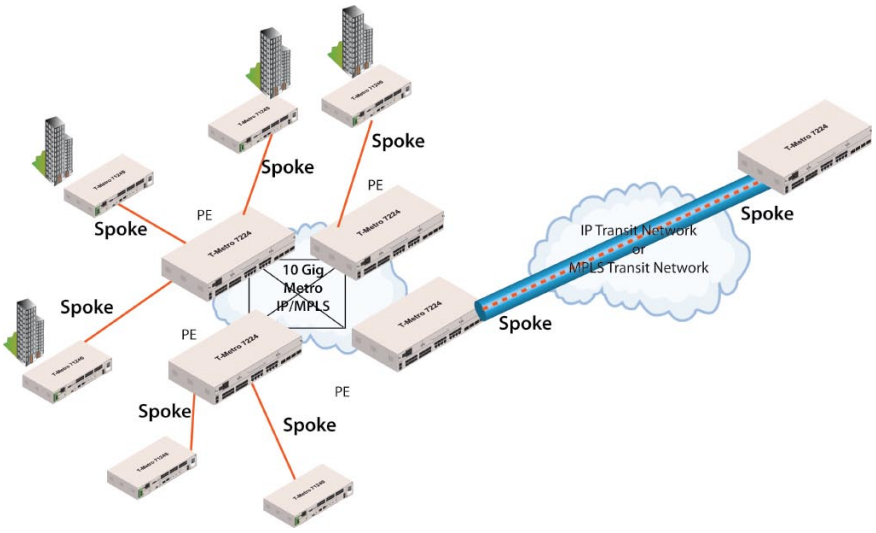
Moving MPLS Closer to the Customer



When multiple networks and services – business, residential, wireless - over a single infrastructure, are consolidated, the size and complexity of the network increases dramatically. In a single service network, services and customers are identified by VLAN. When multiple customers are running the same VLAN, tagging and prioritizing the service at any point in the network becomes impossible. It is at this point that we need the tools to give the ability to tag the service and the customer from the demarcation to the core.

TARGET MARKET SEGMENTS

- ILECs
- Municipalities
- Utilities
- Cellular Operators

1. **Network consolidation:** Technologies like MPLS, VPLS and HQoS when implemented closer to the customer can enable different types of service like packet backhaul, business services, TDM over Ethernet, etc. to utilize the same transport protocol and ensure performance levels for multiple services.

2. **Increased scalability:** Since MPLS supports over a million labels which can be reused across the network (as opposed the 4000 VLANs in a Layer 2 Ethernet network), an MPLS network scales easily to support an almost unlimited number of customers and services

3. **End-to-end service assurance**: MPLS labels can encapsulate VLANs, so MPLS can also become very granular in the identifying individual services for each customer. Per customer per service QoS enforcement using HQoS and per customer per service monitoring means that each service can be identified and assured throughout the network.

4. **Lower CAPEX and OPEX:** Deploying L3 VPNs is an expensive and complex solution. Each supporting device needs to maintain routing tables, creating a full mesh of a routing cloud. Using L2VPNs supported by VPLS and HVPLS from the demarcation to the core, on the other hand, reduces the amount of resources required in the core routing equipment and places them in the access where they are simpler and more cost effective.

5. **Optimize network resources:** By implementing intelligence in the access network, core network resources, where per-port costs are very high, can be optimized to support significantly more services and create a more deterministic network. If traffic management and routing decisions can be made within the access network, some traffic may not need to traverse the core network at all. Requiring all traffic to pass through the core is analogous to traveling from Boston to New York by way of San Francisco – a waste of resources, energy and time!

6. **Simplified Service Management:** Telco Systems' EdgeGenie Service Management Systems turns MPLS into a practical solution by
   - Automating all service provisioning
   - Providing advnaced service status monitoring, including root cause analysis and service analyzer tool
   - Monitoring performance and resource usage, including notifications on threshold crossing
   - Analyzing and forecasting bandwidth capacity shortfalls
   - Planning for future network requirements

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Based on a common, sophisticated network operating system that adapts easily for evolving standards, these devices offer a true state of the art multi-services access solution to allow real network consolidation of multiple service types on one unified infrastructure.

- VPLS or 802.1ad transport technologies as well as pseudowire and Circuit Emulation
- Full Ethernet OAM capabilities (IEEE 802.3ah, IEEE 802.1ag CFM, ITU-T Y.1731 and MEF Service OAM)
- Multiple redundancy technologies like MPLS reroute, ITU-T G.8031, LACP, and resilient link.

Customer Edge

Commercial Services: This versatile family of service demarcation devices provides intelligent and remotely managed, multi-port customer-located equipment (CLE) to deliver managed converged services (voice, video and data) over virtual Ethernet, MPLS/VPLS and IP networks.

T-Marc 340/380

The **T-Marc 300** allows service providers to deliver multiple services on separate customer interfaces, including multiple services over a single customer interface. Because each service is isolated, providers can troubleshoot each individual service without impacting others.

Wireless Backhaul: The T-Marc 3208SH service demarcation device is a temperature-hardened, Carrier Ethernet demarcation device to enable service providers and wireless operators to backhaul traffic from multiple 2G, 3G and 4G cell sites over Carrier Ethernet. This device supports a wide variety of technologies including Ethernet, pseudowire and TDM emulation using Circuit Emulation Services (CES), MPLS, OAM tools and H-QoS. This combination of features, technologies and manageability allows service providers to extend the service intelligence to the customer edge offering and maintaining advanced SLAs, thus providing them competitive advantage.

T-Marc 3208SH

10G Aggregation

These multi-layer Ethernet switches are designed for service providers who need the reliability of the traditional SONET/SDH quality of service and the flexibility to deliver quad play over a 10 Gigabit metro Ethernet network.

T-Metro 7124S

The T-Metro 7124S 10Gigabit Enhanced Ethernet Service Switch supports a rich combination of technologies to enable service providers and wireless operators to offer advanced Carrier Ethernet services for wireless backhaul, triple play and broadband aggregation, data center consolidation and high-speed business applications. This temperature-hardened device supports a wide variety of technologies including Ethernet, pseudowire and TDM emulation using Circuit Emulation Services (CES), MPLS, and OAM tools. The 7124S also provides a comprehensive set of synchronization options optimized for cellular operators looking to backhaul their data and voice traffic from the Node-B\BTS to their core network over Ethernet\MPLS transport.

Provider Edge

T-Metro 7224

The T-Metro 7224 was designed for service providers who need the reliability of the traditional SONET/SDH quality of service and the flexibility to deliver quad play over a 10 Gigabit metro Ethernet network. This carrier-class device offers advanced MPLS/HVPLS capabilities, enabling emerging and incumbent service providers to protect their existing investments, while easily migrating to next-generation services. T-Metro 7224 delivers features such as uncompromised security, advanced HQoS and MPLS/ HVPLS.

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