.com

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L-3 Narda Satellite Networks

Providing State of the Art Communications Products

Tarda Satellite Networks is a division of L-3

Communications

Inc. For more than 50 years, Narda has developed and manufactured microwave components, oscillators, frequency synthesizers and broadband amplifiers. The company's commitment centers on quality products for the commercial, military and industrial markets. Narda is the major microwave component division of L-3. Its New York home is a 150,000 square

foot manufacturing facility producing ISO 9001 certified technology that spans numerous markets and industries within the telecommunications arena.

Building upon that heritage, the company's recent merger with L-3 Satellite Networks is providing new depth to Narda's satellite communication products. Some of Narda's products include intelligence, surveillance and reconnaissance systems; secure communications systems; avionics and ocean products; microwave components and telemetry; and space and navigation products.

In addition to its classical products, Narda can now offer the products that evolved from LNR, one of the original pioneers in high performance satellite communication ground equipment. These products serve the non-defense satellite communications



Narda's New York home, 150,000 sq. ft., stae-of-the art manufacturing facility

markets and are directed at gateway and teleport applications. The products can be found in a wide range of satellite communications applications, including Internet satellite service, traditional teleports, very small aperture terminals (VSAT's), SNG and digital video broadcasting. There is an existing installed base of equipment at more than 1,000 locations worldwide over 110 countries. Narda Satellite Networks products are supported with 24/7 customer service. Narda's SATCOM products include:

Converters

- 'Off the shelf' M2 Series for most C and Ku band applications
- High Performance M Series providing 1KHz or 125 KHz frequency steps for operation in L, C, X, Ku and Ka Bands
- Dual V2200 Series in single 1U rack for C and Ku band
- Redundancy Switches
- 1:1 and 1:N Configurations
- Band Translators
- Test Loop Translators
- LNA's

Narda is also the leading supplier of RF safety equipment to the telecommunications market and offers personal monitors, site and area monitors and site survey equipment.

In addition Narda supplies a line of RF and Microwave components including couplers, power divers, attenuator specifically suited for communications applications

Narda for where quality is a commitment to our customers Narda's New York home is a 150,000 square foot state of the art manufacturing facility with a commitment to total quality.

Demonstrating the capabilities that have kept it a prime supplier of RF components, RF safety instruments and satellite communications systems for fifty years.

Narda is the:

- Leading Catalog Supplier of Connectorized, Broadband RF Components for Test Equipment Applications
- Leading Supplier of Satellite Communications Systems to Defense Services
- World Leader in Non-Ionizing Radiation Detection Equipment

Narda's products are used for communications, industry and defense electronics.

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MITEQ: A Technology Driven Company

Established in 1969,
MITEQ has been committed to designing and manufacturing state-of-the-art microwave components and subsystems.
With the continuous investment in technology development, the MITEQ product line continues to grow in scope and complexity.

The recent acquisition of MCL Inc., a designer and manufacturer of high power amplifiers (HPAs), greatly enhances the ability to serve the needs of MITEQ's customers in the SATCOM field. MITEQ will be expanding resources to continue MCL improvements in new product development, quality of product and customer service.

The addition of HPAs to the MITEQ product line and the internal developments in fiber-optic components for high-speed fiber-optic communication circuits further establishes MITEQ as a multi-faceted communications company, pushing the boundaries of technology development.

It is an understatement to say that MITEQ offers a wide selection of products. In fact, "we have such a broad product line that we work virtually for most of the U.S. and international system companies", says President and CEO Arthur Faverio.

These companies choose MITEQ because of its high quality



products, which are designed and supported by the MITEQ engineering staff. "It's the level of technical competence", Faverio says, "plus competitively priced products built with a high level of quality and reliability, all supported by our customer service". All MITEQ products are backed with an extended warranty.

The emphasis on technical competence and product quality is a primary reason for success. MITEQ is comprised of 14 separate product units, each one headed by an engineer. When it comes to product design and service, it's an engineer who's behind it all: one who understands the products' application and the importance of engineering product development. MITEQ was founded on this principle and its success is based on the technical aspects of the customer interface. This includes the MITEQ sales/ marketing staff, all of whom are technically educated.

Although there are separate product units, the technology that is developed by each unit is shared throughout the company. The major benefactor of this structure is the communications systems group. "We can draw from the technology of all of MITEQ's

component areas to assemble the most comprehensive line of satellite communications frequency translation products in the world," Faverio says.

The communications products group manufactures upconverters, downconverters, test loop translators, redundant switchover units, redundant low noise amplifier systems and a wide range of equipment for Inmarsat applications. Although the emphasis of these products is in the L-, C-, X-, Ku-and Ka-bands, the frequency capabilities of current components and system products extend from video to 60 GHz

MITEQ offers dual conversion, synthesized upconverters and downconverters, which are available in 1 kHz and 125 kHz steps in a single-rack panel height unit. These converters offer complete remote control capability over a variety of remote interfaces (RS232, RS422, RS485, IEEE 488 and contact closure).

In short, when it comes to RF satellite equipment, MITEQ pretty much has it all. And if they don't have it, they can probably build it on a custom basis to fit the customer's needs.

For more information go to www.miteq.com

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Loral Skynet

trusted name in the satellite industry for more than 40 years, Loral Skynet combines a wide range of fixed satellite services with an established hybrid VSAT / fiber global network infrastructure to provide a unique, single source vendor solution for our clients' broadcast, data network, Internet access, IP and systems integration needs.

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reliability, security, and high throughput are required.

- Internet for ISPs—
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ILC's *MaxView:* Affordable and Complete Network Control

TBC needed software that could reliably automate digital video/ data feeds between the NBC Network, MSNBC, CNBC, 14 NBC ownedand-operated stations, and 172 NBC affiliates. This is why NBC chose MaxView: Made by ILC (www.ilc.com), MaxView is 'network control software' that stands head and shoulders above ordinary Monitoring & Control (M&C) software or typical network management systems. "The challenge of implementing a newly digitized, nationwide system with varying hardware and software is considerable," explains Larry Thaler, NBC's Director of Distribution Projects.

NBC isn't the only major U.S. broadcaster to choose *MaxView*. PBS has also deploying this software at its primary and back-up broadcast facilities to monitor and control program delivery to its 349 member stations. With *MaxView* in place, PBS operators find it far easier to deal with primary network transmission problems by quickly switching to broadcast from an alternate location.

"MaxView will help our operations staff to work more efficiently," says Bill Hull, PBS' director of satellite operations.

How can one software package do



so much? "The answer is that *MaxView* is a 'Total Control System' that quickly integrates all nonstandard legacy equipment and next generation networks into one easy-to-control system," replies ILC Vice President and COO Mark Krikorian.

Here's how MaxView does it:

First, MaxView is network- and equipment-agnostic: it takes whatever the client has in the network and makes it all work together in a single environment with a single user interface. This includes satellite and terrestrial networks, proprietary and open standard systems.

Second, *MaxView* is easy to configure. Simply drag-and-drop the components you need in the layout you like to create the custom network management system that fits your organization.

Third, *MaxView* is based on a distributed processing system. Clients can run MaxView on a single computer or across a number of networked low-

cost computers, to provide the M&C management power of a mainframe without the cost or the centralized vulnerabilities.

Fourth, *MaxView* meets the high standards of the U.S. Department of Defense. Specifically, *MaxView* is DII-COE Level 6 Compliant, with a clear migration path to Levels 7 and 8.

Fifth, MaxView is the fastest-installed M&C system in its field: from a couple of weeks for small networks, to four to six months for million-device networks. "Our implementation period for NBC took less than six months," says Krikorian. "That's unheard of in this industry."

Finally, *MaxView* is affordable. This is because *MaxView* is an off-the-shelf application that is easily customizable, rather than a custom application whose cost is borne by a single client.

Put all these features together, and you can understand why *MaxView* is the choice of NBC, PBS, DIRECTV and Echostar, plus Globecast, Telmex and the U.S. Army. "Availability is of the highest importance to our customers," says ILC President and CEO Richard Graham. "*MaxView* enables network managers to deliver service over hybrid networks with the reliability and flexibility they demand." For more information, visit us at www.ilc.com

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ABOUT THE AUTHORS



In addition to being managing editor of SATMAGAZINE, **Virgil Labrador** is the editor of the subscription daily service, Satnews Daily and the free weekly website, Satnews Online. He can be reached at <u>virgil@satnews.com</u>

Thomas van der Heyden is the Managing Director of Asian-Pacific Consultants, Ltd., Singapore. Tom can be reached at vanderheyden thomas@asian-pacific.net



London-based **Chris Forrester**, a well-known broadcasting journalist is the Editor for Europe, Middle East and Africa for SATMAGAZINE. He can be reached at chrisforrester@compuserve.com



David Hartshorn is Secretary General of the Global VSAT Forum, the Londonbased non-profit international association of the VSAT industry.





Bruce Elbert is the President of Application Technology Strategy, Inc., which assists satellite operators, network providers and users in the public and private sectors. He can be reached at bruce@applicationstrategy.com

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Martin Jarrold is Director of International Programs of GVF. GVF provides the monthly, *Market Intelligence* section of SATMAGAZINE. David can be reached at david.hartshorn@gvf.org and Martin at martin.jarrold@gvf.org

Dan Freyer is Marketing Director, Americas, for GlobeCast. He is also the President of the Society of Satellite Professionals International (SSPI), Southern California. He can be reached at daniel.freyer@globecastna.com



Howard Greenfield is a freelance writer who has held leadership roles in Fortune 1000 and some of Silicon Valley's top companies. He is principal of Go Associates, a leading consultancy that develops and implements high tech product marketing and business development strategies. He can be reached at: howard@go-associates.com



John Puetz is president of MasterWorks Communications (www.mwc.cc), a business and technical consulting services firm specializing in satellite communications. He can be reached at john@mwc.cc



Bernardo Schneiderman has over 20 years of experience in Satellite Communications and is the President of Telematics Business Consultants based in Irvine, CA. He can be reached at tbctelematics@cox.net

Alan Gottlieb is CEO and Principal Consultant at Gottlieb and Company, Inc. He can be reached at agottlieb@gottliebandcompany.com

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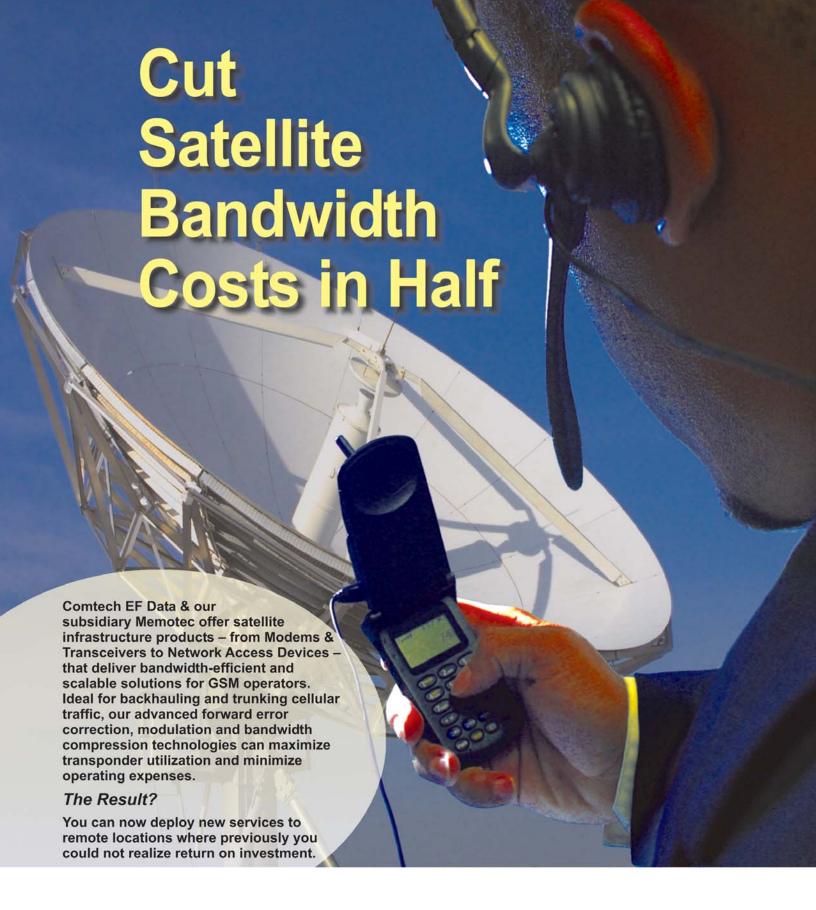
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