Slovak University Solves Network Reliability Problems

Cisco Borderless Network improves access to applications at Comenius University's Faculty of Natural Sciences.

EXECUTIVE SUMMARY

Customer Name:
- Comenius University

Industry:
- Education

Location:
- Bratislava, Slovakia

Number of Employees:
- 4400

Challenge:
- Improve network reliability and availability
- Make network compatible with future versions for next five-plus years
- Support new applications such as IP telephony

Solution:
- Cisco Borderless Network

Results:
- Reduced outages to almost zero
- Improved network's ability to handle hundreds of extra end points
- Made departmental IT infrastructure compatible with future versions for at least five years

Challenge

With more than 30,000 students and a staff of approximately 4400, Comenius University is the largest tertiary education center in Slovakia.

The university, located in the Slovak capital Bratislava, is mainly funded with government money because, in common with other Slovakian higher education centers, it does not charge tuition fees to European Union (EU) students.

Little money has been available therefore to spend on IT infrastructure, a situation aggravated by the fact that until 2009 a four-year hold was in place on Bratislava universities applying for EU structural funds.

As a result, the university's fast Ethernet network, while based on a core of Cisco® technologies, had a diverse multivendor edge environment that had been built up piece by piece from money generally assigned to other projects.

"The network infrastructure as a whole was badly in need of an upgrade, and there were important differences in performance between units and departments, depending on which ones had been able to dedicate greater funds to IT" says Miroslav Janik, senior account manager at the university's main IT contractor, Soitron.

By 2009, when Comenius University at last had the opportunity to apply for EU funds, different parts of the network were suffering outages practically on a weekly basis, and the IT department was spending a significant amount of time and effort in troubleshooting, repairing, and reconfiguring the network.

With one of the first structural fund applications going towards the purchase of hundreds of new computers, it was clear to the university's director of information and communications technology (ICT), Peter Miazdra, that every effort would have to be made to secure further funding for a network upgrade.

It was also clear that the EU would not fund a complete renovation of the university's infrastructure, so improvements would have to be made on a phased basis. The university selected the Faculty of Natural Sciences as the first candidate for an overhaul.

"This architecture gives us a strong future-proof core for at least the next five years."

Peter Miazdra
Director of ICT, Comenius University

Solution

Miazdra has attended CCNA® and CCNP® courses at Cisco Network Academy, and several of his team members are CCNA-certified, so the IT team was comfortable with Cisco technology and its ability to meet the requirements of the Faculty of Natural Sciences.

Having gained assurances that EU funding would be available, Miazdra and his team started talking about the prospective network upgrade with Soitron, a Cisco Gold Certified Partner, at the beginning of 2010. Miazdra says Soitron's analysis of the university's requirements tallied strongly with his own.

"We had roughly an 80 percent of initial overlap of ideas" he says.

What he was not aware of, however, was that Cisco could provide an architectural approach to solve the challenge of reliable access across the faculty campus.

"The Cisco Borderless Network Architecture is a technical architecture that allows organizations to connect anyone, anywhere, anytime, and on any device, securely, reliably, and seamlessly" says Soitron presales manager Martin Čaprnka. "It is built on an infrastructure of scalable and resilient hardware and software, and was clearly the best option for the Comenius University."

Thus, in the last quarter of 2010, Soitron put forward a proposal to upgrade the Faculty with a virtual Cisco Catalyst® 6500 Series switching platform, a design that takes the flagship Cisco Catalyst 6500 platform to the next level with network system virtualization.

In addition, the team proposed a wireless LAN controller, to help reduce the overall operational expenses of the Cisco Unified Wireless Network by simplifying network deployment, operations, and management.

Finally, Cisco Aironet® 1242 Wireless Access Points were put forward to provide highly secure and reliable wireless connections, and Power over Ethernet (PoE) was specified for an eventual IP telephony deployment.

The Faculty of Natural Sciences had wireless access before the upgrade, but with only about 10 standalone access points, the service was patchy at best.

During the upgrade, which finished in February 2011, Soitron added a further 19 access points, each with dual antennas, so there were at least two on each floor of the faculty building. The Faculty was also given PoE to support IP phones, pending the outcome of further funding requests.

Finally, Soitron implemented a data storage upgrade for the Faculty, which had previously relied on connected storage.

The University IT team had put forward the idea of building a custom data center facility, but Soitron had advocated reducing the costs by using Cisco blade-based virtualization to combine existing storage units from a range of vendors.

Although the aging nature of the Faculty building made it difficult to select adequate locations for some of the infrastructure, including access points, the deployment went ahead without any significant hitches.

"Some of my colleagues from other parts of the university were not skilled enough for the tasks they had to do," says Miazdra, "but we were more than happy with the service we had from Soitron and Cisco."

With the Faculty of Natural Sciences upgrade complete, Miazdra is now seeking to overhaul the university's core network to carry 10 gigabits per second, and looking to complete the modernization of the network in other faculties.

This wider project is already under way but could take some time to complete, depending on funding, Miazdra says; across the campus are some 7000 computers and 20,000 network access points.

Results

The Faculty of Natural Sciences network upgrade has achieved its primary aim of improving the access to and reliability of IT services.

Lost packets and network outages are practically a thing of the past in the Faculty, and wireless access has been greatly improved, which is no easy feat given the structure and layout of the building.

This upgrade will allow users to enjoy much quicker and more reliable online access and support for applications such as video and file sharing.

With PoE, the Faculty is also now in a position to deploy voice over IP, which could reduce costs and improve collaboration. Comenius University also has a Cisco TelePresence Suite™, implemented by Soitron, which could further help promote collaboration.

And even though the university has an IT support helpdesk provided by Soitron, another significant benefit is that because the Cisco Borderless Network is a single, unified architecture, it is likely to be inherently more stable than its heterogeneous predecessor; if faults do occur, they should be easier to fix because the IT department staff is already familiar with Cisco technology.

Further benefits are likely to emerge when the students return to class for the 2011-2012 academic year, but for now Miazdra is happy that the Cisco Borderless Network is likely to be good for many years to come.

"We do not have enough money for continuous upgrades," he says. "We needed reliability, and furthermore this architecture gives us a strong future-proof core for at least the next five years. I know Cisco machines, and they have good reliability. We have 10-year-old routers and switches that are still working well."

For more information

To find out more about the Cisco Borderless Network Architecture, go to:

http://www.cisco.com/go/borderless.

Product List

Routing and Switching

- Cisco Catalyst 6500 Series Switches with Virtual Switching System
- Cisco Catalyst 2960 Series Switches

Wireless

- Cisco Wireless LAN Controller
- Cisco Aironet 1242 Wireless Access Points with dual antennas

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