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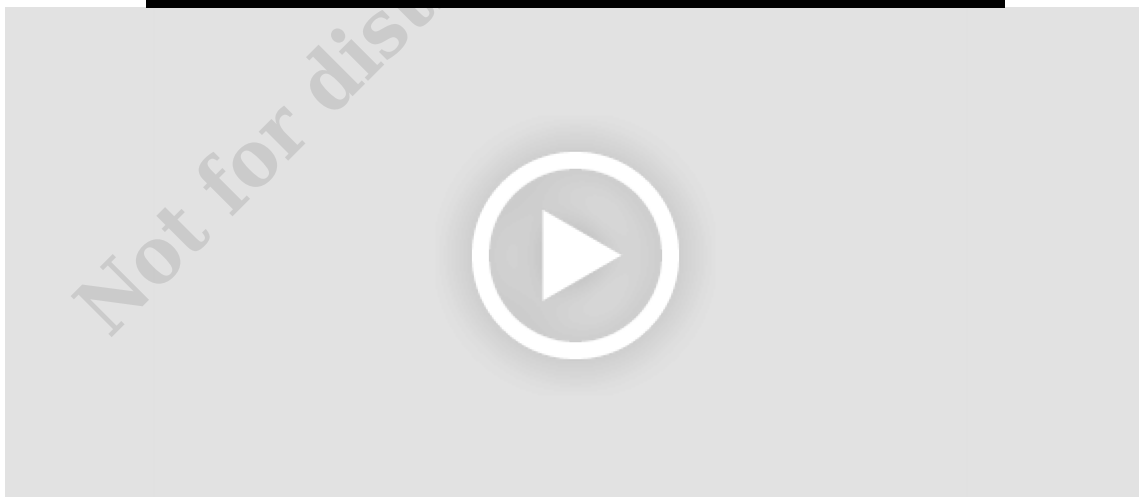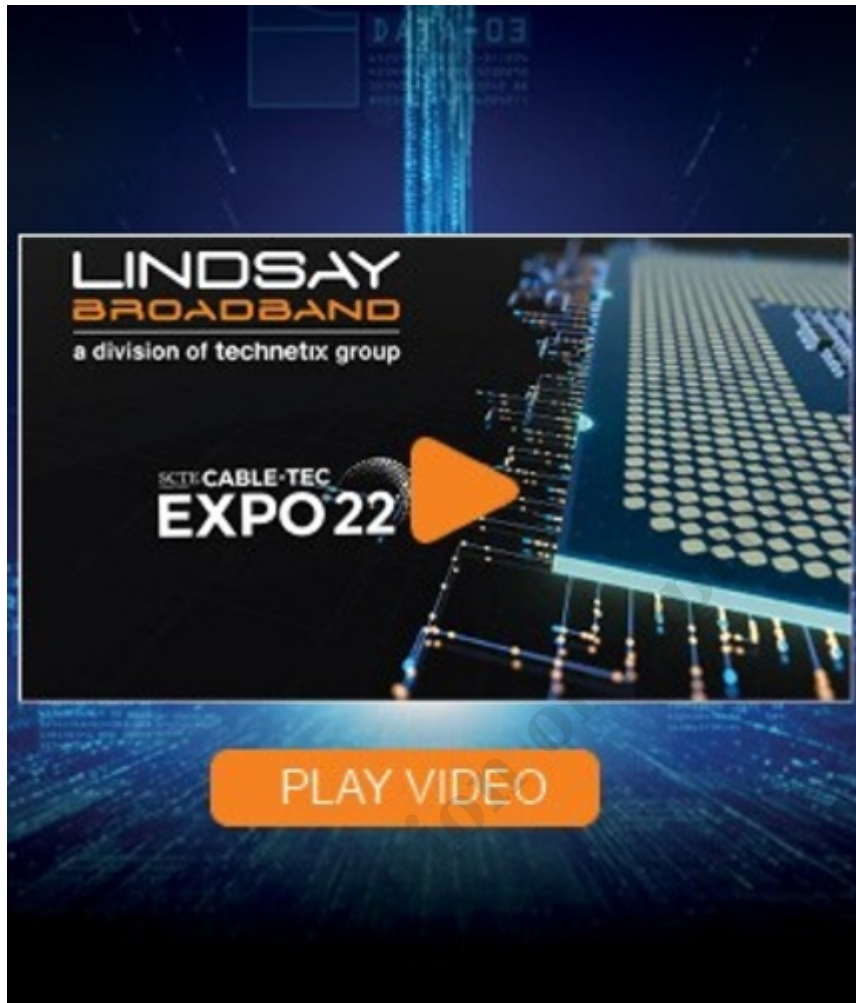
**End-to-End Solutions for Broadband Networks**

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.
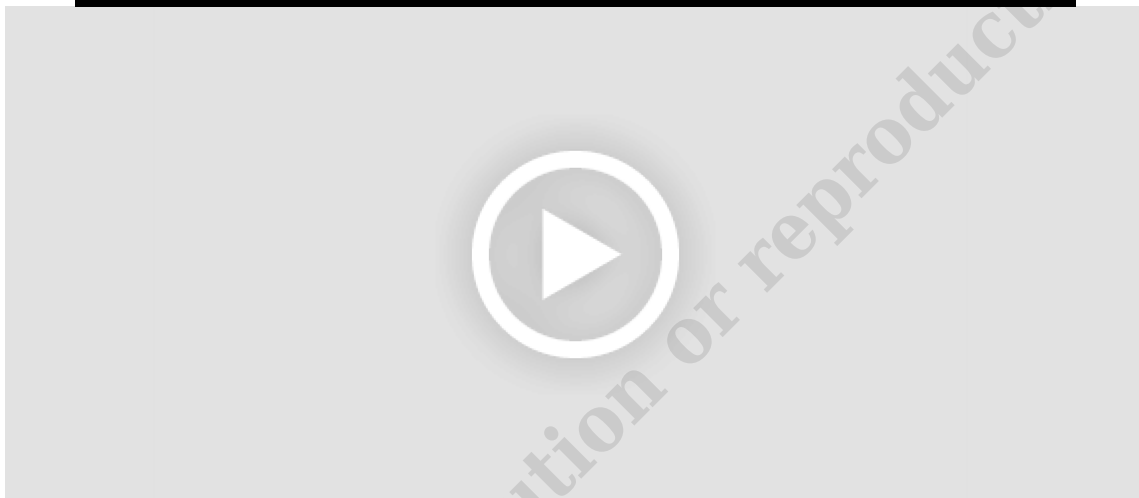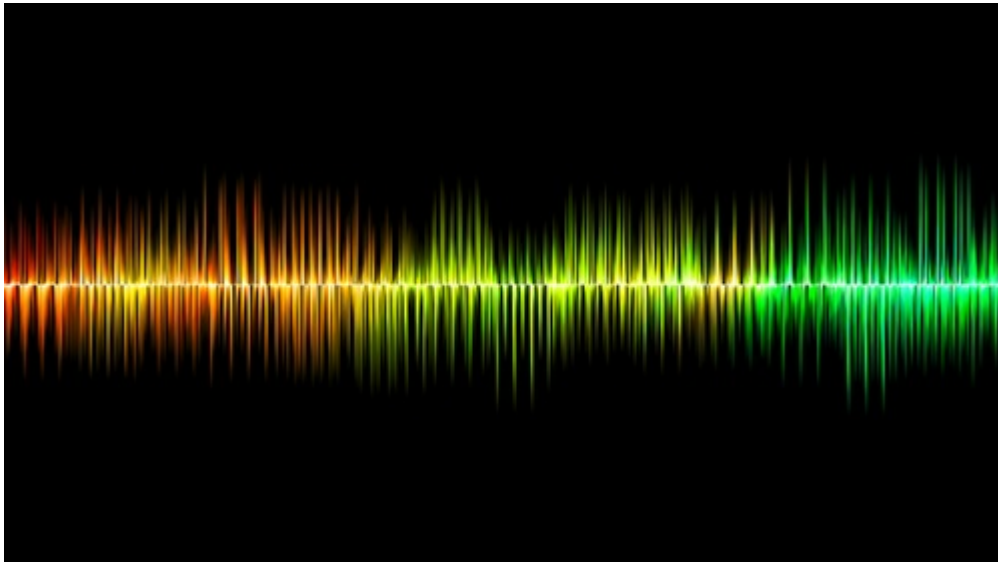
### Predicting Colonial Pipeline: Mitigating Risk and Compliance

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.
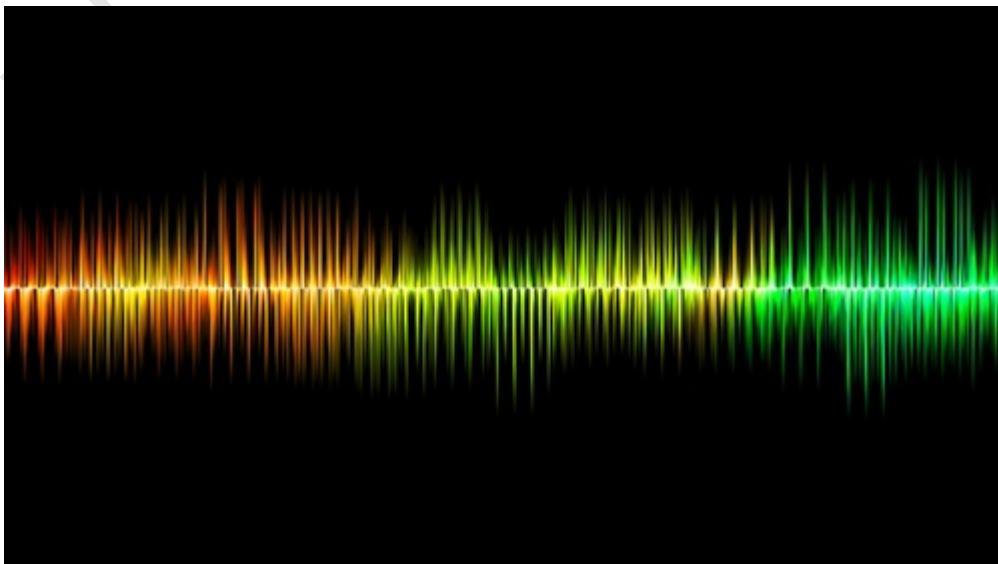
**Podcast: The Evolution to 6G**

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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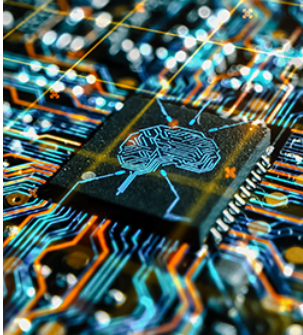


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the Telecommunications Industry

A strategic approach to marketing
for customer retention and business growth

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A VODACOM CASE STUDY

# CAPACITY ISSUES DRIVE MEDIATION SYSTEM REPLACEMENT

DigitalRoute
Every bit counts.

**Report**

Reducing order fallouts: Key to success with business services

*January 2015*

Mark Mortensen and Anil Rao

www.analysysmason.com

**MATRIXX**

# MATRIXX ONLINE CHARGING

## The Need for Speed and Real-Time

Everything is moving to real-time. Consumers want ubiquitous connectivity and instant access to applications, media, information and social networking. In today's diverse communications marketplace, there are a number of factors that are driving service providers to interact with subscribers in real-time:

▶ Increased adoption of prepaid services and payment methods

▶ Bill Shock prevention and spend control

▶ Third party content and applications

▶ 4G and LTE network rollouts

As these forces create a new Telco 2.0 marketplace, three trends are apparent: IP networks are the de facto standard. The usage events from these networks and the services that run on them are growing exponentially. Services providers need to interact with subscribers in real-time to deliver the exemplary customer experience and control required in the all IP environment.

As these trends converge, network bandwidth becomes a coveted asset where the return on investment needs to be maximized. This can be achieved through the shaping of subscriber consumption with a subtle combination of segmented pricing models, service class options,

personalized offers and subscriber policies. Get it wrong and the customers will head to the call center or even churn. Get it right and you've created an informed, dynamic relationship with the subscriber, turning bandwidth usage threats into opportunities and delivering an individual and compelling customer experience.

Service providers are challenged to keep up with subscribers' growing appetite for real-time-based services, keep their competitive edge, and keep costs and operational expenses from spiraling out of control.

## MATRIXX Online Charging Empowers Operators to Meet the Real-Time Challenge

MATRIXX Online Charging helps service providers meet the challenges of the Telco 2.0 market by providing the industry's fastest, most efficient real-time charging application.

MATRIXX is the only real-time charging solution that can provide the scalability and speed needed to move to an all real-time world, while providing an extremely low and predictable Cost Per Transaction (CPT).

MATRIXX Online Charging delivers sophisticated real-time rating and discounting capabilities, giving operators the edge to differentiate, personalize and successfully compete.

Its extreme performance supercharges operators to accelerate their service offerings and easily scales to cost-effectively manage surging network traffic.

Its stability and efficiency drive increased profitability by providing operators with predictable and measurable costs so that service profitability is determined and ensured before services are launched.

**IDC**

White Paper

Common Language Drives Customer Value for All Network
Technology: 5G/MEC and Virtualized Networking Included

Sponsored by: iconectiv

Karl Whitelock
January 2021

### EXECUTIVE SUMMARY

iconectiv TruOps Common Language was established to facilitate the service design and asset
tracking needs of the operations and business management processes for prevailing and emerging
network connectivity architectures. Common Language has been used by communications service
providers for over 40 years.

Complexity from new technology evolution (e.g., network virtualization, private networks, hosted
networks, 5G, multi-access edge computing [MEC], and the Internet of Things [IoT]) requires assets to
be aligned with business and technical objectives to keep costs within expectations, address end-to-
end (E2E) service objectives, support partner accountability, maximize interactive efficiency, and show
business management responsibility. On the basis of its successful long-standing customer
implementations and evolutionary approach to the network management processes, Common
Language is expected to play a major role in the evolution and deployment of new facilities-based
networks and the virtual aspects upon which these new technologies come to rely.

This paper explains how teams with network and partner-provided asset management responsibilities
can achieve business value by maximizing the use of common nomenclature. In addition, the paper
describes how a common naming strategy improves the effectiveness of real-time network operations
and key business management functions. This paper also explains how Common Language can bring
increased awareness when defining, launching, and managing new network-based services.

### Introduction

As network technology and business strategies continue to evolve, the greatest challenge asset-based
communications service providers face is how to manage the physical and virtual assets that define
the services they provide. Understanding the physical and logical placement of assets is strategic to
several internal operations functions including network planning, inventory, service orchestration,
catalog, activation, network assurance, service-level agreements (SLAs), policy, rating, and charging.
The multilevel construct of the underlay and overlay connectivity infrastructure and the E2E partner-
aided services to customers of all types brings additional layers of asset tracking complexity that must
be addressed by each of these business and operations management domains.

January 2021, IDC #US47230621

Brian Cappellani
CTO & VP Engineering

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Solutions for Enabling Lifetime Customer Relationships

**Pitney Bowes**
Software

## Customer Centricity in the Telecommunications Industry

Transformation from Product-Centric to Customer-Centric
and Creating Competitive Advantage Along the Way

WHITE PAPER:
COMMUNICATIONS

Kevin McShane • Vice President, North America
Pitney Bowes Software

## Brochures

# Cloud Connectivity Management Made Simple: Your Cloud Services Are As Good As Your Network

Bruno Giguère, Advisor – CTO Office, EXFO

## INTRODUCTION

Cloud services are the Holy Grail for service providers. As enterprise customers look to reduce IT expenses, cloud services are looking more promising than ever in terms of achieving these savings. Although multiple stakeholders are increasingly involved in the delivery of cloud services, none have as much impact as cloud carriers.

But first, let's start with a simple question: "What exactly is cloud computing?" According to the definition recently published by the National Institute of Standards and Technology (NIST), "Cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction." The document further elaborates on its definition by providing a list of essential characteristics, in addition to service and deployment models. The essential characteristics are: on-demand self service, broad network access, resource pooling, rapid elasticity and measured service. A definition for each characteristic is provided in the following NIST publication. By applying a network view of these characteristics, it becomes immediately clear that a static and classic network is not able to deliver on these promises. An intelligent and dynamic network is mandatory to delivering on these essential characteristics.

Cloud transport connectivity can be described as the connectivity between cloud consumers and cloud content. This connectivity makes delivery of cloud computing services to the cloud consumer possible. In order to deliver this type of connectivity, cloud carriers need high-performance services with multiple classes of service and high availability.

Cloud application connectivity can be described as the connectivity between cloud content. This connectivity provides the ability to move data between the computing resources via different data centers. For cloud application connectivity, services must be high performance and be available at all times.

This application note discusses the technologies being used to deliver the different type of connectivity, and the management steps (e.g., activation, performance monitoring and troubleshooting) required to successfully deploy cloud computing services.

## GOT CONNECTIVITY?

To deliver cloud computing services, cloud providers must possess the computing infrastructure necessary to process and store very large amounts of data, and rely on cloud carriers to connect all the pieces together. This section covers the different types of connectivity used to deliver cloud computing services in more detail, and also covers the technology used to achieve this connectivity.

### Cloud Transport Connectivity

The original connectivity strategy for cloud computing was the Internet. What better a solution than the most ubiquitous WAN technology to access data centers? Although the Internet is great for consumer applications, it lacks the attributes mandatory for enterprises: security, network performance, data governance and regulatory compliance [MEF CS].



Figure 1. Cloud connectivity

Figure 1 shows the data flow for delivering cloud computing services and the two types of connectivity required, as follows:

1. Cloud transport connectivity
2. Cloud application connectivity



Figure 2. Current challenges with cloud service delivery.
(Source: Metro Ethernet Forum)

EXFO | Assessing Next-Gen Networks

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# Whitepapers

MDS BillAnalyzer

**Deliver clear e-bills to business customers, provide the management information and customized reporting they need to effectively manage their accounts and services, simplify integration with existing infrastructure, improve ROI and reduce risk.**

### Consolidated e-billing and Analytics for Business Customers

Communication Service Providers (CSPs) are faced with the challenge of how to increase revenues and drive up profitability despite intense competition and slow growth in core markets. One revenue growth strategy being pursued is to expand into new business areas and increase the range of products offered. However, this expansion can increase billing complexity and have a negative impact on customer experience. As business customers represent a significant source of revenues for CSPs, it is imperative to deliver increasing levels of value to customers while reducing complexity and minimizing the cost to serve.

Businesses are demanding access to tools that enable them to view their consolidated bills, analyze usage, leverage business intelligence reports and control the cost of the services they use across their organization. CSPs need to satisfy this need to differentiate from the competition, attract and retain key customers, and efficiently deliver a superior customer experience.

### MDS BillAnalyzer

MDS BillAnalyzer is a sophisticated e-billing and analytics application that allows you to present an integrated view of products and services to business customers. It provides a seamless customer experience from disparate billing systems and allows business customers to manage their consolidated bills in a convenient manner that eliminates the need for paper bills. Powered by the Lavastorm Analytics Engine, MDS BillAnalyzer provides light-touch integration capabilities to deliver rapid go to market and low-risk deployment that capitalizes on existing infrastructure.

MDS BillAnalyzer

MDS BillAnalyzer Analysis Dashboard

### Advantages for CSPs

#### Single View of Products and Services

MDS BillAnalyzer has been designed to be billing-system agnostic. It streamlines the task of bringing together information from multiple billing systems, presenting the customer with a single, converged view of their services. Its non-intrusive ETL functionality and standard APIs simplify the capture of data from multiple sources, provide data synchronization and assurance, support data enrichment for presentation, and offer rapid system integration with low project risks and costs.

#### Single View of Customer

With MDS BillAnalyzer, CSP care staff and relationship managers can view bill and usage data in the same way as customers. It provides them with a holistic view of the customer and their services, enhancing first-time call resolution and helping staff to have a better understanding of the true value of the customer.

**MDS**

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## Presentations



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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

# EXFO Service Assurance and Juniper Networks Assure Performance and Quality of Multiplay Networks

## BENEFITS SUMMARY

▸ Ensures service performance and quality throughout the multiservice delivery network

▸ Enables service providers to establish a quality advantage to increase customer satisfaction and reduce churn

▸ Delivers actionable information to proactively identify, diagnose and resolve issues before subscribers are impacted

▸ Reduces operational costs by minimizing truck rolls and maximizing technician and customer service time

The promises of increased average revenue per user (ARPU), lower operational expenses and gaining a competitive advantage are driving service providers to expand their multiservice IP networks. Voice, video and data services over separate networks are being converged over next-generation IP networks to deliver interactive multiplay service offerings. Providers are banking on these multiplay bundles to build customer loyalty, increase customer satisfaction and significantly reduce churn.

As providers roll out these new, dynamic business, communications and entertainment services, they face significant challenges to deliver services bundles that exceed the quality expectations of their subscribers. While the converged network simplifies service delivery, it is very complex and must be properly managed and monitored to meet quality of experience (QoE) and quality of service (QoS) expectations.

## BUILDING A SERVICE-AWARE DELIVERY ARCHITECTURE

The launch of multiplay services requires that best-effort Internet networks evolve into secure, resilient infrastructures that can assure user experiences. The transition introduces many considerations that must be addressed. For example, video service delivery can vary greatly from one time to another with multiple sources impacting traffic volume and quality.
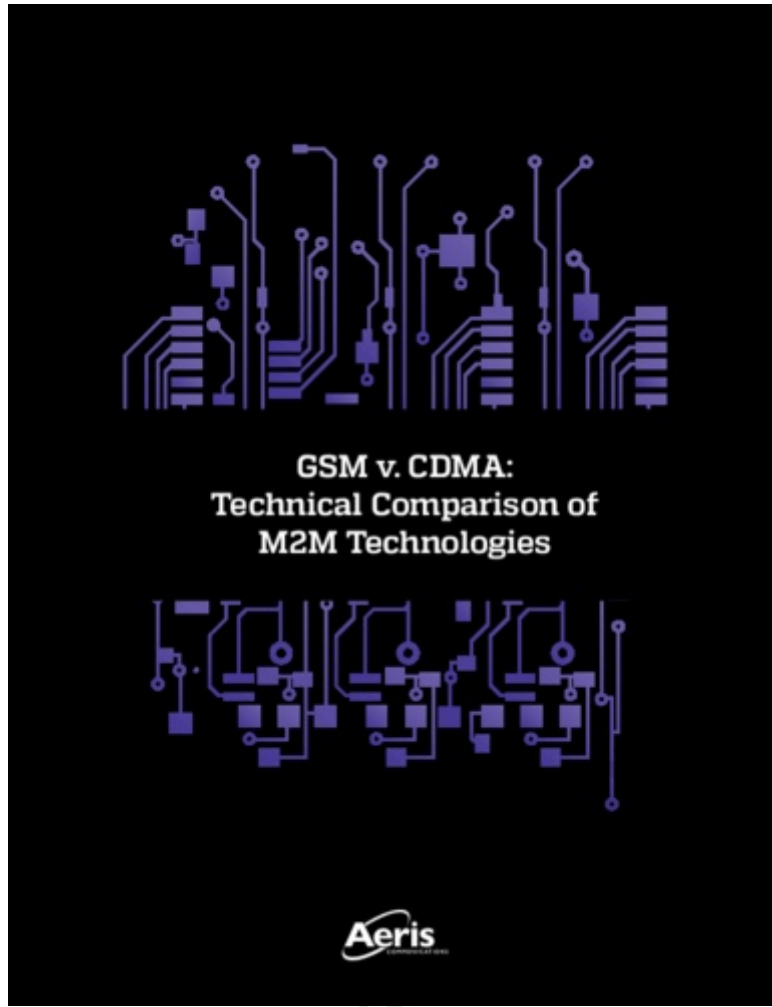
Delivering multiplay services means service providers must re-examine their network architectures and make decisions that will affect their success now and in the future. Offering a broad portfolio of scalable, intelligent systems, Juniper Networks provides service-aware network solutions for introducing and further developing multiplay services. Juniper's unique converged edge architecture enables the dynamic allocation of bandwidth, to efficiently deliver high-quality multiplay services from multiple sources, including voice, video, data, gaming and more. The company's proven experience and partnerships with companies like EXFO Service Assurance give providers confidence in their execution.

## THE NEED FOR MULTIPLAY SERVICE ASSURANCE

While bundled multiplay service offerings can help build customer loyalty, it is essential for providers to monitor the performance and quality of their services to continually ensure customer satisfaction. Quality and performance issues that can result in service interruptions and downtime will force customers to switch to other providers that can promise higher quality services at similar prices. Competition is pushing providers to develop an advantage based on quality because price alone is becoming less of a factor.

To establish a quality advantage, providers need to shift from pure network management tools to converged service assurance solutions that ensure the end-to-end delivery of critical IP services. Simply gathering statistics from network devices does not offer providers the necessary service intelligence to monitor performance and quality.

A converged service assurance solution coupled with a network capable of supporting multiplay services enables providers to continually meet customer expectations and verify service-level agreements (SLAs). Service quality matters and business success relies on it.

**EXFO** | Service Assurance

Telesperience case study

**Neotel**

prepared by
**telesperience**

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**ONTOLOGY**

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# THE EMC SOLUTION FOR SERVICE ASSURANCE

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

## ENSURING HEALTHCARE SERVICES AND APPLICATION PERFORMANCE

As a CIO or IT leader of a Healthcare company, you have a twofold 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

### 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."

Gartner: Key Issues for IT Operations Management, 2011

**EMC²**

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