



## Customer Success Story

# Magyar Telekom Converges Advanced Services Over a Cisco Metro Ethernet Network

### Executive Summary

#### Customer Name

Magyar Telekom.

#### Industry

Telecommunications

#### Business Challenge

- Converge high-speed Internet and cable television services over an IP-based network
- Cost-effectively extend reach of ADSL-based access services across Hungary

#### Network Solution

- Cisco routing and switching solutions including Cisco Catalyst 3570 Series Metro Ethernet switches
- Cisco ONS 15454 Multiservice Provisioning and Transport Platform (MSTP)

#### Business Value

- Increased subscriber base from 200,000 to 500,000
- Established a network foundation for delivering new “triple-play” services
- Reduced network operations costs by up to 50 percent

**With an eye to the future, Magyar Telekom began building a network foundation that could deliver high-speed Internet, voice, and cable television services across Hungary. The Cisco Metro Ethernet solution is helping Magyar Telekom realize rapid growth in subscriber base and market share.**

### Business Challenge

Magyar Telekom is the leading provider of telecommunication services in Hungary, and the first company in Central Europe to obtain a listing on the New York Stock Exchange. The company serves customers through four strategic business units: T Systems, T Com, T Online, and T Kabel. The T Systems division has earned more than 60 percent market share among businesses with its comprehensive portfolio of innovative services. The T Com group provides residential services to more than 80 percent of the country’s residential customers, as well as three million fixed lines, broadband network services, and counts more than 350,000 Internet service subscribers. The T Online business unit serves close to 50 percent of the market, with more than four million customers who subscribe to mobile data, Internet, and multimedia services.

As smaller competitors emerge and demand for broadband services grows across Hungary, Magyar Telekom is positioning its network to deliver the next generation of converged voice, high-speed Internet, and cable television services. To deliver this “triple-play” offering, Magyar Telekom wanted to converge these services over a single network. In addition to delivering advanced, IP-based services, the company wanted to ensure that its network would perform cost-effectively, reducing management and operations costs.

The company’s original network infrastructure was built on an ATM backbone using equipment from Cisco Systems®. As telecom deregulation occurred and the Hungarian market was liberalized, in 2001 Magyar Telekom began laying the foundation for an IP-based network backbone. The company deployed one of the first Multiprotocol Label Switching (MPLS) networks in Europe based on Cisco® products, including Cisco 12000 Series routers connected over a Cisco ONS 15801 DWDM ETSI platform. These systems were recently upgraded to Cisco ONS 15454 multiservice transport platforms (MSTPs).

In 2002 Magyar Telekom made the decision to introduce DOCSIS®-based Internet access on its cable television network in Budapest, an offering that would also deliver broadband capabilities to customers. Magyar Telekom deployed the Cisco 7246VXR Cable Modem Termination System (CMTS) to serve the increasing number of broadband subscribers. While evaluating alternatives for backhaul connections to the CMTS, Magyar Telekom found that the most cost-effective solution was to use Ethernet switches.

**“The Cisco Catalyst 3750 Metro Series solution offers us a cost-effective path for meeting current and future service requirements for enterprise and residential customers.”**

— Tamas Balogh, Executive Director of Technical Service Development, Magyar Telekom

“We evaluated solutions from five different vendors and chose the Metro Ethernet solution from Cisco,” says Andras Czinkoczkzy, head of department of IP network development for Magyar Telekom. “The Cisco solution was cost-effective and highly competitive because it provides the functionality we needed to deploy triple-play services. Having Ethernet-based core and access networks gives us a basis for these offerings.”

## Network Solution


Magyar Telekom’s optical backbone network forms four rings that connect the country using Cisco ONS 15454 MSTP, which provides aggregation and transport of services using 2.5- and 10-Gbps links. Switched 10/100/1000 Ethernet capabilities offer flexibility in delivering Ethernet services, while a choice of restoration technologies provide high network resiliency.

Cisco Catalyst® 6500 Series switches and Cisco 12000 Series routers form the Magyar Telekom MPLS IP network backbone, connected using STM-16 (2.5 Gbps) links. Cisco 12000 Series routers offer intelligent routing solutions that scale from 2.5 Gbps/slot to 40 Gbps/slot capacity, enabling carrier-class IP/MPLS core and edge networks. With quality-of-service (QoS) capabilities and support for ATM transport, the Cisco 12000 Series routers enable Magyar Telekom to support regional and long-haul IP/MPLS traffic, as well as transport existing ATM traffic over the IP/MPLS core. Because the ISP market is deregulated, Magyar Telekom must provide transport services to every service provider that needs them. Traffic from these networks is aggregated at peering points in Budapest and handed off to other domestic or international carriers for delivery. Magyar Telekom also offers MPLS-based virtual private network (VPN) services with asymmetric DSL (ADSL) access.

The optical and IP-based MPLS networks connect with a dedicated network in Budapest, which serves the capital’s high-density population. Here, Cisco Catalyst 6509 switches are connected with 10-Gigabit Ethernet links.

High-speed Internet, cable television, and data traffic from Magyar Telekom customers are terminated and aggregated through a series of points of presence (POPs) located in Budapest and across the country. Subscribers to Magyar Telekom’s ADSL-based high-speed Internet service are terminated at small POPs, where Cisco Catalyst 3750 Metro Series switches aggregate Ethernet traffic from third-party DSL access multiplexers (DSLAMs). The Cisco Catalyst 3750 Metro Series switches bring high intelligence to the metro Ethernet edge and facilitate delivery of differentiated Metro Ethernet services. Featuring hierarchical QoS and traffic shaping, intelligent 802.1Q tunneling, virtual LAN (VLAN) mapping, MPLS and Ethernet-over-MPLS (EoMPLS) support, as well as redundant AC or DC power, these switches are ideal for service providers seeking to deliver profitable business services, such as Layer 2, Layer 3, and MPLS VPNs, in a variety of bandwidths and with different service-level agreements (SLAs).

“The Cisco Catalyst 3750 Metro Series solution offers us a cost-effective path for meeting current and future service requirements for enterprise and residential customers,” says Tamas Balogh, deputy director of Magyar Telekom’s Technical Service Development. The Cisco Catalyst 3750 Metro Series switches connect directly to the DSLAMs, aggregating traffic from more than 800 of the devices across the country.



In large POPs, Cisco 10008 routers perform broadband aggregation. The Cisco 10000 Series is the industry's only edge router that delivers consistent, high-performance features for carriers deploying IP/MPLS services. It dramatically reduces the cost of broadband subscriber services with line-rate delivery of 61,500 sessions, tightly coupled with QoS and other service-enabling features for high operational efficiency and increased revenue potential. Aggregated broadband traffic is delivered over one of the four optical rings.

Magyar Telekom has enabled the Hot Standby Router Protocol (HSRP) on its IP network routers and Cisco Catalyst 3750 Metro Series switches to provide network redundancy and help ensure that user traffic immediately and transparently recovers from first-hop failures in network edge devices or access circuits.

Magyar Telekom was also one of the first providers to deploy public wireless hotspots for free public Internet access. Using Cisco Aironet® 1100 Series access points, the company has numerous hotspots in Budapest and throughout the country, including one in its own headquarters building. Users can also roam between hotspots, thanks to an agreement between Magyar Telekom and Deutsche Telekom T-Mobile.

## **Business Value**

The newly launched service is capable of transmitting data, voice, and video traffic at speeds up to 10 Gbps. Hungary is the first country in Central Eastern Europe to have a nationwide 10-Gbps network.

“We began with 13 Metro Ethernet locations in Budapest as our first deployment,” says Czinkoczky. “Based on our traffic patterns, we estimate that the new Cisco Metro Ethernet solution saves approximately 50 percent, compared to our previous ATM network, while enabling us to offer cable television and other advanced services. We continue to develop this Metro Ethernet network.” The Cisco solution also helped to reduce operations costs because the Magyar Telekom team already has IP expertise and experience with the Cisco equipment.

According to Balogh, Magyar Telekom can now deliver the advanced services that give the company a market advantage. The same equipment can be used to provide services to both residential customers and businesses and cost-effectively deliver new triple-play offerings over the Internet. Today almost 500,000 customers receive high-speed Internet over DSL or cable, and the number is expected to grow as dial-up customers migrate to broadband access.

## **Next Steps**

While the network provides comprehensive coverage across Hungary, the Magyar Telekom team plans to further develop its Metro Ethernet-based service offerings and scale capacity to accommodate rapid growth.

“We are planning to upgrade all intercity links with 10 Gigabit Ethernet through 2005,” says Czinkoczky. “And then we can focus on increasing our share of residential broadband services.”



## For more information

To learn more about Cisco routing solutions, visit: <http://www.cisco.com/go/routing>.

To learn more about Cisco switching solutions, visit: <http://www.cisco.com/go/switching>.

To learn more about Cisco Metro Ethernet solutions, visit: <http://www.cisco.com/go/metro>.

To learn more about Cisco Optical solutions, visit: <http://www.cisco.com/go/optical>.

To learn more about Magyar Telekom, visit: <http://www.sajtoszoba.matav.hu/>.

This customer story is based on information provided by Magyar Telekom and describes how that particular organization benefits from the deployment of Cisco products. Many factors may have contributed to the results and benefits described; Cisco does not guarantee comparable results elsewhere.

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