Optimizing Performance and Meeting the Challenges of MPLS-based Deployments

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Agenda

- Background
- Challenge – requirements
- Migrating to MPLS
- New challenges with MPLS
- Leverage features – optimize performance
- Takeaways – recommendations

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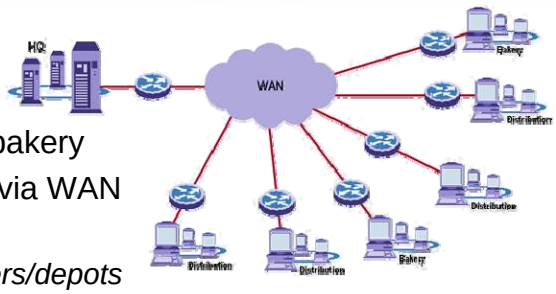
Background



- Industry: Nationwide bakery
- Sites: 200 connected via WAN
  - *20 bakeries*
  - *180 distribution centers/depots*
- Network: Frame relay
  - *Majority hub and spoke, some partially meshed*
- Applications:
  - *Video network – 11 separate network sites*
  - *VoIP is in the plan*
  - *Numerous data applications*

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Challenge – Requirements

- Reduce telecom cost and add value
  - *$6 million transport budget*
  - *Contract was ending*
- Plan for future VoIP requirements
  - *Remote sites may not have sufficient resources*
- Improve video conferencing performance
  - *Challenge of QoS in frame relay*
- Hub and spoke network caused choke points
- Management was extremely difficult
  - *Expensive point product tools*
  - *Single-end views*

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Decision – Migrate to MPLS-based Network

- Fully-meshed infrastructure – eliminate choke points
- Class of service – voice and video performance
- Eliminated 11 separate circuits just for video
- Managed services
  - *Extended visibility into MPLS network performance*
- Upgrade main sites to DS3
- Upgraded remote sites from 256K to T1
- Reduced telecom cost by $1 million
  - *Even with managed service and increased bandwidth*

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New Challenges with MPLS

- Transport worked fine, new features caused the challenges
- Any-to-any connectivity
  - *Traffic doesn't have to come back to key site*
- Class of service
  - *How to verify service provider SLAs*
  - *How to ensure settings are correct*
  - *Cannot exceed threshold levels for highest priority*
- Required visibility for converged applications
  - *Video, voice, and data*
- Realized the need for additional visibility

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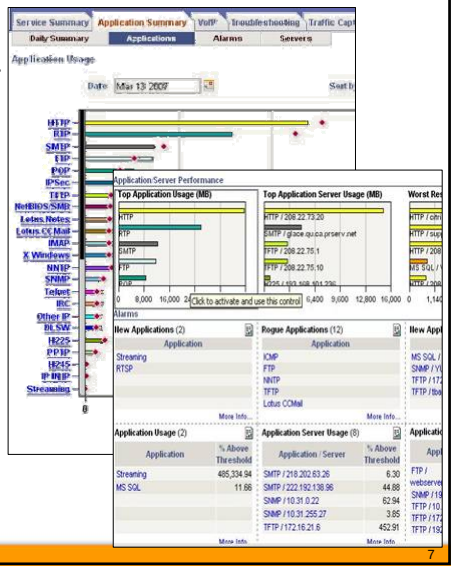
Leverage Features – Optimize Performance

- Decided to leverage service provider managed service offering using Visual UpTime Select
  - *Considered deploying internally*
- Cost-effective
  - *Added bandwidth and visibility and still reduced total expense*
- Leveraged service providers expertise and proactive monitoring
- Distributed visibility
  - *Remote location views and troubleshooting*



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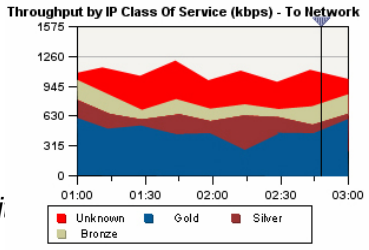
Real Life Scenarios and Benefits



- CoS thresholds
  - *Carrier initially did not upgrade thresholds on cutover*
  - *Would have been extremely difficult to pinpoint without visibili*
  - *With visibility, problem isolated and resolved quickly*
- Prioritization
  - *Limited visibility to verify correct settings and usage by deployment*
  - *Eliminating 11 separate circuits required more monitoring*
  - *Ability to monitor usage per class and by circuit*
  - *Improved performance of video conferencing*

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Real Life Scenarios and Benefits

- Visibility beyond the smartjack
  - *Before managed service, constant finger pointing between enterprise and service provider*
  - *Clear point of demarcation*
  - *Easy to isolate local loop, network and CPE issues*
  - *Faster to isolate and reduce MTTR*
- Distributed visibility
  - *More applications not going through data center*
  - *Visibility for any-to-any circuits was critical*
  - *Reduced trouble tickets and improved overall performance*

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Real Life Scenarios and Benefits

- Enable real-time applications
  - *Improved video conference performance*
  - *Ready for VoIP deployments*
  - *Pinpoint problems between traditional data and real-time apps*
- Visibility into traditional layers 1-3
  - *Not tied to MPLS-deployment*
  - *Visibility helped monitor local loop and port*
- Independent verification of SLAs
  - *Point of demarc provides accurate service level measurements*

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Takeaways – Recommendations

- Contract renewal is a perfect time to transition
- Class of service is extremely difficult without visibility
- Must consider how to monitor BGP for connectivity
- More apps per CoS multiplies complexity
- Verify your carrier performance
- QoS must be set correctly and maintained for long term performance
- MPLS may be right for your organization
- Visibility and management is the key for successful deployments

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