

Deploying Ethernet Access for Business Services

Swisscom maintains leadership, gains service flexibility, with high-speed converged MPLS core and Ethernet metro rings.

EXECUTIVE SUMMARY

SWISSCOM

- Industry: Telecommunications
- Location: Switzerland
- Number of Employees: 19,844

BUSINESS CHALLENGE

- Stay ahead of the competition with best-in-market business services
- Enable more bandwidth for video and other services demanded by corporate customers
- Simplify the infrastructure to keep operating costs low and enable more flexible service delivery

SOLUTION

- Upgraded, converged network core
- Ethernet access

BUSINESS RESULTS

- Increased customer satisfaction by delivering broadest range of leading services to customers, thereby reducing churn and keeping market share
- Improved cost efficiency by delivering all services over the Swisscom network, including convergence of Layer 2 and Layer 3 VPNs
- Supported company's plans to expand market penetration

Business Challenge

Swisscom is the leading provider of telecommunications services in Switzerland, with a large subscriber base spanning 5 million mobile customers, more than 3 million fixed lines, and over 1 million broadband connections. Last year, the company reported revenues of CHF 11.1 billion. Swisscom customers rely on the one-stop service provider for a full range of communications products and services as well as IT infrastructure outsourcing and the management of communications infrastructures. Swisscom continually invests in network infrastructure to keep ahead of its competitors and offer the broadest portfolio to both residential and commercial markets.

Recognizing the need to converge networks in the future, Swisscom made the decision to build a single Carrier Ethernet infrastructure that could simultaneously deliver both Layer 2 and Layer 3 Ethernet services with customer-managed or Swisscom-managed customer premise equipment (CPE).

The critical evaluation criteria included scalable bandwidth throughout the network, as well as the inherent reliability necessary to propagate the company's reputation for unbeatable quality and service. The initial plan was to introduce metro rings to aggregate the Ethernet traffic. Besides enabling higher-bandwidth services for business customers, Swisscom planned to offer Layer 2 services to wholesale customers. They also needed to support on-demand and broadcast IP video traffic on the same network and transport Bluewin TV (High Definition TV) over the very-high-bit-rate DSL (VDSL) network.

Solution

The core and access network upgrades were both essential for introducing converged Layer 2 and Layer 3 services to Swisscom's business, residential, and wholesale customers. After evaluating the alternatives, and considering its previous successes with Cisco® deployments, Swisscom chose Cisco core, access, and aggregation solutions. "We couldn't get to where we wanted to go with our existing core," says Adrian Schmid, product manager of Ethernet services at Swisscom. "Cisco created a service-oriented network model with the scalability and flexibility that we wanted. This was the way we could meet the needs of our customers and maintain our market leadership."

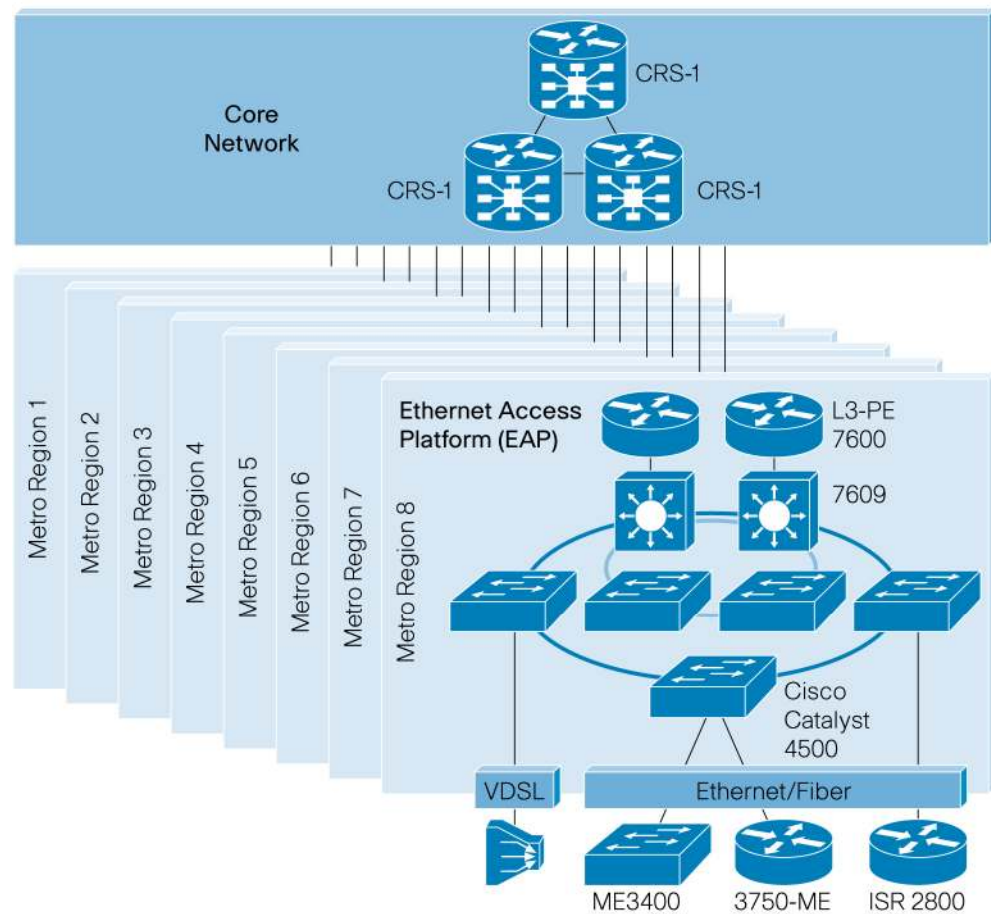
The core network, built in 1999, was based on Cisco 12000 Series Routers. The excellent track record of these routers gave Swisscom confidence in the next-generation Cisco solution. The Cisco CRS-1 Carrier Router System offers Swisscom:

- High availability, with a very fast and stable core, and the ability to do in-service upgrades.
- Investment protection, as the shared port adapter (SPA) interface processor (SIP) architecture allows them to share modules between the CRS-1 and other deployed platforms (Cisco 7600, 10000, and 12000 Series).

- Higher capacity, enabling Swisscom to significantly increase bandwidth (10 G today), while adopting a more concentrated core design that could scale to 40 G when needed in the future.
- A carrier-grade solution with lower cost of operations, fewer points of presence (PoPs), less required equipment, simplified maintenance, and in-service upgrades.

The upgraded Swisscom core network is now Ethernet focused and operates at 10 G today with the ability to scale bandwidth in the future. Within the access network, Swisscom introduced two types of Cisco Ethernet switches aggregated in metro rings made up of Cisco Catalyst® 4500 Series switches with Cisco 7600 Series Routers (see Figure 1). At the distribution layer, Cisco 7600 Series Routers control intra-ring traffic and connect with the Cisco CRS-1 systems in the core.

Figure 1. The Swisscom network, with Ethernet access and aggregation



The new Layer 3 Ethernet solution gives Swisscom the flexibility to offer customers solutions that include managed CPE, if desired. Swisscom selected the Cisco Catalyst 3750 Metro Ethernet switches, gaining an attractive price point that fits their business model for commercial customers. Features such as hierarchical quality of service (QoS) and support for variable bandwidths offer differentiated service levels up to Gigabit Ethernet performance and throughput. Software options further enable flexible service delivery and simplify management.

PRODUCT LIST

Routing and Switching

- Cisco Catalyst 3750 Metro Ethernet and ME 3400 Ethernet access switches
- Cisco Catalyst 4500 Series switches
- Cisco 7600 Series Routers
- Cisco CRS-1 Carrier Routing Systems

For high-speed Layer 2 services, Swisscom chose the Cisco ME 3400 Series Ethernet Access Switches. The customer-located switches support Ethernet VPN services such as Ethernet private line (EPL), Ethernet virtual private line (EVPL) point-to-point, and Ethernet LAN (ELAN) services. This switch is also used for delivering wholesale services as well as multipoint business offerings.

Results

The upgraded core has extended the life of the Swisscom network, with built-in scalability that can handle the projected growth for the provider over the next five years. Initially, when broadband traffic was migrated to the new core, the bandwidth gains exceeded expectations. Traffic that had previously consumed 70–80% of the available bandwidth was consuming less than 10% on the new core.

At the access layer, the upgrades have been similarly significant. With the converged network, different services can be operated over one network. Swisscom has a broad range of services in their market – Layer 2/3 VPNs, point-to-point and multipoint, and wholesale services. The aggregation metro rings handle both Layer 2 and Layer 3 services, with only a difference for the CPE. This means that Swisscom can still offer Layer 3 services just as they have in the past, or they can deploy the Cisco Catalyst 3750 Metro Ethernet or ME 3400 switch and transition to a service model that brings Ethernet from the customer all the way up to the Cisco 7600 Series distribution routers. By initiating services in the core, Swisscom gains scalability as well as flexibility.

The Cisco Catalyst 3750 Metro Ethernet switches also offer capabilities as best product in its category for operation, administration, and maintenance (OAM). Going from Layer 2 to Layer 3 services, Swisscom requires excellent OAM to help ensure consistent manageability.

“The upgraded network will take us beyond Switzerland and would allow us to grow internationally,” says Schmid. “By sticking with Cisco, we have gained a solution with consistent capabilities across all platforms, and we know that Cisco can deliver. Cisco Ethernet solutions and the CRS-1 are proven technologies and enable the commercial-grade services that our top-tier customers demand.”

For More Information

To find out more about the Cisco CRS-1, go to: <http://www.cisco.com/go/crs>

To find out more about the Cisco Ethernet access solutions, go to: www.cisco.com/go/cedesign

To find out more about the Cisco aggregation solutions, go to: www.cisco.com/go/cedesign

To find out more about the Swisscom Ethernet Services, go to:
http://www.swisscom.ch/solutions/en/index/product/ethernet_services.htm

To find out more about the Swisscom LAN Interconnect Services, go to:
<http://www.swisscom.ch/solutions/en/index/product/lan-i.htm>



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