Multiprotocol Label Switching – It's More than Just a Technology Upgrade, it's an Organizational Change

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Agenda

- Introduction
- What is MPLS?
- Benefits of MPLS
- More than a technology upgrade
- Business Process Design
- Organizational Change Management
- Conclusion

Introduction

- The evolution of smart grid is pushing legacy TDM networks to their limits, requiring high bandwidth, low latency, IP-based connectivity
- This drives the need for a converged network, carrying both IP and TDM traffic, while gaining cost and operational efficiencies
- One possible solution is Multi-Protocol Label Switching (MPLS)

What is MPLS?

- A scalable mechanism for transporting data or "services" over an IP-based backbone
- Services define a customer connection, circuit, or traffic domain
  - Can be Ethernet Layer 3 (IP) or Layer 2 (point-to-point Ethernet or VPLS)
  - Can be non-Ethernet (T1/DS0s, RS-232, 4W E&M, etc.)
- Utilities can maintain a single IP-based backbone network that supports both IP and legacy TDM

Benefits of MPLS (I)

- Redundant and Resilient
  - Engineered to rival failover time of SONET
  - Able to attain ~50ms using Fast Reroute
- Transport Agnosticism
  - Tying different IP-based transport technologies together
  - e.g. Packet Microwave, Ethernet over SONET, WiMAX

Benefits of MPLS (II)

- Efficient Use of Bandwidth for TDM
  - Circuits can be provisioned at DS0 level
    - No need to drop off partially filled T1s/VTs at each site
- End-to-End QoS / Traffic Engineering
  - e.g. give SCADA/GOOSE messaging highest priority for customer traffic
  - A connection-oriented treatment of packet switched data

More than a Technology Upgrade

- Generally, the telecom workgroup has the responsibility to operate and maintain the backbone
- Typically, the advent of IP often presents knowledge and skillset challenges
- Migration from TDM-only to a blend of TDM and IP/MPLS represents a paradigm shift for the utility
- Examining only the technology changes is not enough to succeed

Business Process Design

- Existing business processes library will outline how activities were being accomplished
- Utility should employ a strategy utilizing the ITIL framework:
  - Service Strategy
  - Service Design
  - Service Transition
  - Service Operation
  - Continual Service Improvement

Organizational Change Management

- A wide-spread revamp of the roles and responsibilities of the utility's telecommunication and IT workgroups should be considered
- A thorough review of the skill sets required to support the network will also need to be undertaken
- Often times this process will uncover the need for an expansion of the utility's training curriculum

Conclusion

- MPLS allows the utility to behave more like a traditional service provider by supplying the different business units with their customized network service and guaranteeing SLAs
- The utility will not realize the potential benefits without a comprehensive review and redesign of their operational business processes and robust change management program
- These two initiatives help align the utility's methods and procedures with the upgraded technology