

## Innovative University Attracts Students with Cisco Wireless Network

### EXECUTIVE SUMMARY

#### VRIJE UNIVERSITEIT AMSTERDAM

- Higher education
- Amsterdam, The Netherlands
- 18,000 students, 4000 teaching and support staff

#### BUSINESS CHALLENGE

- Differentiate the university from others vying to attract students within a relatively small geographic area.
- Reduce maintenance costs and workspaces reserved for campus desktop computers by increasing the adoption rate of university laptop computers.
- Limit implementation and support expenses while building extensive, campuswide services.

#### NETWORK SOLUTION

- Campuswide switched network with Cisco security services
- Cisco wireless network and discounted, software-equipped laptops

#### BUSINESS RESULTS

- Create a competitive advantage by offering students low-cost PCs with free campus LAN and Internet access.
- Cost-effectively enable students to communicate, share information, and access the Internet from anywhere on campus.
- Help keep IT deployment and maintenance costs flat through proven reliability, standards-based security and central policy management capabilities.
- Reduce PC-related operation and maintenance costs by nearly 90 percent.

**Vrije Universiteit's free wireless network access enhances the value of its discounted, software-equipped laptops for students.**

#### BUSINESS CHALLENGE

The Vrije Universiteit, established in Amsterdam in 1880, was founded on the principles of freedom of worship. Today the Vrije Universiteit offers more than 18,000 students a wide range of studies—from arts and literature to science and mathematics. Postgraduate programs include a law school, business school, medical school, and several research institutes. The university has earned an international reputation for both high-quality education and innovative research.

In a recent national survey of Dutch universities, the Vrije Universiteit was recognized as the third fastest growing institute of higher learning in the country for both 2004 and 2005, a real achievement considering it is 1 of 14 universities competing for students in The Netherlands. Several years ago, however, the university's competitive standing was considerably lower. School administrators realized that students were choosing universities based not only on educational opportunities, but also on the level and quality of support services.



To attract a higher number and quality of prospective students, professors, and researchers, the Vrije Universiteit needed to project a more modern image and demonstrate advanced technology leadership. The faculty was anxious to take advantage of the emerging generation of multimedia, e-learning, and collaboration applications, while the IT staff believed students would be drawn by the opportunity to try exciting new communication services such as wireless LAN and Internet access offered at little or no cost.

But to move forward, the Vrije Universiteit needed to centralize and upgrade its highly fragmented and unreliable network, which was owned and managed by 12 separate academic departments within the university. According to Marian Grobbink, chief information officer for the Vrije Universiteit, the drive to attract students persuaded the school administrators to allow the IT department to upgrade the network and consolidate management and maintenance.

## NETWORK SOLUTION

Grobbink turned to Cisco Systems® to create an end-to-end secure, reliable IP network foundation. She remarks, “On a very high level, you could say that all networks look alike. However, Cisco understands the importance of sharing information to create knowledge, so they are a good business partner for educational institutions.”

The Vrije Universiteit’s IP network consists of Cisco Catalyst® switches at the core and throughout campus buildings. Flexible standards-based security enables the small IT staff to effectively manage network access based on user or machine identity, maintain private communication channels, and manage network traffic flows using centralized policies.

To overcome department reluctance to cede longtime control of network segments, and to demonstrate that her IT department could be a reliable business partner, Grobbink made a commitment on behalf of her staff and Cisco network. “I signed service level agreements with all the faculties,” she explains. The network passed its tests with high marks over the next few months, and the departments reaped the benefits of having a high-performance, dependable network without having to maintain it themselves.

**“Education is all about exchanging and sharing and thus creating knowledge. A digital network provides students and teachers with the ability to communicate, independent of time and place.”**

— Marian Grobbink, Chief Information Officer, Vrije Universiteit Amsterdam

With a solid IP network in place, Grobbink and network manager Fons Ullings could now add exciting new services at a relatively modest incremental cost. The university had begun to offer students the chance to purchase laptops loaded with applications, WiFi capability and authentication software at a deep discount, with free technical support provided by the IT staff. Grobbink and Ullings reasoned that offering free wireless network access would add tremendous value to the student laptops and boost their adoption rate.

They again turned to Cisco for a standards-based wireless solution. However, because they wanted to do it right the first time, and not be forced to upgrade devices to implement new services, they insisted that the wireless access point design support 802.3af Power over Ethernet (PoE), Layer 3 roaming, and 802.1X authentication.

Cisco Aironet® 1130 AG and 1230 AG wireless access points met the university’s stringent requirements; 450 of them have been deployed to date. PoE capability enables wired switches to supply power to the access points over Category 6 cable, eliminating the need to install the access points near power outlets. 802.1X support allows the IT staff to take advantage of centralized RADIUS authentication from the wired network to verify user and device identification and authorization. Layer 3 roaming supports quality-of-service-dependent services such as wireless IP telephony and IP video.

According to Ullings, the stability of the access points and CiscoWorks Wireless LAN Solution Engine (WLSE) software minimized deployment efforts and also reduce ongoing administration efforts. WLSE allows the staff to update software and track configurations from a central console.

The wireless network was installed during the summer of 2005, and a growing number of students are already using the wireless network. The university hopes to see usage reach 85 percent within the next two years.

## PRODUCT LIST

### Switching and Routing

- Cisco Catalyst 6500 Series switches at the network core
- Cisco Catalyst 3570 Series switches control traffic and security at the distribution layer
- Cisco Catalyst 3550 Series switches control traffic and security at the edge

### Security and VPN

- Cisco IOS Software with 802.1X authentication and authorization

### Wireless

- Cisco Aironet 1130 AG Access Point inside campus buildings
- Cisco Aironet 1230 AG access points on outside campus locations
- CiscoWorks Wireless LAN Solution Engine (WLSE)

## BUSINESS RESULTS

Just six IT staff maintain the wired and wireless data network and the Private Branch Exchange telephone network for the entire university system. Ullings attributes the impressive support ratio to his well-trained staff and to Cisco products: “Our network core has been up and running for two and a half years without any intervention from my staff,” he notes.

Free wireless network and Internet access was conceived as a draw for students, but a campuswide wireless network also created an excellent opportunity to save money and space. Previously, the IT staff had supported hundreds of workspaces equipped with desktop computers throughout the campus. These individual workspaces took up valuable study areas, and maintaining the computers was expensive, especially as the equipment aged.

With their own laptops, students now have the tools they need to do their work always at hand, and the university is converting individual cubicles into attractively furnished group study areas. IT purchases unlimited user software license agreements and downloads the application images from network servers onto student computers as needed. Grobbink believes that the changes have reduced PC-related maintenance and operation costs by almost 90 percent.

Physics student Joris Snellenburg agrees that the university is in a good position to attract students who rent an apartment in the city and do not have the money to buy a computer or Internet service on their own. While the 20 percent discount on hardware offered by Vrije is nice, Snellenburg

notes the real advantage comes with the preinstalled software and free warranty and support. He notes, “If students encounter any problems, they can come to the help desk center, and someone will reinstall their software onto a preset hard disk partition.” The IT staff hires physics and computer science students to help with other operating systems, applications and personal computing devices.

Students also love the freedom that wireless connections give them. Instead of waiting to use a computer, they can find a quiet corner, open their laptops, and begin to work or collaborate with others. Snellenburg notices that he and his friends with laptops “tend to meet and work on problems together.” Grobbink loves walking through the university and observing students sitting around a table with their laptops and interacting.

“We consider students our key customers,” she notes. “Education is all about exchanging and sharing and thus creating knowledge. A digital network provides students and teachers with the ability to communicate, independent of time and place.”

## NEXT STEPS

Upcoming projects that take advantage of the wireless communication infrastructure include implementing wireless VPNs so students can access faculty networks protected behind firewalls, installing wireless IP video cameras throughout campus to augment university security, and pilot-testing wireless voice over IP and cellular services for faculty and students.

Grobbink emphasizes, “As a university, we need proven technology that we can easily maintain and manipulate. On the other hand, because we educate tomorrow’s decision makers, we must implement advanced technology. Cisco’s combination of advanced and yet proven technology is very important for us.”

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To find out more about Cisco Wireless Networking Solutions, visit: <http://www.cisco.com/go/wireless>

This customer story is based on information provided by the Vrije Universiteit Amsterdam and describes how the institution 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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### Corporate Headquarters

Cisco Systems, Inc.  
170 West Tasman Drive  
San Jose, CA 95134-1706  
USA  
[www.cisco.com](http://www.cisco.com)  
Tel: 408 526-4000  
800 553-NETS (6387)  
Fax: 408 526-4100

### European Headquarters

Cisco Systems International BV  
Haarlerbergpark  
Haarlerbergweg 13-19  
1101 CH Amsterdam  
The Netherlands  
[www-europe.cisco.com](http://www-europe.cisco.com)  
Tel: 31 0 20 357 1000  
Fax: 31 0 20 357 1100

### Americas Headquarters

Cisco Systems, Inc.  
170 West Tasman Drive  
San Jose, CA 95134-1706  
USA  
[www.cisco.com](http://www.cisco.com)  
Tel: 408 526-7660  
Fax: 408 527-0883

### Asia Pacific Headquarters

Cisco Systems, Inc.  
168 Robinson Road  
#28-01 Capital Tower  
Singapore 068912  
[www.cisco.com](http://www.cisco.com)  
Tel: +65 6317 7777  
Fax: +65 6317 7799

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