Monday, April 14, 2008 - Morning Tutorials

8:30AM - Noon
IP/MPLS in Mobile Radio Access Networks
IP/MPLS Forum
Nikhil Shah, *Juniper Networks*
David Sinicrope, *Ericsson*
Widely deployed broadband is coming to mobile networks in the form of High Speed Packet Access (HSPA) Evolution Data-Optimized (EV-DO) and WiMAX networks enable new mobile applications and services. Some of the biggest challenges that will result from this data and bandwidth explosion will be in the backhaul and aggregation functions that take place in the RAN. Histori-cally RAN backhaul networks have been voice centric, low capacity and a source of major operational expense for mobile operators. New infrastruc-ture technologies need to be able to support legacy access types, leverage cost points of newer transport types such as Carrier (Metro) Ethernet, and leverage the high availability, resiliency, and Quality of Service capabilities of IP/MPLS technology.

This tutorial will examine the principal drivers for a new IP/MPLS backhaul transport infrastructure that accommodates the scaling needs of the evolving mobile networks. Key challenges, options, benefits and tradeoffs are explored for solutions supporting several prevalent applications. Key existing and emerging industry standards/agreements are referenced.

8:30 - Noon
Metro Ethernet Forum Tutorial (Multi-part)
Carrier Ethernet Attributes and Industry Specifications
Moderator: Mike Lerer, *Soapstone Networks*
Overview of the five attributes. Standards activities update (MEF, IEEE, ITU-T). MEF Specifications Overview & Work in Progress
Mobile Backhaul & MEF 18 Update
Moderators: Steve Dyke, *Alcatel Lucent*
Gary Leonard, *Alcatel-Lucent*
Panelists: Manish Gulyani, *Alcatel-Lucent*
Sunil Kkandekar, *Alcatel-Lucent*
Discussion on MEF use cases. UNI Requirements (Ethernet OAM and Recovery Requirements). Service Requirements (CoS, Service Types, and Sync)
Carrier Ethernet Network to Network Interface
Moderator: Tom DiMicelli, *Juniper Networks*
Panelists: Alcatel Lucent, *TBD*
What is the Ethernet Network to Network Interface (E-NNI) and why is it important? Scope of the MEF's ENN-I Phase I work — what's in, what's out. Extending MEF services across multiple Service Providers Out of Franchise Access to CEN Near Term challenges Project Roadmap & Closing Remarks
Certification Status Report
Moderator: Tom DiMicelli, *Juniper Networks*
Reviewing the process and procedures of adopting MEF certifica-tions. Who and what have been MEF certified. The Process for MEF Certification..

8:30AM-Noon
MPLS L2/L3 VPNs
IP/MPLS Forum
David Christophe, *Alcatel-Lucent*
The half-day MPLS Virtual Private Network (VPN) Tutorial discusses MPLS Layer 2 VPN models, the MPLS Layer 3 RFC2547-bis model, and briefly highlights the Virtual Router (VR) model. The tutorial describes and con-trasts MPLS VPNs to other types of VPNs in use today. The Layer 2 material gives an overview of the different encapsulation drafts available and the ongoing work in the IETF, ITU, and the IP/MPLS Forum. We briefly highlight the Ethernet Virtual Private LAN Segment (VPLS) work for Ethernet Transparent LAN Services (TLS). The Layer 3 material describes the reference models for MPLS RFC2547 VPNs and details the set-up and operation of Layer 3 MPLS VPNs.

Afternoon Tutorials

1:30-5:00PM
Multicast in MPLS/VPLS Networks
IP/MPLS Forum
Dr. Yakov Rehktor, *Juniper Networks*
This tutorial focuses on the emerging industry standards/agreements supporting multicast in BGP/MPLS VPN and VPLS networks. Key options, benefits and tradeoffs are explored for solutions supporting several prevalent service provider and enterprise applications. Key existing and emerging industry standards/agreements are referenced.

1:30-5:00PM
Next Generation Ethernet
Santiago Alvarez, Manager, Technical Marketing, *Cisco*
With the growth in mobile broadband and triple play, there is quite a bit of focus on Ethernet Transport and service oriented networks. The attention to such dynamics has resulted in new proposals for overlays, architecture techniques and supplements to the Ethernet standards. This article discusses these industry dynamics; and, the new technology proposals by contrasting these proposals with existing mechanisms. This tutorial further describes where these technologies integrate into common network deployments; and, will explore the applicability of new and existing services within the context of these new proposals. The authors will provide updates on the trends in NGN Ethernet as well as provide an overview of current standards work related to Ethernet transport. Finally, the authors will provide guidance on implementing network services using Ethernet Transport.

1:30-5:00PM
MPLS Inter-Carrier Interconnect
IP/MPLS Forum
Hari Rakotoranto, *Cisco Systems*
Paresh Khatri, *Alcatel-Lucent*
BGP/MPLS VPN and L2 VPN services supported by MPLS continue to exhibit significant global growth. For a growing number of Enterprises, these services are extending beyond the reach of a single carrier and require a multi-carrier solution. This tutorial explores the emerging requirements and standards work associated with support of MPLS services across carrier boundaries. The use of a MPLS-ICI for support of BGP/MPLS VPNs and PW support for existing L2 services will be discussed. Key issues that are addressed include signaling/routing, resiliency, CoS and OAM functions.

Nemertes Pilot House Awards Dinner

Tuesday, April 15, 2008

MPLS Present & Future

8:30 - 9:15am
Industry Forum Update
Andrew Malis, Chairman and President**,** *IP/MPLS*
Mike Tighe, Chairman Metro Ethernet Forum, Executive Director of Business Product Strategy, *Verizon*
During this session we'll hear status updates and major initiatives from leading industry forums in the MPLS and Ethernet space.

9:15-10:00am
KEYNOTE: Underlying Business & IT Trends Driving the Growth of Ethernet and MPLS.
Mike Tighe, Chairman Metro Ethernet Forum, Executive Director of Business Product Strategy, *Verizon*

10:15-10:45am
Communications Services Trends
Robin Gareiss, Executive Vice President and Founding Partner, *Nemertes Research*
In late 2006 and early 2007 Nemertes Research undertook a benchmark to look at the communications services market. Specifically we benchmarked enterprise adoption of services such as MPLS, carrier Ethernet, and hosted services including VOIP, SIP trunking, and conferencing and collaboration services. During this presentation Executive Vice President and Senior Founding Partner Robin Gareiss will discuss the major findings of this report, including what enterprises are adopting, how they are negotiating contracts, and what they are paying.

10:45-11:15am
Enterprise Global MPLS Case Study: NetApp's Transition and Use of Global MPLS
Michael Morris, Team Lead - Network Engineering and Architecture, *NetApp*
Two years ago NetApp was dealing with a demanding and expanding user population, numerous office relocations, and 30% sales growth, but had a small company network with limited scalability, decentralized Internet access, and high cost circuits. To address these issues, and position NetApp as a $6 billion enterprise, NetApp IT Networking team set out to design, procure, and build a new global network based on MPLS with integrated QoS, WAN Ethernet, bandwidth scalability, and traffic segmentation. The new network, in use today, is all that, and more.

11:15-11:45am
Trends in Global Enterprise Network Architecture
Fang Wu, VP Customer Solutions, *NTT America*
Over the last 6 years, we have been helping enterprise customers to migrate their legacy networks to MPLS based VPNs. We have actually seen the network deployment in a global environment consisting of MPLS VPN, IPsec VPN, leased line and Ethernet. We also have seen that hosting/data center colo in a network has been increasingly playing an important role in enterprise architecture. During this session we'll present our observations and findings on global network service trends.

11:45-12:15pm
Service Provider Choices for Ethernet Services
Andy Malis, Director, Packet Network Architecture, *Verizon Communications*
Public Ethernet services are exploding in popularity due to the ubiquity and low cost of Ethernet interfaces on end-customer equipment, the relative simplicity and almost universal use of Ethernet-based networks within enterprises, and the emergence of carrier-class equipment and standards capable of supporting both metro and wide area carrier Ethernet networks. However, both the standards and vendor communities have produced a wide range of choices for how a service provider could deploy Ethernet services, including, but not limited to, native Ethernet-based services using Q-in-Q encapsulation with 802.1ad Provider Bridge Networks (PBN); native Ethernet-based services using Mac-in-Mac (801.1ah) encapsulation with Provider Backbone Bridges (PBB); native Ethernet-based services with PBB-TE (801.Qay); MPLS-based pseudowires and Virtual Private LAN Services (VPLS); Ethernet transport over next-gen SONET/SDH; and Ethernet transport on DWDM optical transport platforms. The purpose of this talk is to compare and contrast these various alternatives to see where each might make the most sense for a service provider to deploy.

Noon-2PM Lunch in exhibit Hall

The Great Ethernet Debate

2:00-2:30pm
Putting the "Carrier" in Ethernet with MPLS
Marc Lasserre, Principal Scientist, **Alcatel-Lucent**
This session provides a "how to guide" describing the enabling MPLS technologies and network and service architecture "rules of thumb" that are allowing operators like VPN to deliver a portfolio of complementary Ethernet VPN and IP VPN services on a single, converged IP/MPLS network.

2:30-3:00pm
The Ethernet Infrastructure Toolkit
David Allen, Consultant Architect, CTO Office, *Nortel*
The converged metro is expected to support numerous applications ranging from circuit emulation and wireless backhaul to broadband aggregation to L2 and L3 VPN services. When considering metro transformation and support of these applications, numerous requirements emerge ranging from distribution of timing and frequency information to the support of the connectivity service set defined by the Metro Ethernet Forum.

Since the IEEE commenced work on 802.1ah Provider Backbone Bridges, Carrier Ethernet has rapidly accreted features that significantly expand the role Ethernet can assume in the network. In particular, since the advent of PBT (now 802.1Qay PBB-TE), much attention has (rightly) been lavished on the prospect of the CAPEX, OPEX and scalability benefits an Ethernet based metro could bring to the network transformation equation. This provides an opportunity to both de-layer the network, and accelerate the deployment of the sort of bandwidth emerging services demand. At the same time the ubiquity of Ethernet facilitates integration of MPLS based services into the overall convergence framework.

This presentation will analyze the requirements of net generation infrastructure and will map emerging Ethernet based solutions on to those requirements. Ultimately the overall benefits of an "Ethernet-for-Ethernet" metro are illustrated.

3:15-3:45pm
MPLS+802.1ah
Dr. Luyuan Fang, Cisco
MPLS L2 technologies - VPLS and VPWS have been widely deployed to support L2 transport and Ethernet services. IEEE 802.1ah – Provider Backbone Bridges (PBB) is a natural evolution of 802.1ad / Q-in-Q Ethernet access technologies. 802.1ah brings significant scaling improvement in terms of MAC addresses and Service Instances. When combining MPLS and PBB, we have the advantages of both worlds to provide robust and scalable Carrier Ethernet services. This presentation will discuss options for MPLS + 802.1ah including VPLS extensions with 802.1ah and 802.1ah networks over a MPLS/VPLS core.

3:15-5:00pm
PBB/PBB-TE, T-MPLS & VPLS: What's the Right Approach?
Andrew Malis, Director, Packet Network Architecture, *Verizon*
Tom Nadeau, Senior Network Architect BT 21CN End-to-End Architecture, *BT*
Azhar Sayeed, *Cisco*
David Allen, Consultant Architect, CTO Office, *Nortel Networks*
Marc Lasserre, Principal Scientist, *Alcatel-Lucent*
Provider Backbone Bridging (PBB)/Provier Backbone Transport and Transport MPLS have gathered a great deal of attention from service providers and vendors alike. During this session we'll discuss service provider views toward PBB/PBB-TE, T-MPLS, and VPLS with an eye toward understanding service provider demands, opportunities and trends.

5 - 7PM Reception in Exhibit Hall

beer & pizza shootout

7:00-9:00pm
The End of the Internet?
In November of 2007 Nemertes Research published a report entitled "The Internet Singularity Delayed: Why Limits in Internet Capacity Will Stifle "Innovation on the Web". In this study Nemertes noted that investments in Internet infrastructure, particularly at the access layer in North America, were insufficient to meet growing demand, with a likely result that the Internet will face "brown-out" conditions as early as 2010. During this session we'll discuss the future of the Internet, addressing questions such as the case for network neutrality, how Internet service providers can address infrastructure demands on their network, and what should be done from an enterprise, service provider, vendor, and government perspective to foster the growth of the Internet and Internet-based applications
Moderator: **Johna Till Johnson**, President and Founding Partner, *Nemertes Research*
Panelists:
Dr. John Day, Professor of Computer Science, *Boston University*
Dave Schaeffer, CEO, *Cogent Communications*
John Curran, Chairman, *ARIN*
Dr. Stuart Elby, Vice President, Network Architecture, *Verizon*
Mike O'Dell, Venture Partner, *New Enterprises Associates*
Scott Bradner, *Harvard University*

Wednesday, April 16, 2008

The Next Generation Internet and WAN Services Architecture

8:30-9:15am
KEYNOTE: IMS and the Foundation for Converged Customer Services
Ben Vos, Vice President, Core Technologies, *Sprint Nextel*
Telecommunication acronyms don't exist in a vacuum: they're used by service providers to enable services that help their customers to lead richer lives or do better business. The combined customer interests in user mobility, service simplicity, and overall cost effectiveness are driving the current deployment of technologies like IMS. And what makes those technologies interesting is how they end up being used by the end customer.

We will review the wireline and wireless components of a modern service provider's network, explain how IMS helps enable new functionality within the overall network architecture, and look at mobile data and integrated, managed voice and data services that are being offered right now as a result of the integration of these technologies.

9:15-9:45am
Radio in the Local Loop
William Flanagan, President, *Flanagan Consulting*
This session discusses the use of emerging 3G/4G wireless services such as GPRS, EVDO, and WiMAX as local loop alternatives. Scenarios and case studies to be discussed include wireless as backup or primary data and voice services for services including SCADA, AMPS replacement, and other vertical applications

10 - 1PM Lunch in exhibit Hall

1:30-2:45pm
IPv6: Ready or Waiting?
Todd Underwood, VP and General Manager, *Renesys*
John Curran, Chairmain, *ARIN*
David Siegel, Director of Data Services Product Managemet, *Global Crossing*
IPv6 has been in development for years, with a number of test and pilot deployments around the world. But at long last we appear to be ready to move into large-scale production deployments led by global initiatives and government efforts. During this session we'll look at IPv6, the current status of the protocol, requirements for deployment, and challenges faced in transitioning the Internet to this next generation protocol.

2:45-3:15pm
All Meshed Up: How P2P, VOIP, SOA and SaaS Work with MPLS Architectures to Impact Management WAN Design and Architecture Strategies
Mark Urban, Director of Product Marketing, *Packeteer*
With MPLS enabled IP-VPN architectures breaking the traditional hub and spoke model of network architectures, application architectures are rapidly evolving. In this session, we'll explore the core relationship between the connectivity infrastructure and changing application technologies. We will also explore and debate the impact of this evolution on network management, and strategies to manage through a rapidly changing environment.

3:15-3:45pm
Rethinking the Internet Routing Architecture
Ron Bonica, *Juniper Network*
The Internet routing architecture is under strain. Based on a decades old protocol, Internet routing architectures are struggling to meet the growth of the Internet, and of Internet-based applications. New approaches such as flow-based routing, and Locator/ID Separation Protocol (LISP) offer potential to reduce complexity and overhead of growing BGP tables and route processing requirements. During this session we'll discuss the issues surrounding the growth of Internet routing tables, and how alternative approaches may provide for more scalable, more reliable routing architectures.
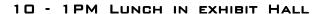
3:45 - 4:45pm
The Data Center Revolution and its Impact on Ethernet and MPLS
Umesh Kukreja, Nokia Siemens
As Data Centers increasingly become the 'nerve centers' of next-generation Internet networks, they are going through a major evolution. This evolution raises some crucial questions in terms of its impact on Ethernet and MPLS:
- What is the impact of Ethernet and MPLS on Data Center growth? And Data Center growth on Ethernet and MPLS?
- What are the applications for Ethernet extension services inside a Data Center?
- How are intra-Data Center traffic patterns evolving, and what impact will they have on metro transport and MPLS peering networks?

For this session, Nokia Siemens will partner with a large Data Center operating company with Data Centers in each of the major European cities to address the evolution of Data Centers. Attendees will leave the session with a greater understanding both of the market opportunities the Data Center evolution presents, and broader knowledge of the Ethernet and MPLS solutions they can leverage to pursue this opportunity.

Future-Net
MPLS, Ethernet and Beyond

4:15-5:00pm
Next Generation Networks Application-Driven Network Design
Dierde Doherty, *Bell Laboratories*
Bell Labs and Alcatel-Lucent have been working on complex NGN design issues for a number of years with operators around the world. Based on new design methods and algorithms, and our experience in IMS, Ethernet, and MPLS design, our team has developed an integrated design methodology, which is specifically designed to achieve an optimized multi-layer, multi-service, and multi-vendor design. The design is application-driven, i.e. the set of applications that will run on the shared infrastructure must first be characterized, and the resultant traffic must be modeled. The integration guarantees that all layers of the network design are based on the same assumptions and data about the existing network, and the expected traffic loads, and allows the user to assess whether the overall design meets the technical and financial goals.

The MSND methodology has been developed using numerous customer case studies. Example case studies will be provided showing how this methodology allows network service providers to achieve an optimized multi-layer, multi-service, multi-vendor network design that meets their business goals.

Thursday, April 17, 2008 - Service Provider Track

8:30-9:15am
KEYNOTE: The Role of MPLS Technology in The Evolution of 4G Mobile Networks
Doug Hunt, Director, IP Division, *Alcatel-Lucent*
This presentation examines the role of MPLS technology in the evolution to 4G mobile networks, and considers mobile WiMAX as a case study. As mobile operators begin deploying a new generation of services, they will require the flexibility to support a range of access technologies, with an evolution path to all-IP transport. Issues addressed in this presentation include efficient support for a range of access types, meeting service demands including resiliency and QoS, and synchronization and timing distribution in what is often a multi-technology and multi-provider infrastructure. The presentation considers deployment scenarios leading from current-generation to 4G network infrastructures such as those supporting mobile WiMAX."

9:15-9:45am
Making MPLS VPN Management Scalable with Network-wide Traffic Analysis
Cengiz Alaettinoglu, CTO, *PacketDesign*
With the emergence of MPLS VPNs as mainstream WAN offerings, service providers have been hard-pressed to manage per-VPN and network-wide CoS traffic across their entire networks in a way that would assure that they meet customer SLAs. This is because gathering and processing sufficient amounts of VPN routing and traffic information across a large service provider MPLS VPN network has not been feasible until now.

A new approach to overcoming the scalability barrier in MPLS VPN network management now gives service providers an unprecedented level of visibility into their service and core network traffic. This session will address the current state of MPLS VPN and core IP traffic analysis – including the challenge of analyzing service traffic in the virtualized MPLS VPN routing infrastructure – and examine ways to achieve ways to achieve traffic visibility from the P to PE perimeter.

9:45-10:15am
Inter-Provider MPLS Solutions
Sangita Pandya, *Cisco*
Carrier networks may need to expand their geographical coverage to carry a variety of traffic types that must be routed across multiple areas, or across other carriers' networks. To create new services, partnering with other providers may be essential. Inter-AS MPLS solutions can help address these problems. This session covers architectures and protocols for MPLS Layer 2 VPNs, Layer 3 VPNs, multicast VPNs, and traffic engineering for multi-AS MPLS networks. Both inter-AS and Carrier Supporting Carrier (CSC) deployment models are discussed, as well as challenges for QoS, security, and high availability in building inter-AS networks. Best practices and guidelines are presented for building MPLS networks that address these challenges.

10:30-11:00am
A Study of Video over IP over Various PON and DSL
Pat Sims, Senior Systems Engineer, *ADC Telecommunications*
This study investigates key elements of Video over IP over various PON and DSL architectures including:
• Providers are seeing competition by cable operators offering voice services and an ever increasing diverse video service portfolio.
• VOD and HD contents are on the rise, and their bandwidth requirements are key factors in providing a robust architecture that will support Video over IP.
• Multiple video feeds are no longer driven by the number TV sets per household alone. This presentation discusses the requirements imposed on various PON and DSL architectures.
• PON and DSL architectures may be able to offer enough bandwidth for a competitive video service offer with or without MPEG-4.
• Multiple bandwidth tiers are determined by line rates, video compression technologies, and multi-cast techniques; not PON (BPON, GEPON, GPON, WDMPON or EFM) vs. DSL.
• There are significant opportunity costs for inaction or delayed action to capture revenues from triple and quadruple play offers that include a robust video service.

11:00-11:30am
Interdomain LDP-BGP VPLS Interworking
Amit Shukla, *Juniper Networks*
VPLS has emerged as one of the dominant MPLS applications today. There are two IETF standards to signal VPLS pseudowires, one using LDP and the other one using BGP as the signaling protocol. Large networks may contain multiple VPLS domains, each setup using a different VPLS-signaling protocol. To extend the VPLS service across these multiple domains, the pseudowires created by the different signaling protocols must be stitched together. Thus, an interworking function is required between the two signaling mechanisms. Existing interdomain VPLS signaling mechanisms are inadequate for this task, as they are based on the assumption that all interconnected domains are using the same signaling mechanism.

This presentation discusses a new scalable and flexible interdomain VPLS signaling scheme which can be used to interconnect multiple domains running either the same or different VPLS signaling mechanisms. We will show how this LDP-BGP VPLS interworking mechanism can be used to create a large-scale VPLS service by deploying BGP-VPLS signaling in the core and gluing existing smaller-scale LDP-VPLS deployments with no changes to the PEs running LDP-VPLS. Some of the highlights of the solution include: resiliency using BGP-VPLS multi-homing, the ability of the border-router providing the interworking function to act as a PE, and use of P2MP LSP within BGP-VPLS domain for efficient flooding and broadcasting.

11:30-Noon
Deployment Architecture, Requirements and Solutions for Multicast over MPLS-based Core
Dr. Zafar Ali, Senior Technical Leader, *Cisco Systems, Inc*
IJsbrand Wijnands, *Cisco Systems, Inc.*
John Evans, *Cisco Systems, Inc.*
This presentation presents typical network architecture for deploying triple play services and list network elements for triple play over MPLS based core. It then lists a set of requirements for the MPLS based multicast core. These requirements includes scalability, fast convergence in the core and the edge, content delivery requirements, bandwidth guarantees and QOS needs, Operation and Maintenance aspects, security concerns and high availability requirements like source redundancy, FRR for link/ node failure, FEC algorithms, bandwidth efficiency robustness and flexibility, etc.

The presentation then outlines a set of core multicast technologies and their associated deployment models. The technology solutions discussed include Native IP Multicast, Multicast VPN (mVPN) based solution, RSVP TE based P2MP tunnels, Multicast LDP (mLDP) based LSP. The presentation then compares these technology solutions for the MPLS based multicast core against above-mentioned requirements.

12:30-1:00pm
Linking Current and Nex-Gen Networks to Deliver Triple-Play Services
Ali Kafel, VP of Telecommunications, *Stratus Technologies*
Investments in existing infrastructure have limited providers' ability to build networks that support VoIP and IN service bundling. But a growing number of providers such as Denmark's Smile Content are building hybrid IP-legacy networks using fault-tolerant signaling gateways as secure, reliable links between current and next-generation technologies. This SIP-based solution enables Smile to implement an IP backbone and broadband access infra-structure to deliver "triple play" services to residential and business customers.

Through the Smile Content case study, attendees will learn how they can realize more value from existing investments by offering legacy services to next-generation network (NGN) customers. As the SIP gateway gives companies like Smile the time to fully depreciate legacy investments, the IP network offers the flexibility to develop innovative new next generation subscriber services.

1:00-1:30pm
PBT: How Performance Testing Ensures its Success
Mike Haugh, Senior Product Manager, *Ixia*
Provider Backbone Transport (PBT) is one of the fastest growing areas of Carrier Ethernet, recently adopted by major service providers like BT (British Telecommunications) and others who find the promise of a converged network based on Ethernet very appealing. Despite the excitement sur-rounding this new method of transport, PBT remains a new, fairly uncharted technology concept which must overcome a variety of challenges before wide scale deployment. Comprehensive performance testing throughout the network is one way providers can ensure PBT prevails over the host of operational and interoperability issues prior to rollout.

This presentation will cover some of the issues service providers are faced with when testing PBT throughout the network. It will also discuss testing methodologies used to validate crucial factors like scalability, QoS, and overall performance so providers can ensure end users continue to experience a high level of service during the adoption of this exciting new technology.

1:30-2:00pm
Ethernet Network Planning - A Multilayer Approach
Dr. Sukant K. Mohapatra, Director, Product Management, *VPI Systems*
Ethernet aggregation networks are all the rage, and the market is expected to reach $1 billion by the end of this year. The interaction between network layers create significant complexity, however, and experts say between 70 and 80 percent of Ethernet network failures are caused by failures in the lower layers.

Planning teams need to take into account the effect of traffic on each layer, but are discovering that planning reliability and disaster scenarios is tougher than they imagined, as backup resources must be made available at each layer in the hierarchy (e.g. IP, SDH, Optical).

This talk examines the issues and challenges in planning carrier grade Ethernet networks with existing and evolving technologies, highlighting the importance of taking a layer approach and conducting multi-layer failure analysis. It will explore the planning dos and don'ts, including how to enable optimal utilization of network infrastructure with high availability and reliability.

Thursday, April 17, 2008 - Enterprise Track

8:30-9:15am
KEYNOTE: MPLS and VPLS - Deploying Solutions and Not Just Technology
Alla Reznik, Group Manager, IP & Ethernet Services, *Verizon Business*
Today enterprises are faced with a myriad of networking options, including Layer 2 and Layer 3 VPNs, whereby determining which is the best option can be confusing. How do you know which one is right for your organiza-tion? Alla Reznik, Group Manager for IP and Ethernet Services, will address what companies should know before they build or buy their next-generation network by highlighting two customers using both Layer 2 and 3 VPN services today from Verizon. The session will provide an opportunity for them to share their key business drivers which led to their ultimate network-ing solutions. They will also share details as to the upsides and potential pitfalls, and what specific applications may have influenced their decisions.

9:15-9:45am
Challenges for Strategic WAN Optimization/WAFS Deployment over MPLS VPNs
Frank Lyonnet, VP Product Marketing, *Ipanema Technolgies*
The WAN is critical to the business of modern Enterprises. Despite techno-logical progress such as MPLS and xDSL, WAN bandwidth is a constrained resource and network delay is bound by physical constraints. The need for WAN Optimization Controllers (WOCs) has emerged in the past few years as a way to address application performance hurdles in selected portions of the network. This presentation will cover the challenges of deploying WAN Optimization at a strategic scale over MPLS VPNs. Both the Enterprise and Service Providers standpoints will be addressed and case studies of Enterprises getting benefits of strategic WAN Optimization through their Telco provider will be covered.

Future-Net
MPLS, Ethernet and Beyond

9:45-10:15am
Filling Bandwidth Gaps Among SMBs
Brett Theiss, Director of Product Management, *New Edge Networks*
Small and midsize enterprises in virtually every industry are aggressively installing private wide area networks. As applications that ride these networks proliferate and become increasingly critical to business continuity, customers require network solutions that fill the gap between DSL and MPLS T1 service levels and price points. Many businesses cannot cost justify next-level investments so they defer buying decisions. However, new service offerings, improved SLAs and customer-centric tools encourage increased bandwidth use and provide stepping-stone investments toward new bandwidth tiers and gaps: T1 to DS-3 to OCx. In this session, Brett Theiss, director of product management for New Edge Networks, an EarthLink company, discusses what can and cannot be addressed with a DSL-based platform and the growth opportunity this represents for businesses and service providers alike.

10:30-11:00am
Carrier-provided Services for Improving Application Performance
Rebecca Wetzel, *NetForecast*
Products to optimize application performance over a wide area network (WAN) are fast becoming main stream. Global enterprises are now familiar with distributed ADS solutions from the likes of Cisco, Riverbed, Juniper and Packeteer - and as their familiarity increases, so does their penchant to purchase these solutions as managed services. Service providers like AT&T, BT Global Services, Orange Business Services, Vanco, and Verizon Business are stepping up to the plate with sophisticated services to measure, control (i.e. protect from degrading under adverse network conditions), and accelerate (i.e. speed up for all users all the time) application performance.

This session will describe the current lineup of service provider offerings to measure, control, and accelerate networked applications. It will also outline industry trends and compare and contrast carriers' offerings with those of content delivery network (CDN) providers such as Akamai.

11:00-11:30am
Understanding the Impact of Change for MPLS-based Networks
Matt Gowarty, Solutions Marketing Manager, *Fluke Networks*
Many organizations are migrating to IP-based networking, including MPLS, to improve overall application performance through any-to-any connectivity and class of service prioritization. The key features associated with this new transport option should improve performance, however, there will be new issues that can arise. Too often enterprises make a change to improve performance for a critical application but negatively impact other aspects. A successful organization should understand the impact of change for MPLS-based networks. This session will highlight best practices in baselining performance prior to a network change to verify the changes positively impacted performance. If there are new issues that arose such as managing remote locations without IT staff or fine-tuning class of service prioritization, the best practices for monitoring and managing these aspects will also be discussed.

11:30-Noon
Negotiating and Implementing MPLS Services
John Lytle, Lead Consultant, *Compass America, Inc.*
While offering a wide range of cost and performance benefits, MPLS presents some formidable management challenges. One is the intrinsic difficulty in defining competitive 'market' rates for a new technology. In addition, implementing MPLS in a global enterprise without adequate planning or governance mechanisms can result in serious and unexpected quality and productivity problems. This presentation will examine keys to an effective MPLS negotiation and implementation strategy. Specific issues addressed will include:
- Using the RFP process to obtain competitive pricing
- Implementing benchmark provisions to enable future adjustments in terms
- Prioritizing applications to optimize performance
- The need to understand activity within the network "cloud"
- Ensuring flexibility to respond to new business requirements

12:30-1:00pm
Telepresence Case Study
Christophe D. Masiero, Partner & General Manager, *Orange Business Services*
This presentation will provide a case study of a Cisco telepresence solution, discussing network and engineering requirements as well as lessons learned.

1:00-1:30pm
Enhancing Application Performance Without More Bandwidth
Eric Jeux, CEO, *Streamcore, Inc.*
Sadly, users often notice slow applications before IT does, triggering a string of distracting help desk calls and inhibited productivity – for IT and the end-user between the slow network and the help desk call. But what can IT do to enhance application performance on their networks to pre-empt slow applications (and help desk calls) besides paying for more bandwidth?

This discussion will cover broader approaches for enhancing performance beyond mere acceleration or optimization, covering techniques such as automating applications to account for bandwidth availability, prioritizing bandwidth usage according to business need and prioritizing applications competing with other traffic types, all aimed at optimizing the network application performance.

1:30-2:00pm
SAN Extension Services - Leveraging Ethernet and MPLS
Umesh Kukreja, *Nokia Siemens*
Businesses of all sizes are growing increasingly dependent on information and data to run their operations, and Storage Area Networks (SANs) increasingly are being deployed by enterprises and service providers to interconnect storage devices and application servers. Until recently, interconnections based on DWDM have been the de-facto solution for SAN extensions. However, the cost of the equipment – especially for small and medium capacities – and the need for dedicated optical fiber have limited SAN interconnection to all but the largest enterprises or institutions.

This session will explore new developments in storage services in detail, including a case study on Orange Business Services' i-SAN, and explain how advanced storage offerings allow small/medium and large size enterprises to benefit from the choice of multiple topologies (P2P, M2P or any-to-any) plus rapid site additions/alterations or on-demand bandwidth provisioning.

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