

## Case Study

# Demarcation Flexibility and QoS Help Canadian Service Provider Deploy Advanced IP Services



Known for its reliable voice and data services, a Canadian service provider has been delivering telecommunication services to its business and residential customers for more than 100 years. As demand for video and IP voice services grew, the service provider updated its backbone network from Asynchronous Transfer Mode (ATM) to a routed Internet Protocol (IP) technology. That change brought about a need for a cost-effective customer premises demarcation device that could extend network quality of service (QoS) and enforce service level agreements (SLAs) to deliver differentiated services. The solution – OptiSwitch 900 Ethernet Demarcation service units from MRV Communications.

### Background

The telecommunication service provider delivers services to approximately 550,000 customers across a vast coverage area of more than 124,000 sq. miles (200,000 sq. kilometers). With a long-standing track record as a reliable supplier, the company's customers include residential, business and carrier networks, and it provides Internet, long distance, local voice and data services.

As the service provider saw demand rise for data services and also saw competition from other providers, it overhauled its core network and moved from ATM to a routed IP backbone network. The company leveraged that network to deliver high-speed transparent LAN services (TLS) at speeds up to 100 Mbps. By using VLAN technology to establish MEF-based Ethernet Virtual Circuits (EVC) to segregate multiple data flows, customers such as school districts and hospital networks create their own "private networks" across this infrastructure.

Carrier Ethernet attributes that include EVC support and enhanced QoS became critical and the company turned to MRV and its OptiSwitch 900 (OS900) demarcation devices to deliver these services in a cost effective way.

## Case Study

### MRV Solution: OptiSwitch 900 Series

MRV's OS900 demarcation devices are compact, carrier-class Ethernet switches that provide a carrier-to-customer User/Network Interface (UNI) that separates the carrier's WAN from the customer's LAN. The demarcation devices enable bandwidth limiting, security and monitoring of customer and network interfaces with clear visibility of LAN and WAN segments.

The OS900 family enables premium manageable Ethernet services with extensive traffic management and end-to-end control for service-level conformance. With hardware-based operations, administration and maintenance (OAM) capability, the demarcation units enable native service level agreement (SLA) reporting. The SLA management tools provide carriers with high-precision measurement at nanosecond accuracy, which is vital in next generation service deployments. Additional functions include verification of SLAs against actual performance (in-service and out-of-service) and connectivity fault detection, fault verification and fault isolation.

The OptiSwitch family meets IEEE, ITU and MEF standards, maintaining full interoperability and visibility into customer and provider networks while offering complete control to simplify deployment and management.

### Implementation

After reviewing products from multiple vendors, network architects chose the OS900 because it gave them the most cost-effective ability to deliver services and because the OS900 came with management and interface flexibility that dramatically simplified service provisioning.

The service provider uses the OS900 for its TLS services – flexible, LAN-speed services targeted at business customers for Internet access or branch networking needs. One key capability that differentiated the OS900 for TLS was the ability to bundle VLANs from multiple customers into dedicated Ethernet Virtual Circuits (EVC) for backbone transport. The company could then selectively apply

### OptiSwitch

The OS900 is a compact carrier-class Ethernet demarcation service unit, enabling premium manageable Ethernet services with extensive traffic management and end-to-end control for Service level conformance.

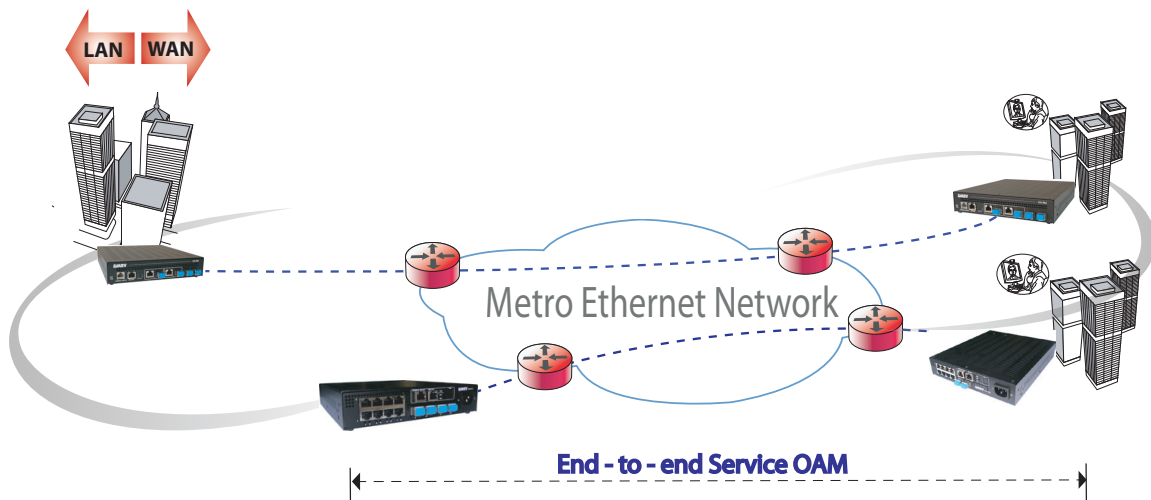
- **A complete family of demarcation products to ease metro Ethernet mass deployments**
- **Simplified deployment and network maintenance same product for Layer 1, Layer 2 and Layer 2.5 VPN services**
- **Flexible interface configuration for customer or network demarcation**
- **Flexible SFP-Based interfaces can host a variety of pluggable optics**
- **Traffic management for premium SLA offerings through Hierarchical QoS**
- **Guarantee SLAs through advanced end-to-end standards-based OAM**
- **Remote trouble shooting through embedded cable diagnostic tools for copper or fiber**
- **High network availability with redundant power and interfaces**
- **Verified interoperability - Metro Ethernet Forum MEF9 and MEF14 certified UNI**

## Case Study

priority to either the customer's VLANs or their own. This allowed them to ensure service quality by tracking flows and rate shape customer traffic to be able to charge for unique data-rate services.

The service provider also offers SLAs for its TLS service. The company's very large customer geography made travelling to customer sites to fix network issues a very timely process, often taking multiple hours just to reach the location. The OS900's OAM functionality helped the carrier to keep an eye on network conditions that could impact SLAs and incur penalties for the carrier. Now the service provider can maintain its network quality while better planning service calls and reducing overall travel, meaning greater operational efficiency and significant cost savings.

The cost effectiveness and performance of the OAM capabilities led the service provider to use OS900s in a whole new application – as "shadow routers" or network management probes that can track the health of the main backbone network. The company can detect jitter and repair the problems early before the issues have a greater effect on the network.



This flexibility also simplified service provisioning. For every service it offers, the carrier fully tests the equipment involved in its central laboratory and develops a Technical Solution Standard – a document that helps a remote technician to easily install the equipment. Because SFP interface changing is very simple and almost plug-and-play, it became very easy for the carrier to re-qualify the OS900 for custom applications giving it a newfound ability to meet niche customer needs.



## Case Study

Through acquisition, the service provider grew its customer base which meant a huge variety of incumbent access technology. This increased the importance of having a demarcation device with flexible SFP interfaces for uniform service levels regardless of the access technology. TLS services could be provided to customers with T1 access through a simple of change of transceiver. Similarly, backbone interfaces based on course wave division multiplexing (CWDM) could be easily routed by changing transceivers.

### Success

The implementation of MRV's OptiSwitch 900 family was a smooth process for this service provider and network architects were very pleased with MRV's level of technical support. The service provider can now provide enhanced customer service through the advanced OAM and SLA capabilities of the OptiSwitch 900. The service provider has also experienced a reduction in costs through planned maintenance and the ability to monitor network operations remotely, providing both a time and cost savings.

MRV has more than 50 offices throughout the world. Addresses, phone numbers and fax numbers are listed at [www.mrv.com](http://www.mrv.com). Please e-mail us a [info@mrv.com](mailto:info@mrv.com) or call us for assistance.

MRV Los Angeles  
20415 Nordhoff St.  
Chatsworth, CA 91311  
800-338-5316  
818-773-0900

MRV Boston  
300 Apollo Drive  
Chelmsford, MA 01824  
800-338-5316  
978-952-4700

MRV International  
Business Park Moerfelden  
Waldeckerstrasse 13  
64546 Moerfelden-Walldorf  
Germany  
Tel. (49) 6105/2070  
Fax (49) 6105/207-100

All statements, technical information and recommendations related to the products herein are based upon information believed to be reliable or accurate. However, the accuracy or completeness thereof is not guaranteed, and no responsibility is assumed for any inaccuracies. Please contact MRV Communications for more information. MRV Communications and the MRV Communications logo are trademarks of MRV Communications, Inc. Other trademarks are the property of their respective holders.