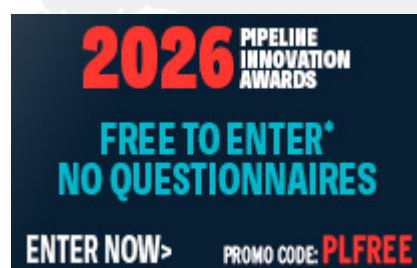


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PIPELINE / VOLUME 22 / ISSUE 3

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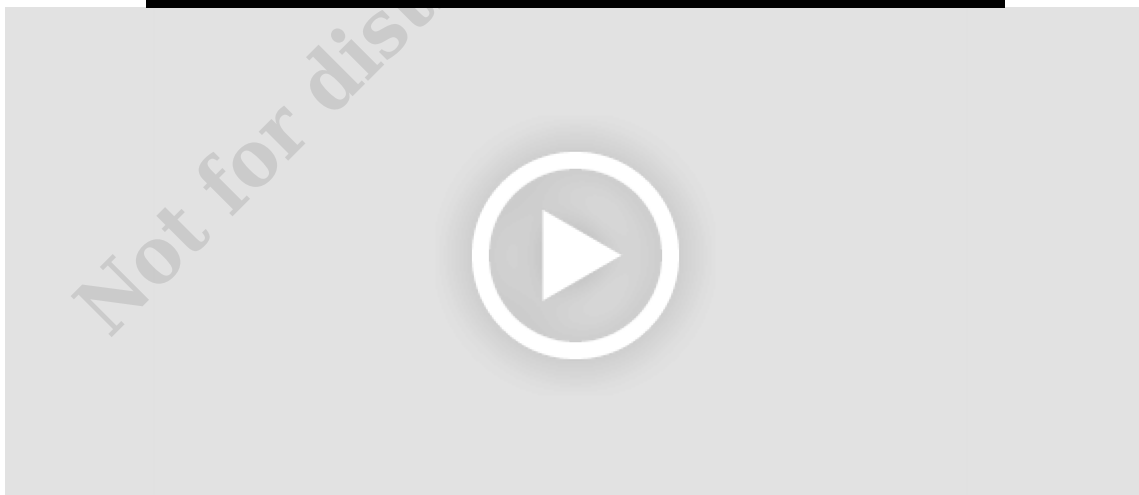
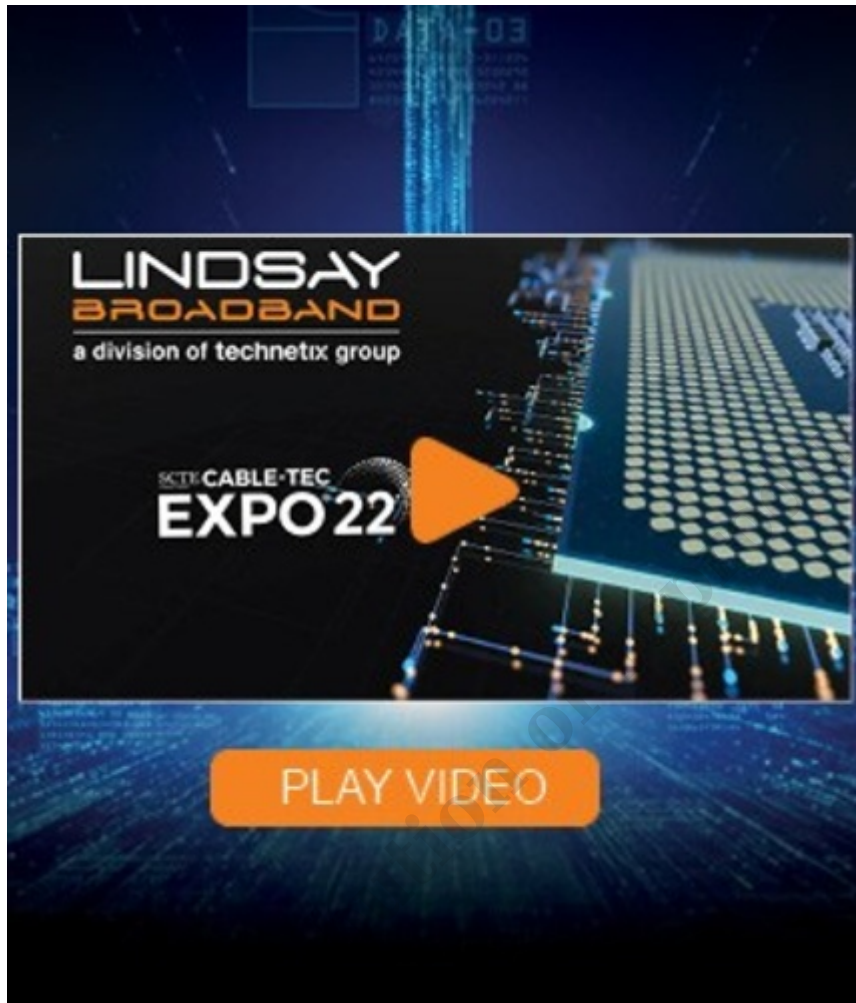
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## Featured Content

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### End-to-End Solutions for Broadband Networks

In case you missed Lindsay Broadband - a division of Technetix group at the SCTE Cable-Tec Expo, this video highlights the must-have, end-to-end solutions for your network.





## Predicting Colonial Pipeline: Mitigating Risk and Compliance

Mitigating risk and compliance for lawful intercept using lawful intelligence is explored in this Pipeline article feature SS8. Learn how CSPs can comply with lawful intercept regulation, while empowering law information with critical, real-time data.





### Podcast: The Evolution to 6G

The world's eyes are already looking forward to the potential of 6G. Demands resulting from innovative use cases, for instance specific requirements from different industries and other user groups, as well as overarching goals like sustainability, are driving the standardization and development of mobile technologies.

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## The Impact of Transformation

*A Dynamic Panel Discussion Featuring  
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## The Network Transformation Imperative

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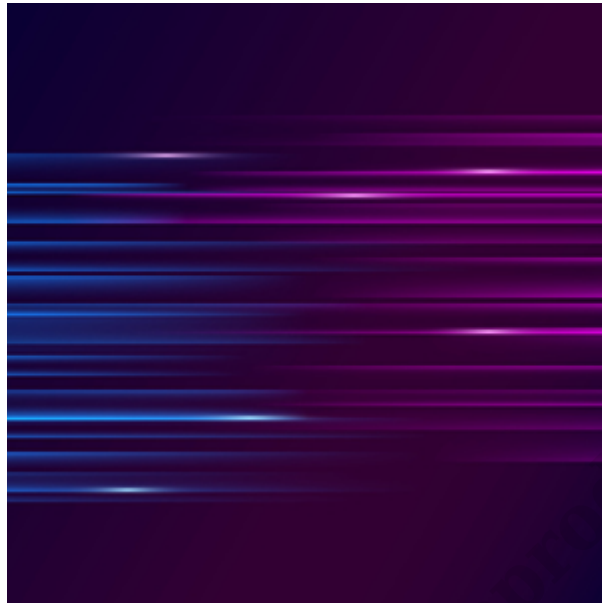
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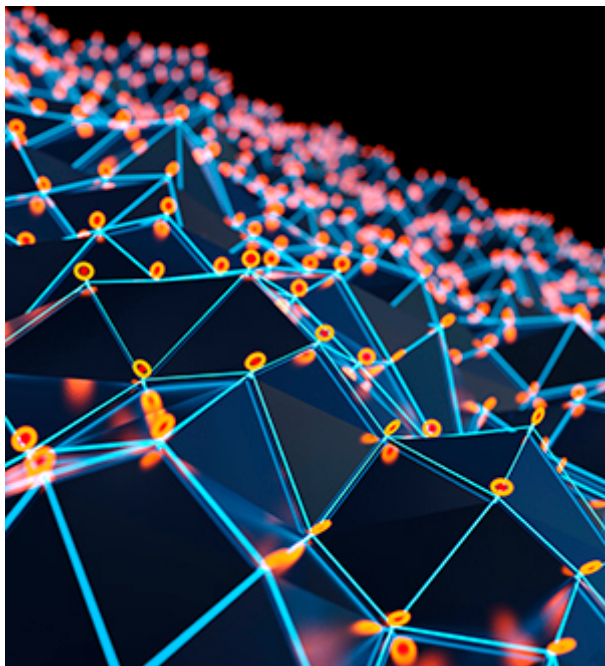
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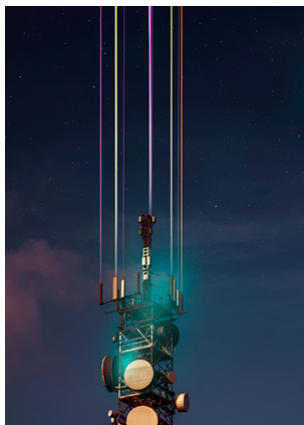
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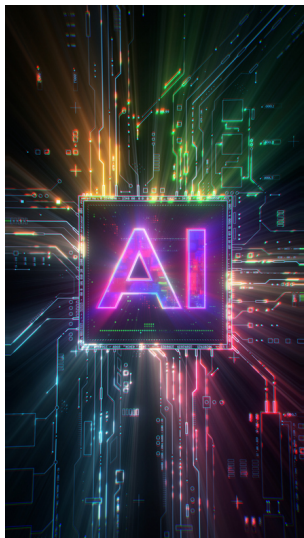
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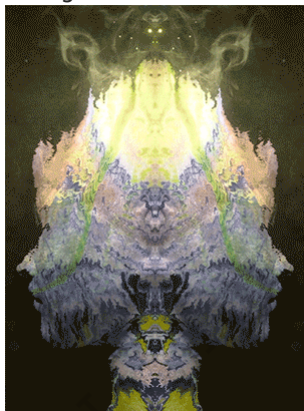
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5G NTN Satellite Networks



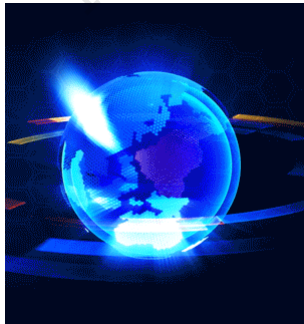
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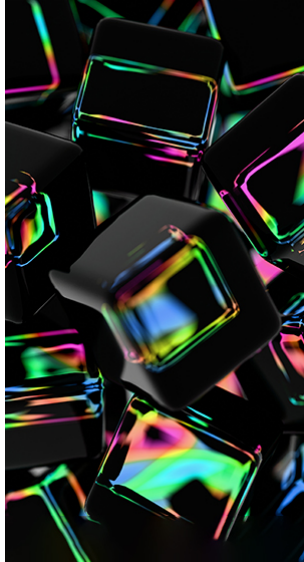
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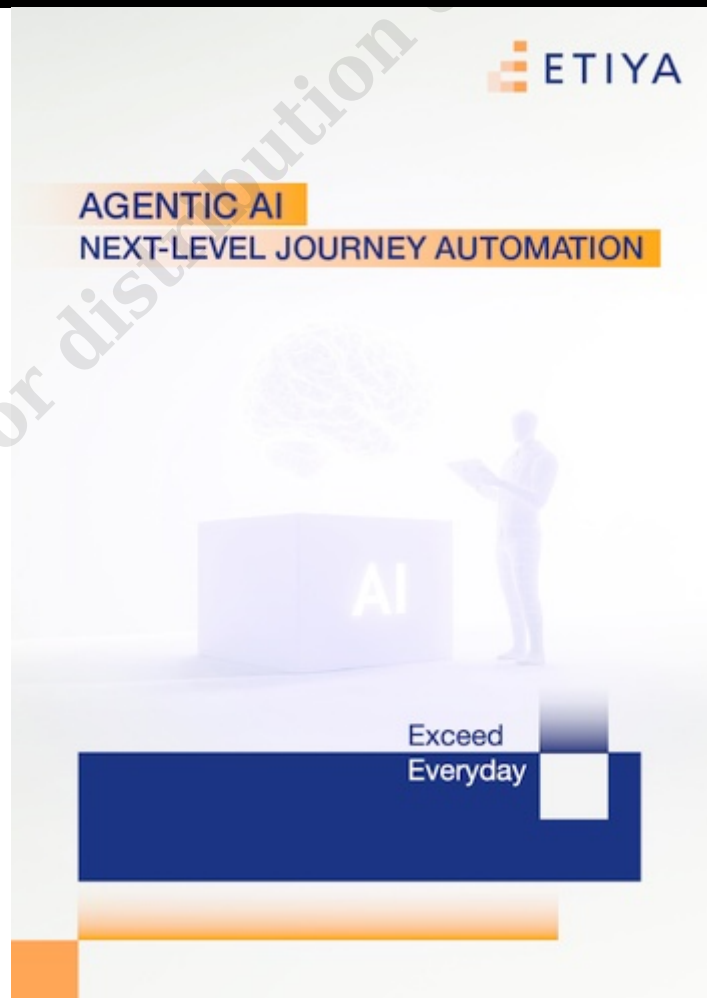


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## Introducing our New State-of-the-Art Geographic Platform

One of the ultimate goals of Broadband providers is to bring fast, reliable service to their customers, who are often located in rural parts of the country. Connecting unserved or under-served communities through broadband technology improves their way of life and closes the digital divide. But doing so can be costly and time consuming.

What if there were a way to make it all easier by streamlining each phase of your network implementation, improving decisions by using real-time data and therefore optimizing your current and future operations?

CHR Solutions is a proven industry leader with over 75 years of experience and we have found a way to expedite your builds, decrease labor costs, forecast in real-time, and increase monetization to speed up broadband access to rural America.

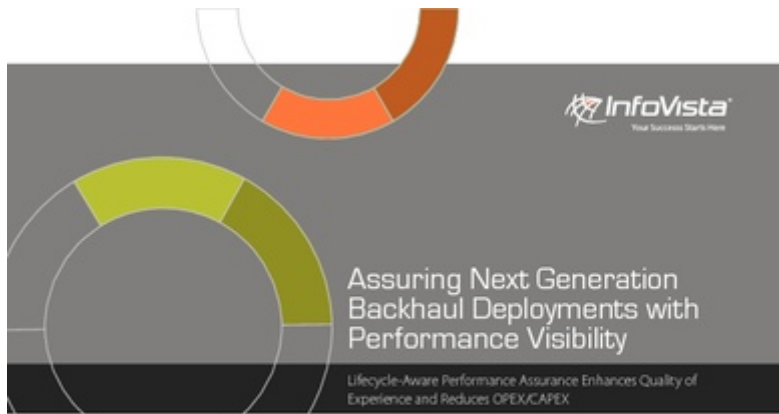
### Geospatial Data is Not New— But the Way We Use It Sure Is.

By using Geospatial data in a unique way, we provide our clients with a platform that utilizes real-time information to improve efficiencies, take the guesswork out of decisions, and ultimately increase speed to market. The platform features a customizable dashboard that enables all aspects of your business to format and display the data in a way that optimizes its use in their specific operations.

#### CHR's Geographic Platform

- Improves efficiencies
- Taking the guesswork out of decisions
- Increases speed to market

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## Going Global with M2M: What You Must Know to Control Costs

To launch a successful global M2M deployment, service providers and enterprise customers should first develop a plan that takes into account diverse cultures, languages, regulations, technologies and pricing. This Aerus White Paper outlines how differing regions and individual countries can create challenges in certification, support, and cost control and recommends actions to avoid these pitfalls.



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## Distributed cell site gateway from ADVA and Edgeworks

### Open and disaggregated path to 5G infrastructure



As innovation and growth in packet and wireless networks continues to accelerate, communication service providers (CSPs) and mobile network operators (MNOs) no longer have time to wait for their vendors to come up with higher capacity devices that meet the latest requirements. Now there's a new way to grow networks that combines the agility of software-based feature development with the performance and economics of bare-metal switches. Building a network for 5G access is now as simple as selecting a hardware component with higher capacity and installing the network operating system (NOS). And to help, ADVA and Edgeworks have combined forces to deliver a disaggregated cell site gateway (DCSSG) solution that provides the required features in an open and multivendor fashion.

#### Meeting the bandwidth demand in 5G

Access speeds will increase dramatically for 5G networks, and base stations will move from 10Gbit/s to 100Gbit/s and 25Gbit/s uplink interfaces. Backhaul networks must rapidly grow to 100Gbit/s aggregated capacity. MNOs need to design and operate these higher-speed networks with proven technologies and established processes. At the same time, MNOs need to make their networks much more agile to unleash the power of 5G new radio (NR). They need to move from hardware-centric, static networks to software-defined architectures. With the latest software-defined networking (SDN) and network functions virtualization (NFV) network technologies, disaggregated radio architectures and networking

are paving the way for open, agile, and efficient mobile ecosystems.

#### Moving from closed to open

MNOs and CSPs want to break open single-vendor silos to increase competition and reduce cost. That has led to increasing interest in disaggregated networking with packet network devices implemented as white box switches and open network operating systems. That's why the Telecom Infra Project (TIP) defined the DCSSG as well as OpenRAN. Both are essential to supporting the move to next-generation radio architectures.

According to TIP's [DCSSG Technical Specification](#), the DCSSG is "an open and disaggregated platform based on commercial off-the-shelf components and



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#### CHR's Geographic Platform

- Improves efficiencies
- Takes the guesswork out of decisions
- Increases speed to market

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# Customer-Focused Experience Management Must Be an End-to-End Process



by Susan McKeel and Sheryl Kingstone | June 2011

## Key Takeaways

- The new market reality for communications service providers (CSPs) is to transform their business around their customers.
- Yankee Group believes enhancing customers' experience is CSPs' last remaining opportunity for real competitive differentiation.
- Today's CSP operations infrastructure is neither meeting the needs of customers, nor is it as cost-effective as the competitive market requires.
- CSPs must have an end-to-end perspective on customer experience.
- Intelligent, interactive operations software is key to delivering on this perspective.
- Transformation to customer-centric operations requires a process-based overlay to existing operations.

## A Good Customer Experience Is Essential in the Connected World

CSFs are experiencing pressure for a fundamental transformation due to the hyper-convergence of connectivity, media, mobility and devices. In a world where product differentiation on leads to short-term success, customer-centricity is paramount. But unlike earlier times, managing customer experience is not simply a matter of capturing customer information and order requests. Today's reality requires CSFs to evolve from an operational service strategy to a more customer-focused experience management model. This is the only way they can differentiate from the competition as they strive to increase customer loyalty and overall spend.

Likewise, CSFs are grappling with economic and ecosystem challenges. Iconic devices such as the Blackberry and iPhone have stimulated customer demand for more sophisticated tools and services, changing their connectivity lifestyles. In the past, innovation was constrained by less feature-rich phones with architectures proprietary to specific CSFs. The new world order, however, is driving change across consumers, devices, data connectivity and application ecosystems (see Exhibit 1 on the next page).

## The Customer Is Now in Charge

Yankee Group first identified the concept of the Anywhere Consumer® in 2007 as a class of consumer that demands connectivity at the core of their every activity. This point of view influences their buying behaviors, from the devices they acquire and the services to which they subscribe to the applications they download.

Today, we sharpen our focus beyond Anywhere to connected experience. This takes customers to a new world of always-on connectivity, smart devices with intuitive interfaces and cloud-based content and applications, all delivered according to the customer's expectations, including:

- More channels of interaction, e.g., mobile and social networks
- Immediate delivery of content and applications
- The latest digital lifestyle solutions

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### Info Directions Maintains Gold Certified Status in Microsoft Partner Program

VICTOR, N.Y. (March 10, 2009) — Info Directions, leading provider of net-centric billing, rating, order management, workflow and selling solutions for communications service providers, is pleased to announce it has maintained Gold Certified status in the Microsoft Partner Program with a competency in ISV/Software Solutions.

Recognizing Info Directions' expertise and total impact in the technology marketplace, the Gold Certification ensures Info Directions has demonstrated expertise with Microsoft technologies and has a proven ability to meet customers' needs. Microsoft Gold Certified Partners receive a rich set of benefits including access, training and support, giving them a competitive advantage in the marketplace.

"Solutions Competencies are an important way for Microsoft to better enable ISVs to meet customer needs," said Sanjay Parthasarathy, corporate vice president of the Platform Strategy & Partner Group at Microsoft. "They allow ISVs to keep and win customers with their deep knowledge of solutions-based Microsoft platform technologies. Microsoft has a long history of working closely with ISV partners to help deliver compelling solutions and applications to our mutual customers, and the Solutions Competencies are an important step in continuing to enhance vital relationships with ISVs worldwide."

The Microsoft ISV/Software Solutions Competency recognizes the skill and focus partners bring to a particular solution set. Microsoft Gold Certified Partners that have obtained this competency have a successful record of developing and marketing packaged software based on Microsoft technologies.

"We are extremely pleased to have maintained Gold Certified Partner status in the Microsoft Partner Program. Our organization is focused on developing products and services that support the evolution of the rapidly changing communications market, so we make it a priority to participate in the Microsoft Partner Program at the highest level," said Tim Wrona, Vice President of Product Marketing at Info Directions. "Being a Microsoft Certified Gold Partner helps us meet our commitment to our clients by giving them the products, tools and services they need to leverage new opportunities and compete more effectively in the communications market."

## Whitepapers





## Subscriber Policy Management Trends

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## Case Study: CDMA acquisition and conversion

### PROJECT

CDMA acquisition and conversion

### SITUATION

When a GSM provider acquired a CDMA competitor in order to expand its geographic footprint, it needed to integrate the acquired network, subscribers and inventory into its existing order-to-cash billing platform.

The provider engaged Cycle30 to convert the acquired CDMA system customers so that they could be billed and managed from the same platform as the provider's other services.

### CHALLENGE

The acquired CDMA provider enjoyed a small, local-company reputation among its customers, and had historically referred to its new parent company as "the big competitor" in its marketing campaigns. This created a high standard for the parent company to attain as it reached out to this newly acquired customer base ahead of the conversion.

Assimilating 42,000 pre-paid and post-paid subscribers from a different consumer brand and wireless technology required careful planning for a cost-effective and positive customer experience. Each difference in technology between CDMA and GSM systems had to be evaluated and reconciled to integrate them successfully, without duplication or error.

### RESULTS

- Cycle30 delivered the provider's conversion with a minimum total system downtime
- Conversion delivered on time
- Conversion delivered on budget
- 99 percent customer record data accuracy; remaining items resolved before next cycle
- Delivered the new billing cycle with no pro-rates or adjustments

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## Brochures

# SPIRIT COMMUNICATIONS

Switches to EMC Watch4net and reduces  
OPEX by 60%



## ESSENTIALS

### Challenges

- Customer contracts required robust SLA monitoring solution
- The legacy system (InfoVista) grew too expensive and difficult to maintain
- InfoVista was slow to deliver upgrades
- InfoVista's upgrade costs were comparable to purchasing an entire solution

### Solution

- Watch4net was deployed in just a few days
- Watch4net is running in a virtualized environment
- Dedicated Oracle, Solaris resources are no longer required, resulting in cost savings

### IT Improvements

- 60% reduction in cost-per-managed device
- 40% savings on collectors and additional modules
- Replaced Java JRE with fast AJAX/Web 2.0 front end
- Troubleshooting is simpler, faster due to Watch4net's streamlined architecture

### Business Benefits

- Increased revenue from premium portal offerings
- Improved data retention (from 7 days to 7 months of "5-minute" data)
- Improved SLA metrics and more accurate billing from more granular bandwidth utilization reports
- Enhanced service offering with ad-hoc reporting and automated report delivery

### CUSTOMER PROFILE

## ABOUT SPIRIT COMMUNICATIONS

Headquartered in Columbia, SC, Spirit Communications provides carrier-class telecommunications services to businesses and government agencies throughout the southeastern U.S. over its private fiber-based MPLS network. Spirit offers a wide variety of solutions including VoIP, SIP trunking, local and long-distance calling, wholesale long distance, SS7, AIN, on-demand video conferencing, audio/Web conferencing and hosted Internet services. Spirit Communications prides itself in providing solutions that are reliable, flexible and responsive to customers' business needs.

Monitoring efficiently the wide choice of bandwidth and quality of service along with the service level agreements (SLA) is essential to the success of their enterprise.

## BUSINESS CHALLENGE

Spirit operates a mixed network comprising equipment from Alcatel-Lucent, Cisco, Adva, Adtran, Ciena, Brocade and more – over scores of servers and several thousand network devices. Proactive performance monitoring is strategic to Spirit's success in delivering a competitive offering that features a variety of options for granularity of bandwidth and quality of service (QoS). Spirit provisions service level agreements (SLAs) that allow customers to select end-to-end performance metrics based on CIR, frame loss, delay and jitter. Spirit's customer contracts absolutely require robust SLA monitoring solution.

In 2006, Spirit implemented InfoVista's performance management solution. The product met the initial requirements, but as time went on, the software became more cumbersome to upgrade and maintain; additionally, Spirit needed upgrades to support the Alcatel-Lucent 5620 SAM and these were slow in coming. Spirit decided to investigate a variety of alternatives, including using open source tools to build their own solution as well as purchasing commercially available products.

## EVALUATION AND SELECTION

Spirit embarked on a search for solutions capable of providing performance reporting for Alcatel-Lucent equipment. Spirit determined that the cost of InfoVista upgrades equaled the cost of purchasing an entirely new solution. Next, the IT team carefully

EMC<sup>2</sup>



WHITE PAPER



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## Case Study

# Implementing a Scalable, Common Element Management System for Large Multi-Vendor Networks

## Verizon Business and Nakina Systems Case Study

In 2005, Verizon Business, set out to build a state-of-the-art, ultra-long haul (ULH) transport network and converged packet access (CPA) network initially comprised of more than 20 different types of equipment from 10 different equipment vendors.

### Service Delivery Challenges

In order to deliver a new service across multiple network equipment providers (NEP) devices and SONET/SDH, WDM, Ethernet, and IP/MPLS networking technologies, Verizon Business needed to integrate a complex set of networks and applications spanning up to thousands of network nodes.

Adding a new device type or application to this heterogeneous environment often required upgrading both hardware and software across the entire network. For a large scale networking environment, this can be an incredibly complex task since the new services need to be delivered via different NEP products and networking technologies.

The network initially comprised 20 different types of equipment from 10 different equipment vendors, spanning hundreds of thousands of network nodes.

### Operations and Integration Challenges

Verizon Business used a mixture of operational and business support systems (OSS/BSS). These systems were deployed on unique platforms from different NEPs, operating with proprietary software applications and communications protocols.

NEP-provided EMSs tend to use proprietary OSS interfaces with varying levels of security and lacking the scalability needed by a large, global network operator.

Substantial system and software integration work was needed to make each EMS function sufficiently for the network operations personnel to manage the network. The effort to maintain multiple systems including hardware, element management systems (EMSs), testing and training could not be easily sustained to support the new services Verizon Business wanted to deliver.

The challenge facing Verizon is typical for a large, global communications service provider and can be summed up in a single word: complexity.



Living on the (Network) Edge:

## A TELECOMMUNICATION PROVIDER'S GUIDE TO MAKING THE MOVE

The Internet of Things (IoT) is not new. Neither is the rapid rise of connected devices or customers' demands for instantaneous service. These are realities of digitalization. While they have become normalized, they are by no means the final destination on the journey to digital transformation. They are merely the first wave of the transformation process. In their wake, the next round of changes is brewing. These changes will require providers turn their focus to the periphery of their networks and get closer to their customers. This next frontier for providers to conquer? The Edge.

[networktransformation.fntsoftware.com](http://networktransformation.fntsoftware.com)

## CAPABILITIES

- 

## BENEFITS

- “CHR’s IT team is consistent, skilled and extremely knowledgeable about what they do. Having them here and being proactive in what we need, plus the time-saving factor without us trying to “fix” our own IT needs allows us to be so much more productive and happy.”
- Terri B., Madlington Ventures

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## Navigating the Chaos: Identity Access and Configuration Management Strategies for SDN & NFV



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