CURRENT MPLS DEPLOYMENT EXPERIENCE

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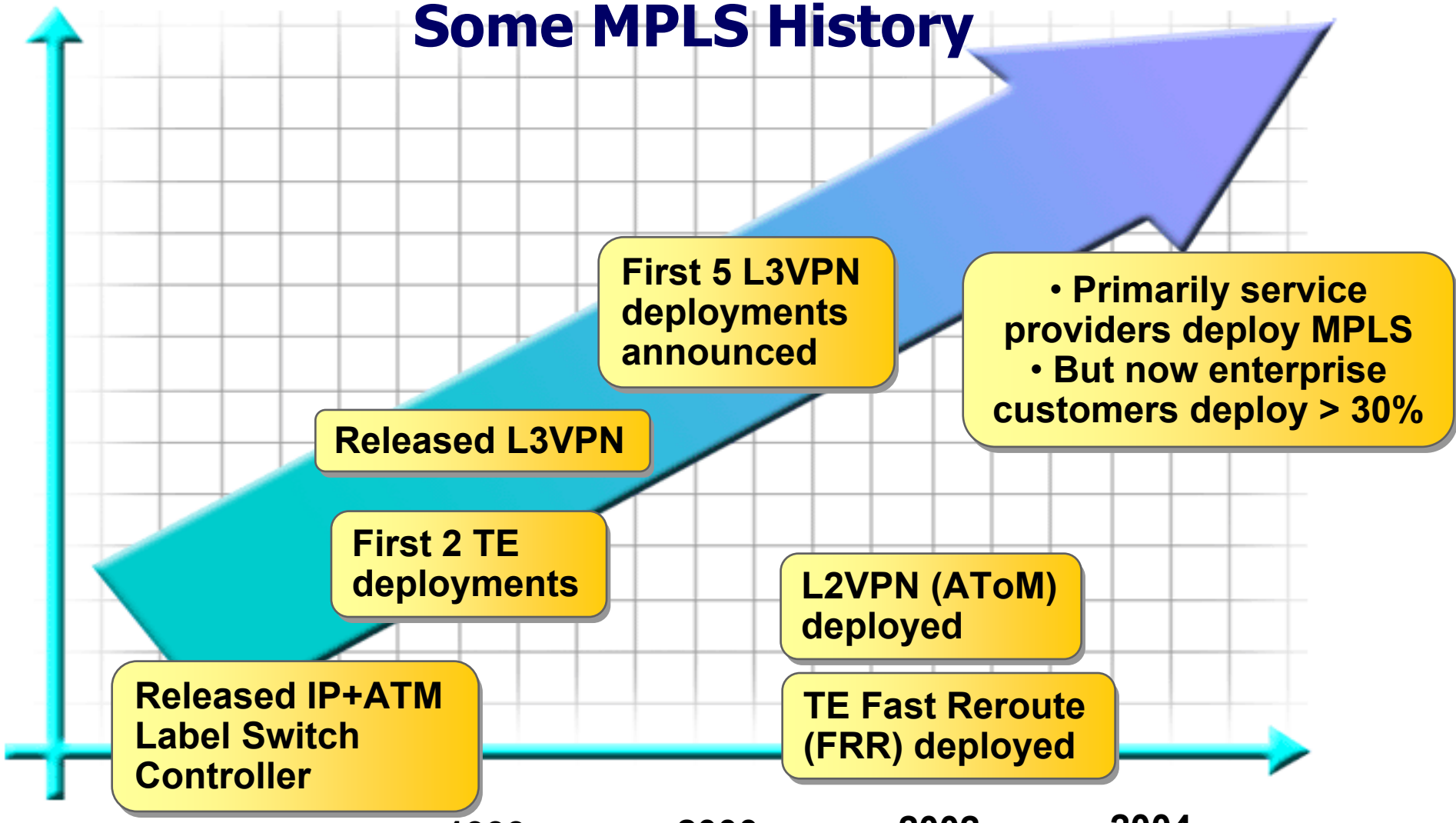
Agenda

- Introduction
- Some History
- IP+ATM Deployment
- Traffic Engineering Deployment
- L3VPN Deployment
- TE Fast Reroute (FRR) Deployment
- AToM Deployment
- Conclusion

Some MPLS History



IP+ATM Deployment - the first customers in 1999/2000

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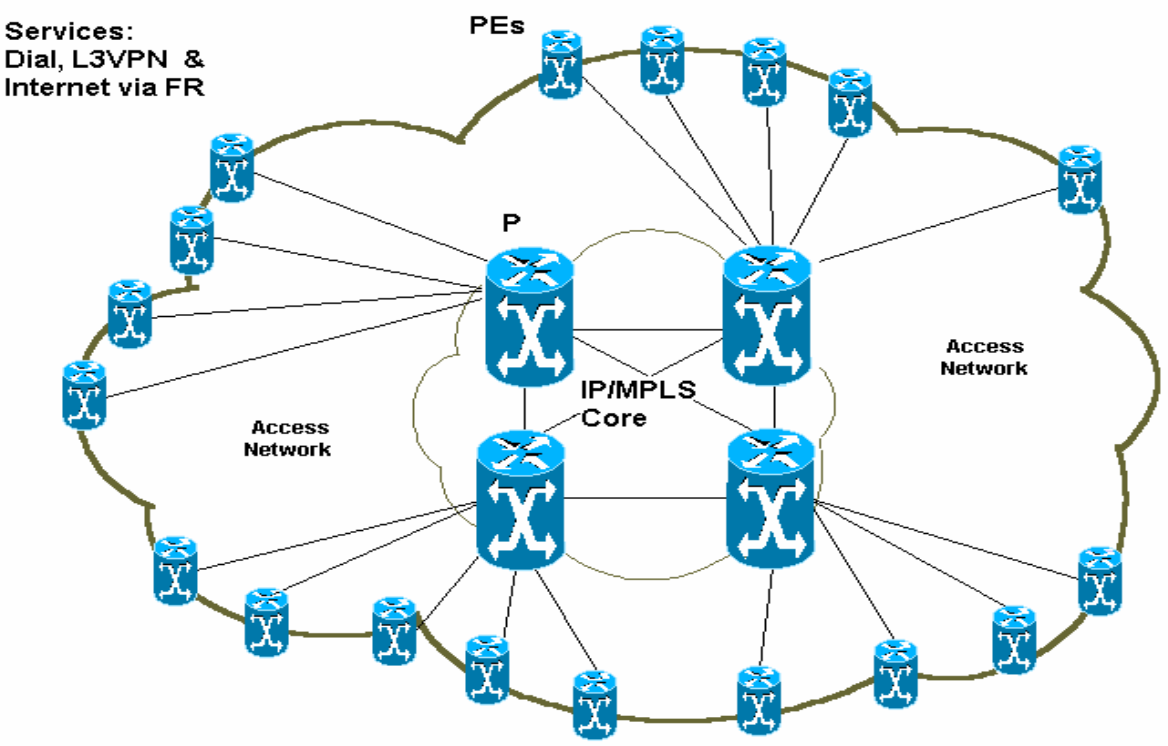
Early IP+ATM Deployment – numerous SPs

Requirement: Provide Frame Relay Internet & L3VPN services
Solution: Deploy MPLS LSC & LC-ATM via BPX & MGX ATM switches



TE Deployment – over 15% of customers surveyed

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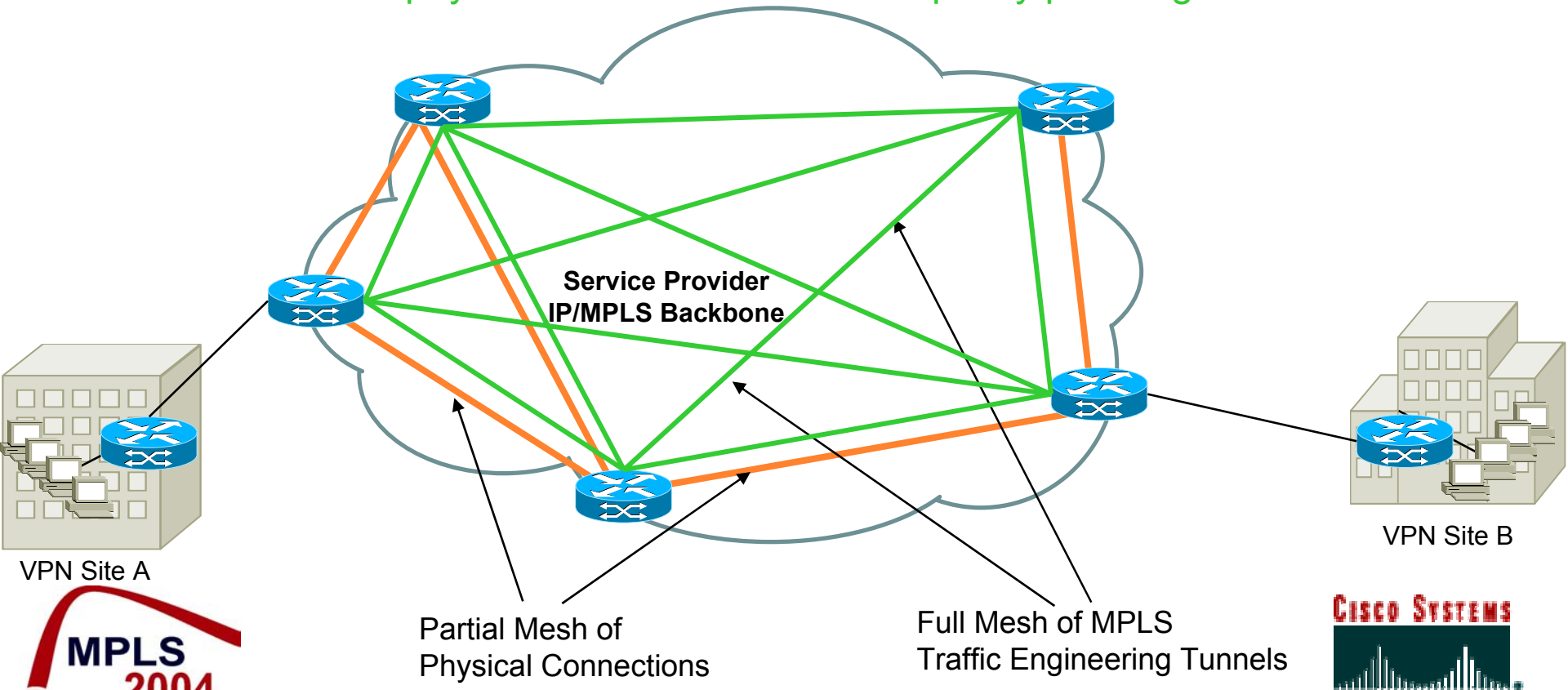
Full Mesh TE Deployment – numerous SPs

Requirement: Need to increase "bandwidth inventory" across the network

Solution: Deploy TE with a full logical mesh over a partial physical mesh & use offline capacity planning



L3VPN Deployment – over 85% & 2/3 also deploy QoS

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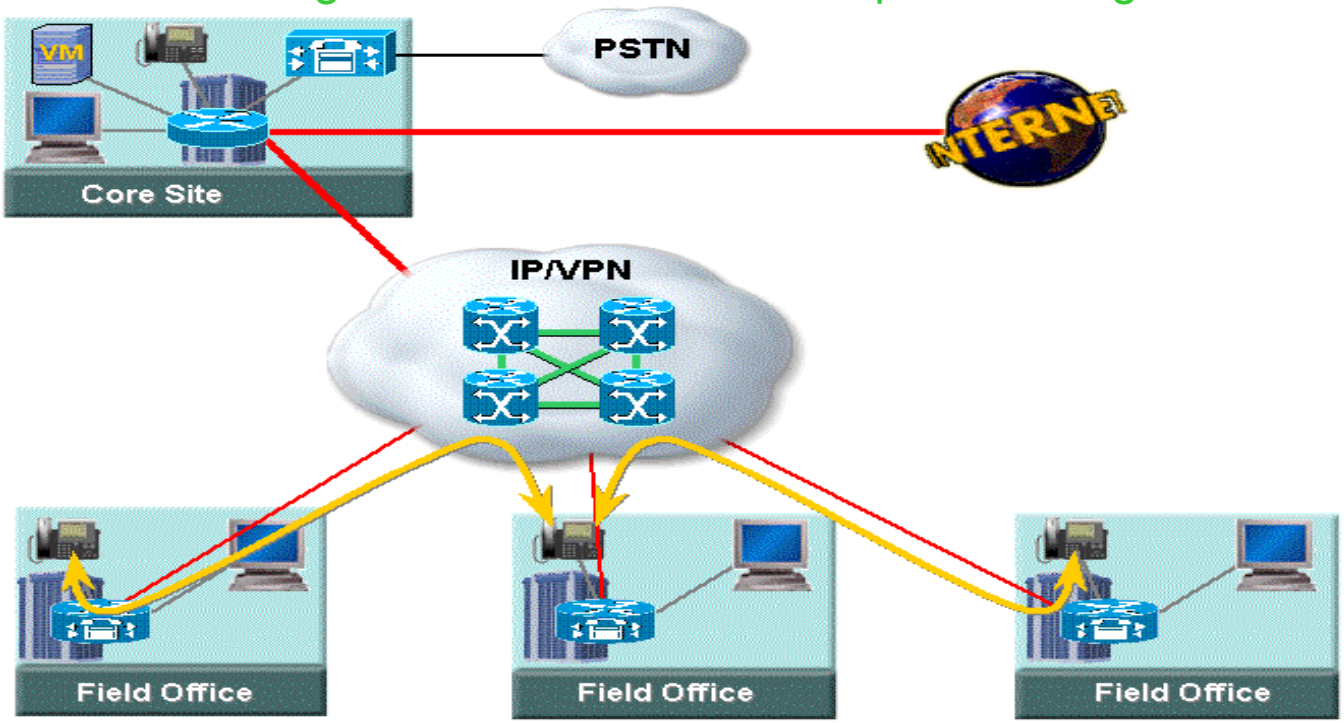
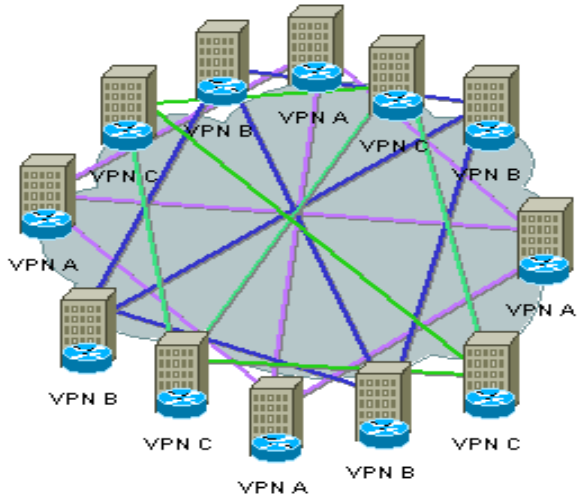
L3VPN Deployment – most SPs/Enterprises

Requirement: Increase bandwidth, availability & reduce operating costs
Solution: SP manages IP/MPLS core & Enterprise manages field offices

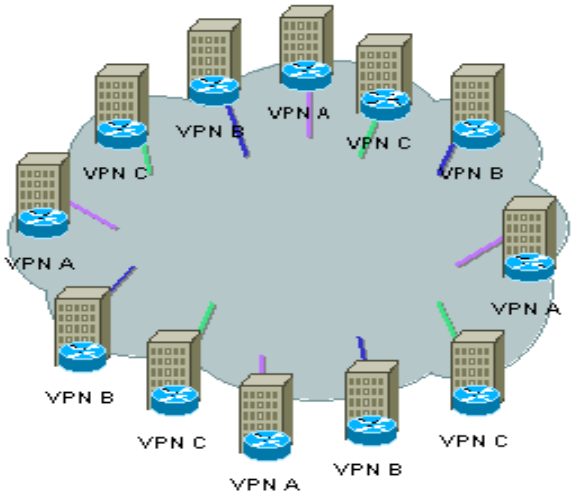


L3VPN Deployment – most SPs/Enterprises

Requirement: Increase bandwidth, availability & reduce operating costs
Solution: BGP/VPN any to any logical, but not physical full mesh



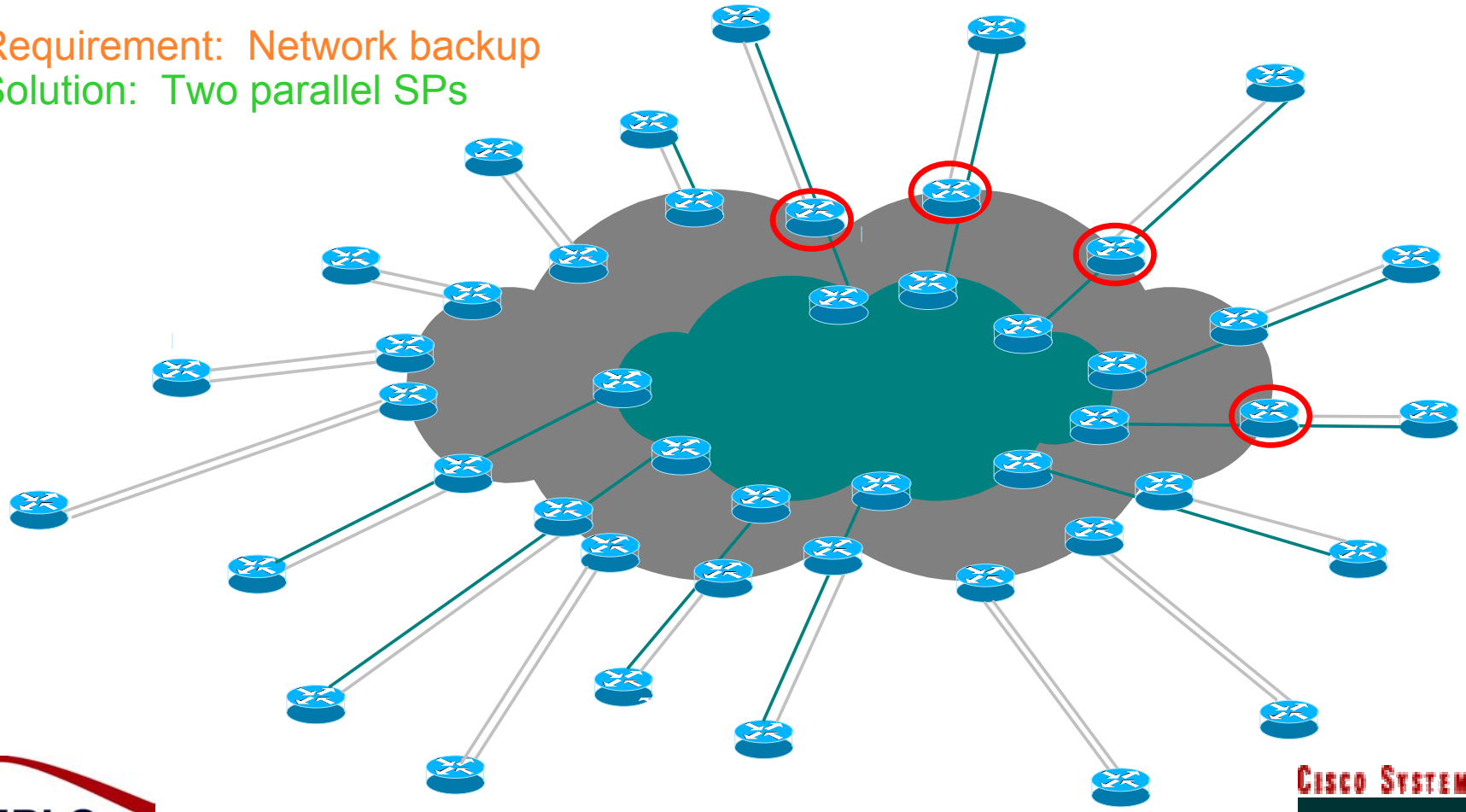
Connection-Oriented
VPN Topology



Connectionless
VPN Topology

L3VPN Deployment – most SPs/Enterprises

Requirement: Network backup
Solution: Two parallel SPs



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TE FRR Deployment – at several large SPs

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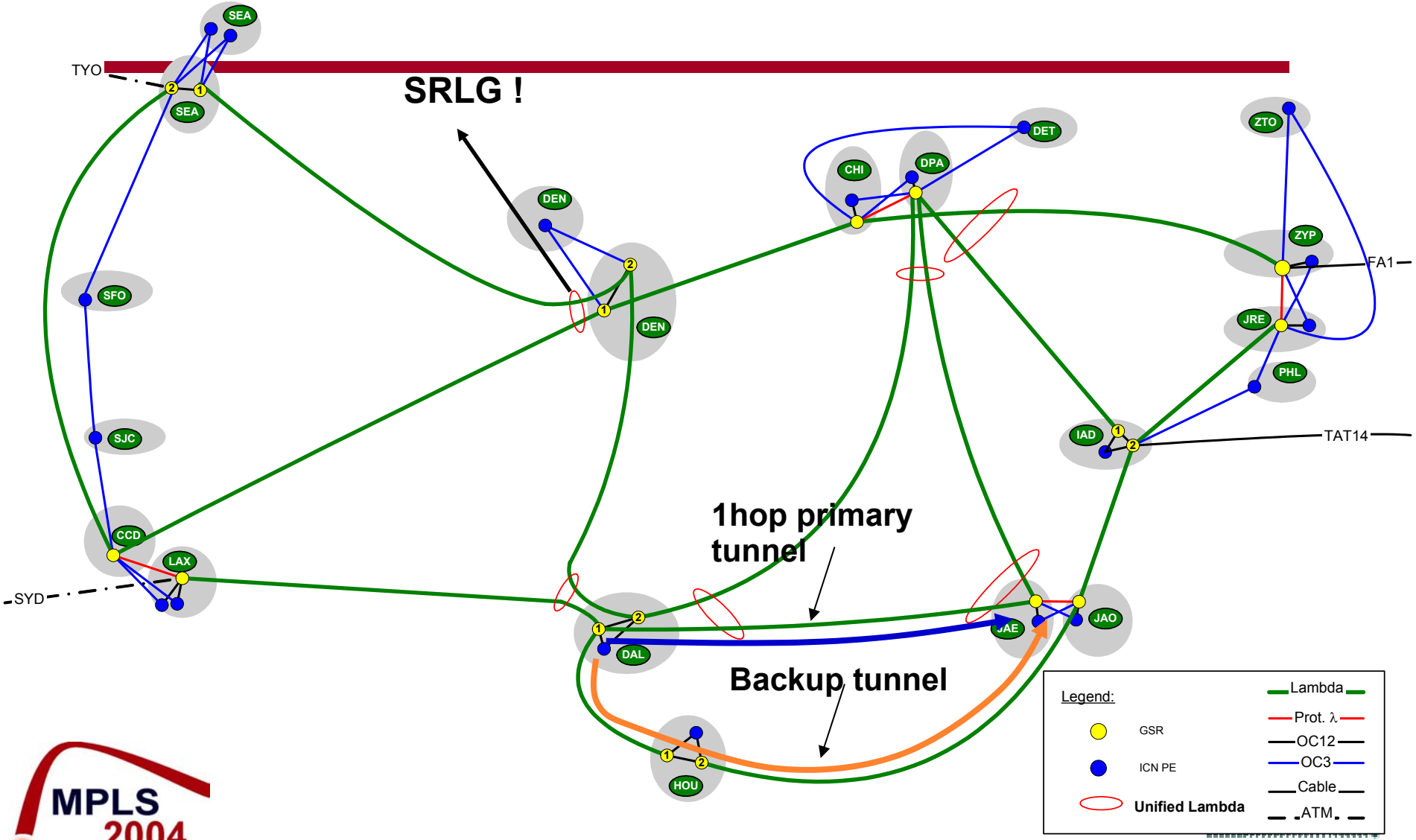
TE FRR Protection using SRLG



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L2VPN (AToM) Deployment – 25% of customers surveyed

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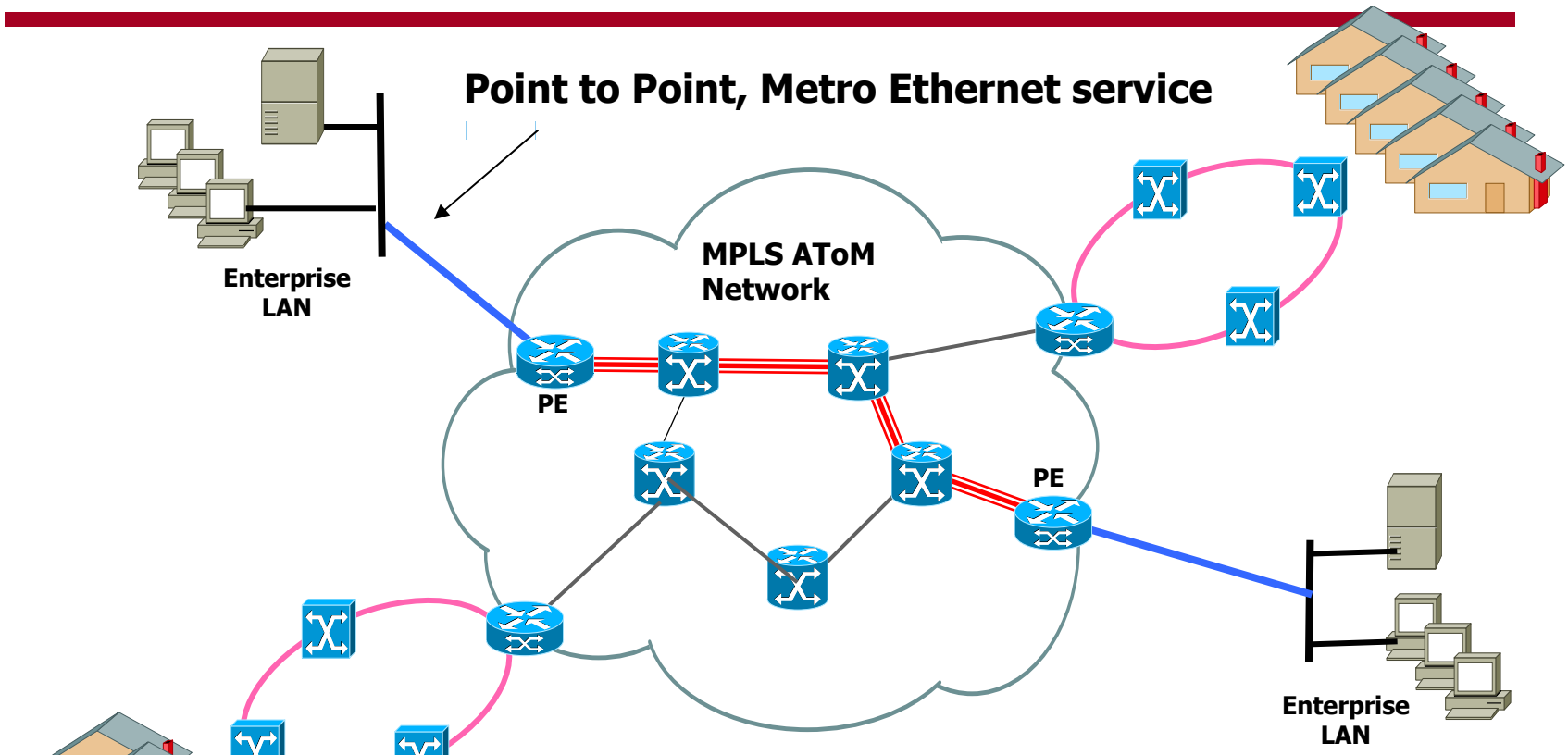
L2VPN Ethernet To The Home/Business



Conclusions

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Some Recent MPLS Capabilities

- High Availability – Stateful Switch Over & Non-stop Forwarding (SSO/NSF)
- MIBs – TE & FRR
- OAM – LSP & TE Ping/Trace & AToM VCCV
- TE – FRR Bandwidth Protection & Path Protection
- TE – Inter-AS, Shared Risk Link Groups (SRLG) & Auto Tunnel
- QoS – DiffServ Tunnel Modes for L3VPN

Some MPLS Benefits

- L3VPN & TE flexibility/scalability
- QoS provides SLA capability
- Lowers operating costs
- Convergence potential for lower operating costs

Cisco in the MPLS Market

Americas	EMEA	AsiaPac/Japan

250 Customers (MPLS Core & L2/L3 Edge)

Q and A