Up-to-the-Minute Network for Forward-Looking School

Educational standards rise and efficiency improves as wireless networking transforms learning environment

EXECUTIVE SUMMARY

Customer Name: Stichting Katholiek Onderwijs Leiden

Industry: Education

Location: The Netherlands

Number of Employees: 230

Challenge
· Introduce campus-wide wireless services and advanced educational applications
· Improve network stability and manageability

Solution
· Cisco® Borderless Network Architecture with high-speed WAN and integrated fixed and wireless LANs for Internet and network access

Results
· WAN speeds improved by 20 per cent while downtime is eliminated
· Estimated 10 per cent productivity uplift through, for example, remote access to central resources
· Education improved by flexible bring your own device (BYOD) Internet access and e-learning apps

Challenge

Stichting Katholiek Onderwijs Leiden (SKOL) is a Catholic secondary school in the Netherlands. It has 2500 pupils from 12 to 18 years old. The teaching staff of 230 is spread across four campuses in the town of Leiden, with another in a village close by. As a forward-thinking educational establishment, SKOL was being held back by problems with its multivendor local area network (LAN) and wide area network (WAN) domains, along with lack of wireless connectivity.

"The wired network was previously managed by an external company," says Arno Janssen, Head of ICT at SKOL, "and part of the problem was that a mix of both HP and Cisco equipment had been installed." This made the network unstable and difficult to manage, requiring frequent intervention by local ICT staff–for example, to reconfigure virtual local area networks (VLANs) and network access rights.

The problem was made worse because growth in the organization was putting more pressure on its infrastructure. Furthermore, the school wanted a wireless network to make access to the Internet, email, and storage easier for teachers, who are all equipped with notebook computers. Meanwhile, a new initiative actively encourages pupils to bring their own computers and smart devices to school. That means they, too, need wireless connectivity.

Solution

To answer these problems, SKOL contacted Cisco partner PROXSYS. A wireless workshop was held, at which a Cisco® Borderless Network expert presented updates on the latest Cisco technology. Cisco also introduced PROXSYS to wireless specialist Signalutions, which conducted site surveys to determine how many wireless access points were needed and pinpoint the best locations.

In ridding itself of the previous underperforming, multivendor environment, the school chose to adopt a solution that is 100 percent Cisco. A key factor in that choice was the better manageability of the Cisco technology. The highly positive results of a fact-finding visit to another Dutch school, already working with PROXSYS and successfully using Cisco wireless technology, provided further evidence.

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Arno Janssen
Head of ICT
Stichting Katholiek Onderwijs Leiden

The project had two phases. First was the WAN upgrade, which included the installation of Cisco 2951 Integrated Services Routers, interconnected over fiber optics, to create transparent and secure connectivity between the school's locations. This enabled PROXSYS to consolidate all servers and storage at the main site.

The second phase was to build the wireless LAN. It includes four Cisco 5508 Wireless Controllers and over 100 Cisco Aironet® 1142 Series Access Points. Twin Cisco Catalyst® 3750G Series Switches with Power over Ethernet (PoE) interconnect the fixed LAN and wireless LAN environments at the main location, with Cisco Catalyst 2960-S Series Switches at the smaller sites.

User authentication is achieved through Protected Enhanced Authentication Protocol (PEAP), running on a Microsoft NPS back-end RADIUS server. Integration with Microsoft Active Directory enables dynamic assignment of VLAN identities to manage access rights.

PROXSYS offers managed services using Cisco AnyConnect® Secure Mobility Solution to provide highly secure mobile access for staff working offsite. It combines industry-leading Cisco web security with next-generation remote access technology to manage security risks.

Results

The upgraded SKOL WAN is 20 percent faster than the old one and wireless LAN capacity is not a problem, thanks to its 300Mbps bandwidth. The network is also more stable, so far achieving 100 percent availability compared with the previous network, which often failed once or twice a month. Manageability has also improved because an end-to-end Cisco architecture allows all equipment to be integrated into the network.

Ongoing support is taken care of remotely by PROXSYS. Along with the integrated nature of the solution, this means that problems can be analyzed and solved more quickly, while the network can be reconfigured from a single point. With PROXSYS managing the WAN, fixed and wireless LAN, and server environments, SKOL has a single point of contact for all network issues. This means it now has more time to devote to developing educational applications.

"The wireless network was installed during the holidays, but we didn't immediately inform the students about it when they came back," says Janssen, "to reduce any overloading risks." That fear was unfounded, because within the first hour of the network going live, 250 enthusiastic students had logged on and were using it simultaneously. While highly secure, the login procedure was so user-friendly that many students found their way without any instructions.

A key advantage is that network accessibility is now much wider. Previously, pupils had to go into the library to use a fixed computer if they wanted to use the Internet. Now they can log on wherever they are on the campus through the school's bring your own device (BYOD) initiative. Currently, they are not allowed to take their own devices into class, but that will be the next step.

"Secure access to a quicker and more stable network increases staff productivity, which in turn improves education levels and the effectiveness of the whole school," says Janssen. The ability to prepare course materials at home and on the move, while accessing central resources, helps teachers to make better use of their time, with estimates of improved efficiency at around 10 percent.

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Wireless connectivity also gives ubiquitous access to the school's virtual learning environment called It's Learning. Future plans include the introduction of cloud-based Microsoft Office 365 for Education to create an email and storage platform. It is also possible that SKOL will be one of the first secondary schools to connect to the Dutch educational network, Surfnet. This will mean that visiting students will be able to use their own user names and passwords in an edu-roaming mode, with SKOL, in effect, forming a wireless hotspot.

"We have a very modern school and we want to equip it with up-to-the-minute educational applications," says Janssen. "Cisco technology has given us a secure and highly flexible network platform, with which both pupils and staff are delighted."

For More Information

Learn more about Cisco Borderless Networks, visit: www.cisco.com/go/borderless

Product List

Cisco Borderless Networks
- Cisco 2951 Integrated Services Routers
- Cisco Catalyst 3750G Series Switches with Power over Ethernet
- Cisco Catalyst 2960-S Series Switches
- Cisco 5508 Wireless Controllers
- Cisco Aironet 1142 Access Points
- Cisco AnyConnect Secure Mobility Solution

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