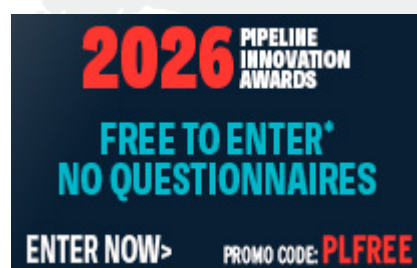


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Unified Endpoint Security
NIG2 & Supply Chains
WANs, Data Centers & Edge AI
Intent-Based Networking for OT
D2C Liquid Cooling & Power
Enterprise Network Provisioning
Designing Self-healing Networks
The Resurgence of Fiber Optics
Letter from the Editor
IT & Telecom Technology News
Article Index



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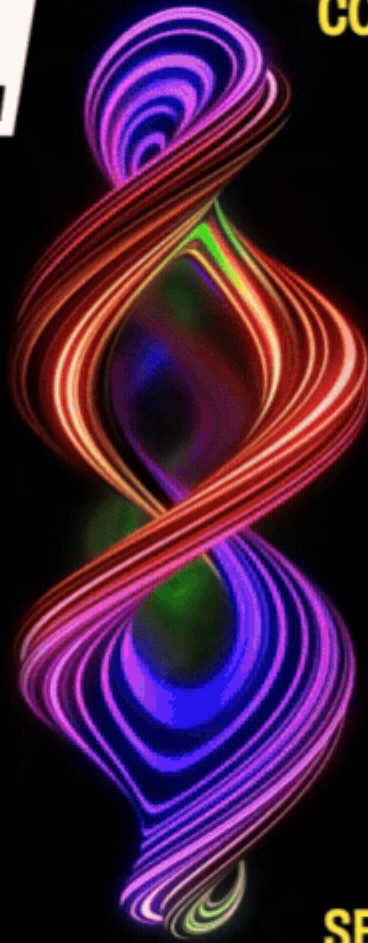
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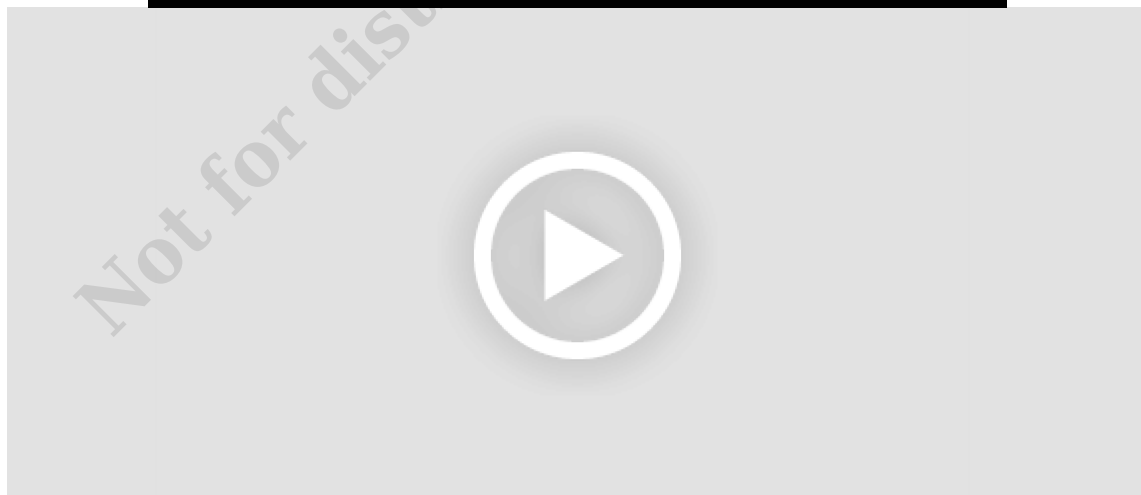
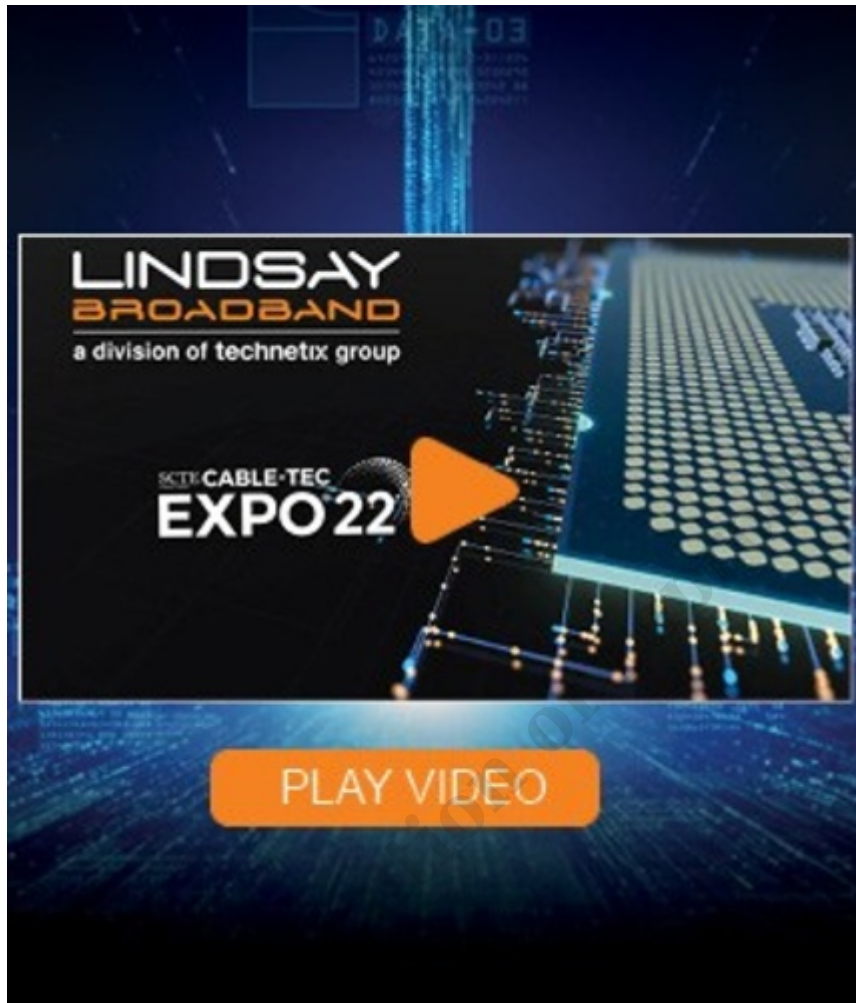
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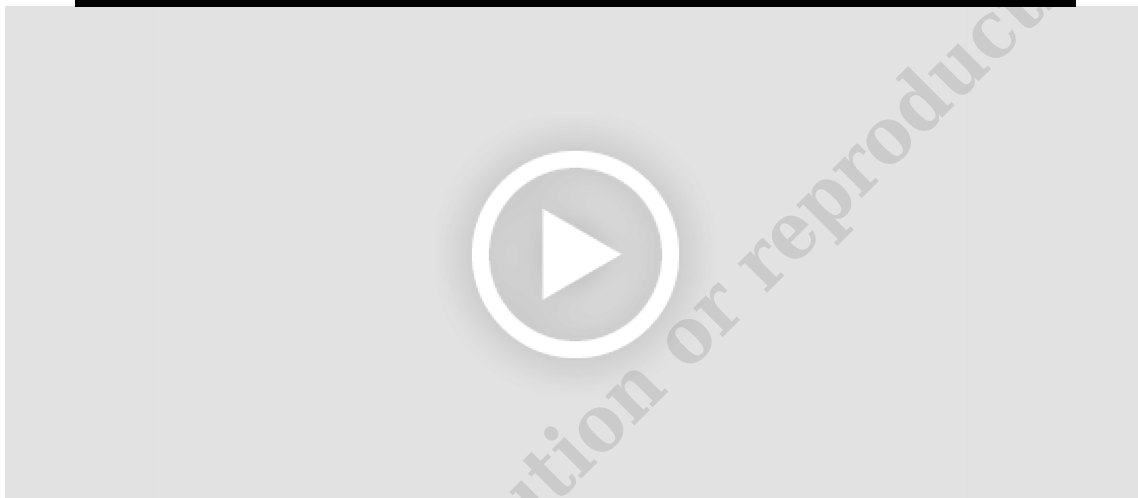
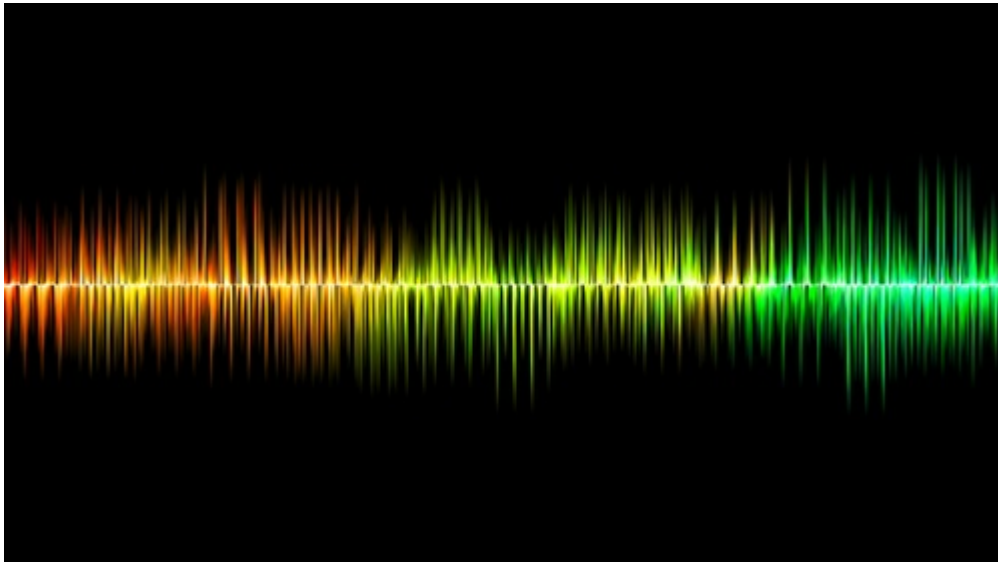
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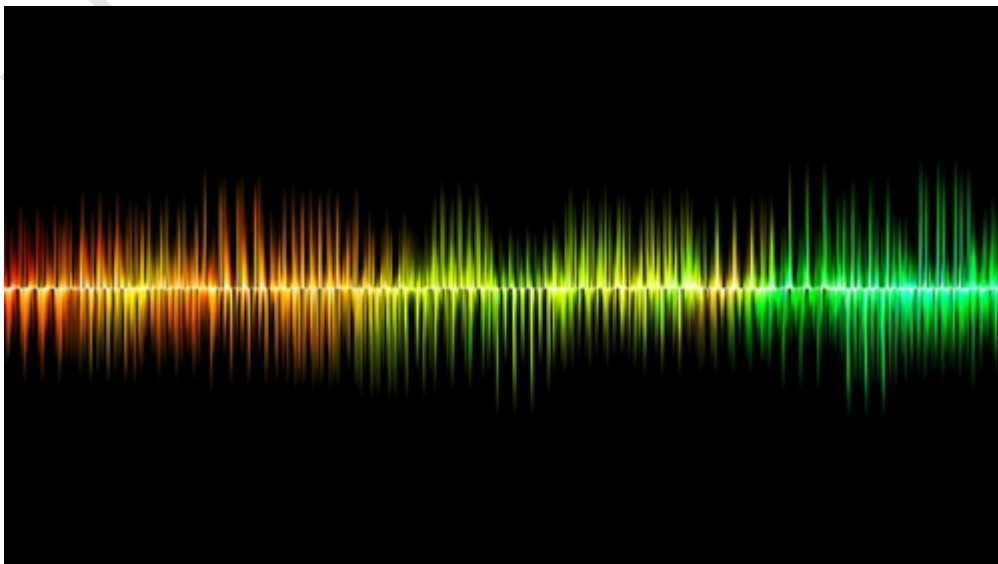
End-to-End Solutions for Broadband Networks

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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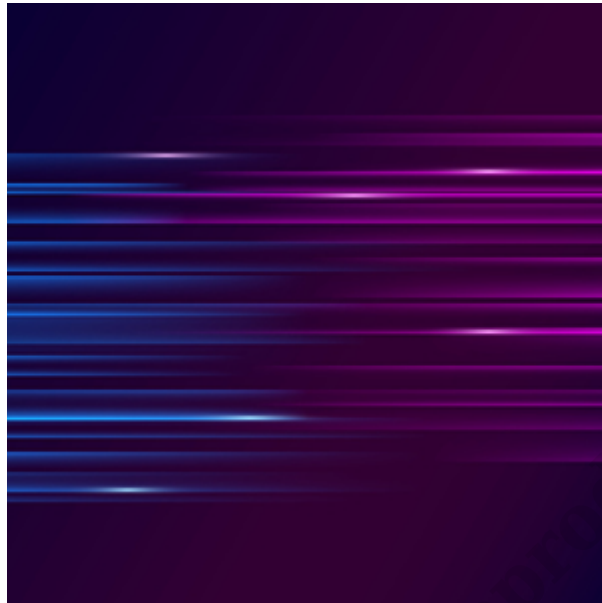
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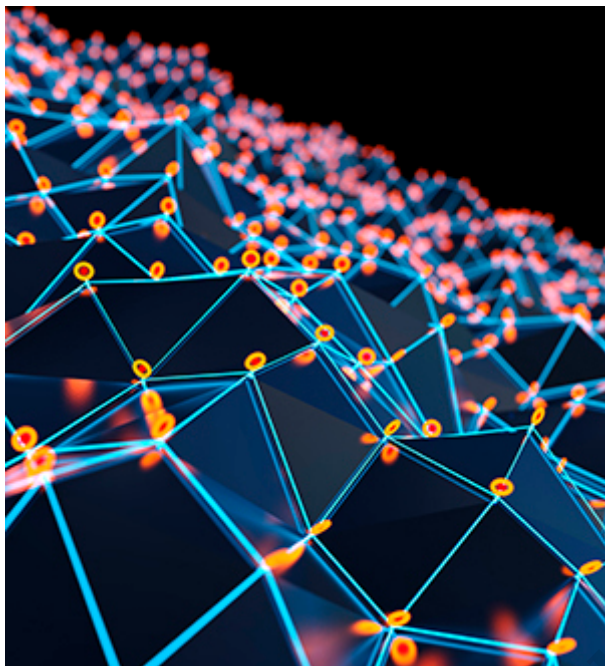
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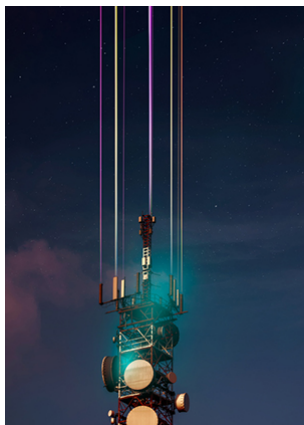
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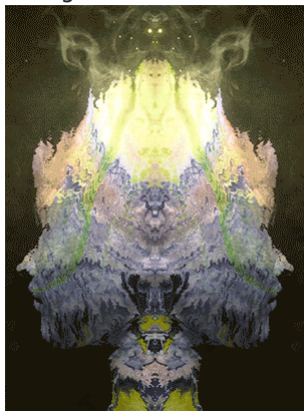
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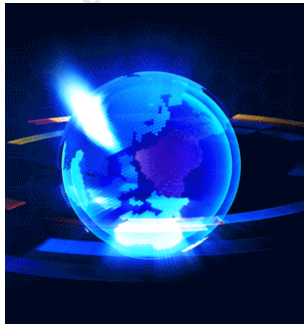
5G NTN Satellite Networks



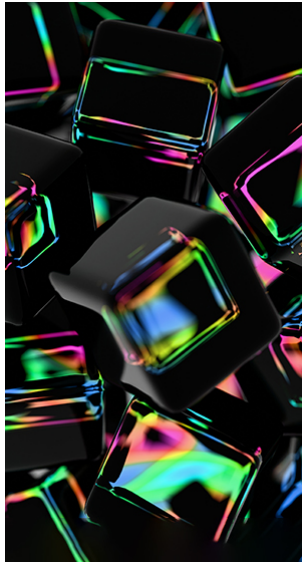
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SPIRIT COMMUNICATIONS

Switches to EMC Watch4net and reduces
OPEX by 60%



ESSENTIALS

Challenges

- Specific services 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, SBT, 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, Advia, 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

EMC²

Digital transformation, which is the key for higher agility, efficiency, cost reduction and improved customer experience, is inevitable for CSPs to survive in the new digital economy. However, large-scale digital transformation projects are expensive and risky and may take years to complete. Meanwhile, agile competitors are eroding your market share. Speed to digitalization is imperative.

Why Etiya's Digital Business Platforms??

Etiya Digital Business Platforms, unlike legacy BSS, will create real value for your business. They do not only provide technical capability, but offer an infrastructure to create an all-digital customer experience, with the personalization and flexibility demanded by Connected Customers. All this in a matter of months, while ensuring business continuity and, at the same time, reducing traditional BSS costs.

Advanced technology to enable better customer focus

Etiya's AI expertise and platform capabilities are used to differentiate the BSS platform via better customer insights, more personalized customer experiences and increased process automation. Knowing your customers' behaviour and needs allows personalized customer interactions and service targeting, and supports smart decision making during the customer journey, that will ultimately drive both customer and employee efficiency and satisfaction.

Etiya uses innovative AI technologies, including natural language processing (NLP) techniques and predictive analytics in its platform to help companies transform their businesses and reduce costs.

Modular, flexible, cost effective and scalable digital solutions

Etiya Digital Business Platforms are 5G ready, agile, end-to-end, and fully virtualized digital platforms. They are cloud-native, full-stack platforms that are pre-integrated into partner solutions and include all Etiya's product portfolio: Customer Relationship Management (CRM), Customer Service Management (CSM), Configure, Price, Quote (CPQ), Product Catalog, Order Management, OmniChannel Management, Billing and Charging and API gateways. They support both B2C and B2B customer segment operations.

Since the platforms use a modular, API-driven architecture, they are flexible. CSPs can select to launch a full-stack new BSS platform, to replace their legacy platform, or modernize it step-by-step, by choosing which platform components they want first and add new solutions, as needed, later.

Its cloud-compatible implementation significantly reduces up-front CapEx, and all this enables fast implementation and a cost-effective digital transformation. And easy scalability also means, that the costs grow as the business grows.

Etiya real-time, automated digital platforms use microservices to speed time-to-market for new products and enable easy experimentation with new business models and service concepts.

How does it work?

Etiya Digital Business Platforms contain three main layers: Experience, Engagement, and Enablement. Data analytics, AI, and business intelligence functions are used to add intelligence to these layers and enable personalization, process automation, and efficiency.

Etiya Digital Business Platform Solutions			
Digital Experience	Online self-care, E-commerce, Mobile App, Content Management	Open APIs	Data Analytics, AI, Business Intelligence
Digital Engagement	CRM, CPQ, Offer Management, Rewards & Loyalty, Community Management, CSM, Recommendation Engine, Order Management		
Digital Enablement	Product Catalog Management, Charging & Rating Management, Billing Management, Partner Management, Policy Management		

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Integrating to Mediaroom: Using
Media(n) to Simplify the Experience
A White Paper

Document Version: 1.0

Date: July, 2011

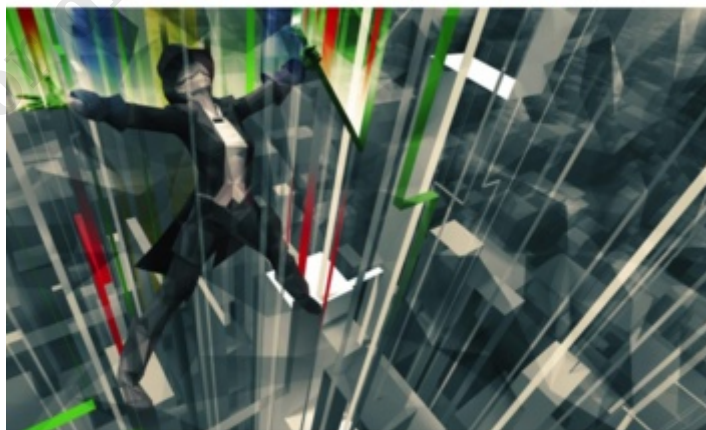
Author: Fredel Thomas, Director of Product Management



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keeping the world connected



Communication is our lifeblood. It's what makes the world run and gives our lives meaning. Though technology evolves, the desire to seamlessly and securely access and exchange information anywhere, anytime never changes. While technological advances make communications simpler and more ubiquitous, efficiently interconnecting disparate applications, networks and devices and delivering it to the right person, at the right time, in the right way is enormously complex.

Creating a globally connected world is what iconectiv does better than anyone. Our cloud-based Software as a Service (SaaS) solutions and **trusted communications platforms** span network and operations management, numbering, business-to-consumer communications and fraud prevention.

At iconectiv, **our vision** is a world without boundaries, where the ability to access and exchange information is simple, seamless and secure.

And **our mission** is enabling the world of tomorrow through the simple, seamless and secure interconnection of networks, devices and applications.

business principles

With unparalleled leadership and legacy in global communications, iconectiv strives to make connectivity:

simple – making the systems and processes that are extraordinarily complex, comprehensible

seamless – simplifying information exchange, on a global scale, and making it instantly available

secure – entrusted with the critical data that makes the world run



THE EMC SOLUTION FOR SERVICE ASSURANCE

Transform Healthcare IT with an application-first approach to IT management



ESSENTIALS

Virtual Data Center Visibility

- Unified management of physical and virtual IT environments

Configuration Management

- Coverage across networks, storage, and servers

Identify and Act

- Advanced root-cause analysis for separating symptoms from problems

THE FOCUS OF IT OPERATIONS

"The goal of IT operations is to enable the business to operate more effectively, more efficiently, and with lower risks and costs...In short, IT operations isn't about bits, bytes, and bare metal; it's about enabling business leaders to do what they do best: run the business."

IT Partner-Fay Issues for IT Operations Management, 2013

ENSURING HEALTHCARE SERVICES AND APPLICATION PERFORMANCE

As a CIO or IT leader of a Healthcare company, you have a tri-fold charge:

- Ensure applications and IT services are delivered consistently and at the highest possible levels—because that's what the business and end users care most about.
- Fully understand and effectively manage your IT service delivery environment, so that service levels to the business can be met or exceeded, ongoing operational costs are minimized, and problems—when they occur—can be resolved rapidly with minimal impact.

CHALLENGES TO TRANSFORMING IT

Moving applications to the cloud makes service assurance anything but easy. Factors such as the dynamic nature of a virtual data center (VDC), the rapid pace of IT change, lack of operational visibility and insight, and ineffective problem management make providing service assurance more of a long-term goal than short-term reality for many IT leaders. They need answers to critical management questions, including:

- How can I ensure applications and IT services are delivered consistently and at the highest possible levels?
- How do I understand risk conditions and business impact so I can prioritize my team's actions?
- How do I monitor, isolate, report on, and prioritize fault and performance problems more effectively and efficiently?

IT MANAGEMENT THAT ENABLES SERVICE ASSURANCE

Fully understand and effectively manage IT service delivery, and, in turn, provide service assurance to the business with the EMC® Solution for Service Assurance.

- Virtual Data Center Visibility
- Configuration Management
- Identify and Act

EMC® Solution for Service Assurance

EMC²

InfoVista[®]
Your Success Starts Here

An InfoVista White Paper

Indispensable Considerations For Ethernet Mobile Backhaul



Case Study

**Mobily: Transforming their OSS
landscape with Comptel solutions**

January 2015

Dean Ramsay and Justin van der Lande

Ref: RXB98

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- Implementation and training
- Regulatory and finance
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Whitepapers

Use Semantics to Deliver Flexible Service Management and Avoid the Risks of OSS/BSS Transformation



by Arindam Banerjee | April 2009

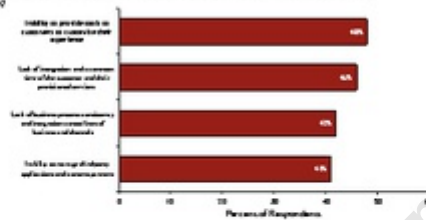
Executive Summary

The customization and convergence of services across application silos and disparate networks are critical to communications service providers (CSPs) aiming to provide innovative services, reduce customer churn and drive average profitability per user. CSPs realize that providing innovative services is not enough; it is critical to offer end users customized services with consistent and flawless quality of service (QoS), which is impossible without an end-to-end unified customer- and service-level view. This is where most service providers falter. Our research clearly points out the glaring problems that exist with most service providers' back-office OSS/BSS systems, which are typically complex, disjointed and lack the agility necessary to present a coordinated 360-degree customer-centric view. In a recent global CSP survey conducted by Yankee Group, more than 60 percent of surveyed global CSPs agreed that improved customer experience is directly linked to improved ARPU.

Most service providers take a top-down approach to express customer and service views. However, they often adopt a service model that in most cases does not capture the complexity of misaligned as well as heterogeneous underlying infrastructure. Only when the relationships among underlying systems, services and customers are mapped out of the infrastructure is it possible to achieve the goal of traditional service modeling. Therefore, what is needed today is a bottom-up approach that looks at how existing systems map to existing customers instead of a more traditional top-down approach.

CSPs have invested billions to streamline and modernize their OSS/BSS infrastructure to achieve the agility required to see all of their assets in one view, which in most cases has failed to deliver the desired service-level transparency. Exhibit 1 illustrates the critical factors inhibiting CSPs from being competitive and delivering innovative services to customers. Not surprisingly, the inability to have a common view of customers, lack of customized service delivery and business process inconsistency are the top factors that hamper as service providers from rolling out innovative services.

Exhibit 1:
Critical Factors Inhibiting CSPs from Being Competitive and Delivering Innovative Services
Source: Yankee Group, 2009



In light of current economic challenges, it is clear that telecom service providers are squeezing their capex budgets to align with lower revenue growth expectations. Hence, although a unified end-to-end service model remains on top of their priorities to instead of full-scale and expensive transformation exercises, CSPs and managed service providers are looking for an alternative low-risk, incremental path toward a unified service model. In this report, we look at CSPs' current operational issues, take a deep dive on a unique, alternate semantics-based approach toward achieving a unified virtual service model, and investigate how such an approach can enable customer consistency by solving the problem of siloed infrastructure data.

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Jeff Michelson • Vice President of Global Marketing,
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Weathering the Wireless Tsunami
**How MNOs Can Reach
High Ground in Today's
Communications Market**

By ConceptWave Software Inc.

WHITE PAPER

Managed BSS for Accelerated Business Growth

Managed Telecom solutions that enhance the customer experience and power growth for established Network Operators, and unleash the potential of new markets for Greenfield Virtual Network Enablers

The Challenges for Market Growth

Communication Service Providers (CSPs) in today's Telecom industry are keenly aware of the need to innovate and grow market share while controlling cost to serve and improving margins.

Managed BSS solutions

Business Customer
Management
- for Network Operators &
VNEs

VNE
for Network Operators &
VNEs

MDS Managed Service Solutions

Opportunities for Established Operators

For established Mobile Network Operators faced with declining revenues, opportunities exist to (a) drive acquisition/retention activities through improved customer experience, and (b) maximize the value of the business customer base through enhanced corporate service offerings.

(a) Customer Experience – Improving the experience of existing customers, often with a range of service offerings distributed across many source billing systems, requires the adoption of a 'Single View' approach to customer management and reporting:

- Single View of Customer
- Single View of Products
- Single Point of Contact
- Single Bill and Reporting.

This is especially relevant for multinational corporations that operate across regional boundaries

in multiple languages and currencies that have little or no centralised telecoms account management and cost analysis.

The typical approach to achieving a single view of the customer is through billing transformation, which can be a costly and complex initiative.

(b) Enhanced Corporate Service Offerings – Convergence, whether in the form of Unified Communications or Fixed-Mobile Convergence, is an expectation driven by the market. This presents CSPs with a whole new set of challenges that reach far beyond IT systems. The convergence of mobile, fixed-line and IP services crosses the entire customer lifecycle, including:

- Order Capture – for multiple services with different requirements and lead times
- Order Management – that includes hardware, software and network provisioning
- Rating & Billing – for recurring charges, usage charges, one-time charges, credits and adjustments across multiple integrated services
- Care & Manage – unified account management, e-bill presentation and online analysis.

New Channels to Market for Greenfield Operators

For Greenfield Virtual Network Enablers (VNEs) the recent resurgence of interest in the VNE business model, and the fact that convergent services are fast becoming a necessity rather than a nice-to-have, presents an opportunity for a broader range of service providers to grow revenues in the B2B market, including:



Managed BSS for Accelerated Business Growth

Accelerating the deployment of 5G with simple and flexible transport networks



Mobile Network Operators (MNOs) are struggling to meet the demands of connecting their existing 4G/LTE networks, building out transport for new 5G networks, and laying the groundwork for distributed compute. ADVA can help with a proven solution that meets the operational requirements and the demanding business case.

Challenges faced by MNOs in their 5G transport network planning

MNOs aiming to deploy 5G face a fundamental question of how to design their transport network. This is the network connecting cell towers and small cells to their core network. It is referred to as Mobile Backhaul, Fronthaul, Midhaul and X-Haul, depending on the technology used.

MNOs plan to make a strategic investment in fibre for mobile transport, with microwave and mm wave radio deployed only where needed¹. Drivers for microwave include cases such as avoiding delays in fibre deployment and overcoming obstacles in geographic regions such as roads and railway infrastructure.

In addition to the physical medium for transport, MNOs face other questions in three broad areas:

- Support of existing 4G macro cells, and new 5G cells
- Architecture and technology selection
 - Architecture options such as the optimal location of edge compute
 - Technology options and protocol selection - such as use of small cells, massive MIMO, C-RAN, common radio public interface (CPRI), eCPRI, O-RAN, and backhaul
- Accommodating sharing of the transport network to bring cost per cell site down

¹ <https://www.gsma.com/technologies/wp-content/uploads/2019/04/1-Mobile-Backhaul-Options.pdf>



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.



Business Process Management as a Blueprint for Mobile Workforce Management

HOW BPM TECHNOLOGY IS THE PERFECT MATCH FOR COMPLEX & DYNAMIC ENVIRONMENTS

A ViryaNet White Paper



Know your network: Now.



**FOR NETWORK
OPERATORS**



Ontology 5 Intelligent 360 for Network Operators | v4.0 2015

WITCOM deploys open multi-vendor solution to power smart city initiative

Secure open platform powers edge cloud for IoT, video and next-gen services

WITCOM provides business customers, government institutions, and ITC service providers in Wiesbaden with professional telecommunication services and secure data center services. Now WITCOM is deploying an open uCPE platform as an edge cloud to host smart city services, including IoT, traffic control, surveillance, and wholesale services.

With network functions virtualization (NFV) and universal CPE (uCPE), smart city operators like WITCOM can rapidly and efficiently deploy next-generation services. And once the uCPE servers and software are deployed, the operator can use it as a platform for innovation. New services can be added dynamically, without changing the deployed hardware, drastically increasing the speed of innovation.

Adva, an ITC service provider in continental Europe, assembled a solution using best-of-breed suppliers to power this innovative deployment. Working together, the suppliers teamed up to meet WITCOM's stringent requirements for performance, cost, ease of deployment and security.

The solution is deployed on a central hub site as well as remote spoke sites (as shown below).

Security is an essential element of the solution, and is provided by the 6WIND Turbo IPsec vRouter. The vRouter is deployed in virtual machines (VMs) at each of the spokes, and at the hub as an aggregator.

The spoke sites are located in outdoor cabinets featuring the widely adopted FWA-5012VC white box uCPE from Adva. This optimized and versatile appliance integrates the Intel Atom® C3758 processor (8 cores), and 2x 10Gb SFP and 6x 1Gb RJ45 interfaces, providing sufficient compute headroom and flexible connectivity to meet edge site requirements.





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