Understanding the Impact of Change for MPLS Networks

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Agenda

- Drivers of MPLS
- Key features become new challenges
- Does CoS equal QoS?
- “Connectionless” Connection
- Trusting your service provider
- Understanding the impact of change

Drivers of MPLS

- Key drivers
  - *Cost*
  - *CoS/prioritization*
  - *Any-to-any connectivity*
  - *Service provider focus*
- Benefits
  - *Disaster recovery/redundancy*
  - *Prioritization for real-time apps*
  - *Fully meshed infrastructure*
- MPLS migration should improve performance
  - *Impact of change – positive, neutral or negative?*

Key Features Become New Challenges

- Class of Service prioritization
  - *What apps receive which class?*
  - *Have the apps been tagged correctly?*
  - *What happens if thresholds are exceeded?*
  - *Will performance improve?*
- IP-based connectivity
  - *What changes from layer 2 to layer 3-based connectivity?*
  - *Has the importance of remote sites grown?*
  - *Will traffic always come back to HQ or datacenter?*
- Service provider partnership
  - *Is service meeting SLAs?*

Does CoS Equal QoS?

- Vision: CoS prioritization will improve QoS
- Reality: QoS can actually get worse if CoS is not optimized
  - *Exceeding carrier thresholds for critical apps*
    - Do not understand
    - Too many applications on individual class
  - *Misconfigured applications*
  - *Unknown applications*
  - *Impact of data applications on voice/video*
  - *Multiple carriers compound the issues*

"Connectionless" Connection

- Vision: IP-based connectivity is better and faster
- Reality: It can be better and faster but also more difficult
  - *Staff understands PVCs or DLCIs, less familiar with IP subnet-to-IP subnet connections*
  - *Any-to-any creates more challenges*
    - Number of remote users and locations are growing
    - IT staff is consolidating
    - Limited IT staff at remote locations
    - Limited visibility at remote sites more challenging if traffic doesn't flow to HQ
  - *Voice and video to remote sites raise the bar*

Trusting Your Service Provider

- Vision: Carrier core does the heavy lifting for connections and prioritization
- Reality: Must monitor and verify performance
  - *CoS*
    - Has traffic been delivered in same priority
    - Verify service level guarantee has been matched
    - Identify unknown or misconfigured applications
  - *Connectivity*
    - Validate IP-based connectivity
  - *Application performance*
    - IP and legacy applications
    - Voice, video and data

Understanding the Impact of Change

- Cost
  - *Easy to verify for monthly charges*
  - *Must consider any additional cost of management and troubleshooting*
- Network performance
- Traditional application performance
- VoIP performance (if deployed)
  - *VoIP tickets typically take 2.5-3.5 times longer to resolve*
- Service provider(s) performance

Best Practices

- Baseline performance before migration
  - *Without baselines, you'll use personal judgments*
- Visibility into all applications network-wide
- Monitor usage by multiple applications
  - *Apps by CoS, usage by apps and usage to threshold*
- Views into remote site performance
  - *More critical in any-to-any connections*
- Server connect and response time views are helpful
- Independent verification of service provider performance
- Traditional layer 1 and 2 still important

Visibility Options

- Appliance-based monitoring
  - *Visibility into all applications and CoS*
  - *Can monitor layers 1-2 as well*
  - *Carrier performance monitoring (point of demarcation)*
- Flow-based monitoring
  - *Visibility into all IP-based applications and CoS*
  - *Leverages existing infrastructure (routers/switches)*
  - *Typically easier and more cost-effective to deploy*
- Active appliances (shaping, compression, caching)
  - *Follows the viewpoint if you accelerate, you don't need more*
  - *Limited views of service provider performance*

Takeaways – Recommendations

- MPLS-based feature set is fantastic
- Visibility is needed to optimize performance
  - *Class of service and IP-based connectivity*
- Remote site performance should be monitored
- Leverage service providers strengths but measure service levels
- Baseline both pre- and post-deployment
- Plan for future requirements such as unified communications
- Understand the impact of change

History of MPLS-based Visibility

- Fluke Networks has been a leader in managing MPLS
- Flexible deployment options
  - *Appliance-based*
  - *Flow-based*
- Integrated platform for single point of view
  - *Visual Performance Manager*
- Enterprise visibility
- Service provider grade scalability
  - *AT&T, Global Crossing, NTT, PAETEC, Verizon Business*
- Independent, 3rd party verification and measurements