University of Utrecht
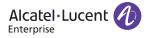
The University of Utrecht secures international
future with Alcatel-Lucent wireless network

University of Utrecht

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Enterprise

CUSTOMER AT A GLANCE

University of Utrecht, the Netherlands

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Industry: Education

Budget: 716 million euros (2010)

Number of students: 29,927 (2010)

Number of staff: 7,479 (excluding Medicine)

Number of faculties: 7

CHALLENGES

- Supporting education with the most modern IT infrastructure available

- Installing a data network in sensitive, listed buildings

- Providing optimum security for a network with many guest users

- Undertaking management, maintenance and upgrades at minimal expense

- Being prepared for unpredictable future technological developments

BUSINESS PARTNER INFORMATION

KPN is the leading telecommunications and ICT service provider in The Netherlands, offering wireline and wireless telephony, internet and TV to consumers, end-to-end telecommunications and ICT services to business customers. KPN's subsidiary Getronics operates a global ICT services company with a market-leading position in the Benelux, offering end-to-end solutions in infrastructure and network-related IT.

www.kpn.com

Wireless network offers solution to an age-old problem

The University of Utrecht is one of the leading educational establishments in the world. Like all top universities, it faces pressure from students and researchers to provide a high value IT infrastructure, and therefore having an up-to-date data network is absolutely essential. In addition to the hard-wired network, they also needed a wireless network in order to provide excellent service to their students and research staff. The importance of the wireless network is not just a result of the major rise in the number of mobile devices: a large part of the University is accommodated in historical properties in the ancient inner city of Utrecht, and it is not always possible or permissible to install network cables along and through the walls of these listed buildings.

The need for a future-proof network

Although the origins of the University of Utrecht can be traced back to the seventh century, when the Irish monk Willibrord of Utrecht set up an institution to educate priests and young noblemen, it was the city fathers who founded an 'Illustrious School' in 1634. This was officially upgraded to the University of Utrecht in 1636, when it was granted the right to issue academic degrees. The opening ceremony was held on 26 March 1636, a date celebrated as the University's anniversary to this day.

In order to retain its international profile and attract students from the Netherlands and abroad, the University looked for a supplier to replace the entire data and telephone network and install a wireless network. Through a European tendering process, the University chose to invest in future-proof solutions from Alcatel-Lucent.

Alcatel-Lucent solution offers real added value

Mr Ritzen, Corporate Information Security Officer at the University of Utrecht, says: "KPN won the tender and then brought in Alcatel-Lucent to install the wireless network. We opted for Alcatel-Lucent because it was the only vendor at that point to meet our requirements: a modern, easily manageable and flexible wireless network that we can quickly extend."

The Alcatel-Lucent solution offers real value, including the option of upgrading the network without having to replace the base stations. For example, Mr. Ritzen describes how some progressive developments in WLAN communication standards were selected and implemented: "Because we wanted the option of incorporating the very latest technical solutions into our network, we included a very broad description for the wireless network in our European tender documents. Despite the fact that the LAN 'n' standard had not yet been officially adopted at that point – this did not happen until 2009 – Alcatel-Lucent showed, as early as the initial study phase, that it was the first and perhaps the only vendor that could meet our requirements in this area at the time. It also offered its solution at a competitive price."

The IEEE 802.1 'n' standard currently offers the University of Utrecht speeds of 300 Mbps (megabits per second). Mr Ritzen comments: "This is more than adequate for the most commonly used applications. It is even enough for the geography department just now, where dozens of multimedia files are sent and received."

Software upgrades save time and expense

The biggest advantage of the base stations supplied by Alcatel-Lucent is that the University can manage and upgrade them centrally. Mr. Ritzen elaborates: "A software adjustment is all that is required, even to double the speed to 600 Mbps, so that we don't have to replace all the base stations. This saves time and a lot of expense. The centrally managed wireless network also has advantages as far as daily management is concerned. At present, a single network manager out of the total of 10 can manage, maintain and, where necessary, replace the 1,000 base stations that are installed in about four working days each week. In comparison with the wired network, this represents a considerable saving in terms of management expenses."

Another benefit is the outstanding security offered by Alcatel-Lucent. Mr Ritzen comments: "During the run-in test period, we asked a number of our students to hack into the wireless network, but they were unable to do so."

"We regard security as extremely important, but at the same time education and research need maximum accessibility. We want to be able to trace every use of the wireless network back to an individual. This, combined with the fact that we have many guest users, is why we use 802.1x and why we are affiliated to the Eduroam infrastructure, which allows staff and students from other education institutions to log into our network, using the username/password for their own institution. Conversely, our own staff and students can use the username/password combination they have obtained from the University of Utrecht to log into other systems. Also, it is always possible to use the wireless network to set up a VPN tunnel, for instance to an individual's own institution. Alcatel-Lucent supports all of the industry standards that we need for these solutions."

BENEFITS

- Internet access completely independent of location
- Straightforward support and installation
- Lower management costs, one manager can cope with a marked rise in numbers of students and staff
- Savings on hardware and installation costs; (software upgrades to base stations)
- Increase attractiveness to students and staff
- Optimum network security through the removal of ethernet ports and locations accessible to the public

SOLUTIONS

- Data Network Solutions

  Alcatel-Lucent OmniAccess WLAN Wireless Switch

  Alcatel-Lucent OmniAccess WLAN Wireless Access Point

- IP Telephony Solutions

  Alcatel-Lucent Omni PCX™ Enterprise Communications Server

  Alcatel-Lucent OmniTouch™ 8660 My Teamwork Conferencing and Collaboration Security

- Management Solutions

  Alcatel-Lucent OmniVista™ 4760 Network Management System

- Mobility Solutions

  Alcatel-Lucent OmniAccess Wireless LAN

  Alcatel-Lucent My Cellular Extension for the leading edge mobile platforms

- Unified Communications Solutions

  Alcatel-Lucent OmniTouch 8600 My Instant Communicator

"The wireless network technology also facilitates access to the network through e-readers, tablets and smartphones without requiring an Ethernet port. This, combined with the possibility of software upgrades, means that we are prepared for future developments. I do not expect us to be facing any severe upgrade expenditure over the next five years, because we can implement a speed upgrade to 600 Megabits per second using software. The paper-free University seems to be no more than a pipe dream at the moment, but prompted by the boundless popularity of devices like the iPad, we are already holding discussions with publishers of student texts to see whether they can make their material available for use on devices like these. To support this revolution successfully, it is very important that we should have a reliable wireless network offering adequate capacity."

The quality of education and research is what determines students' choices for their course of studies. They assume that every university will offer a wireless network. Mr. Ritzen concludes that the wireless solution offered by Alcatel-Lucent, installed in and around nearly all of the 100 University buildings, will thus contribute significantly to the University's ability to offer its students a state-of-the-art network, which is one factor in making the University of Utrecht a more attractive place to study.

A profitable collaboration

Mr. Ritzen is full of praise when it comes to the collaboration with Alcatel-Lucent. "Alcatel-Lucent helped us to work out what a large modern university requires in order to provide the best support to students and staff. When we asked technical questions, we had immediate access to product specialists who could help us quickly. The supply and installation went very smoothly, which was very important, because we had to take account of teaching times and the replacement of outdated cabling. We installed 700 base stations over nine months, one building after another. The number of base stations has now exceeded 1,000, and we can easily integrate these into the existing infrastructure."

He concludes: "In our historically-listed Academy Building, where we can't even stick drawing pins in the walls, Alcatel installed the base stations very neatly in the roof space and used directional antennas to bring the great hall below within range. After all, academics and students nowadays expect to have an Internet connection wherever they are, 24 hours a day, even in a building that is hundreds of years old. Our users have responded very positively. The network is working away all the time. The main question we're asked nowadays is 'When will it be our building's turn?'"

ABOUT THE CUSTOMER

The University of Utrecht is a large, multi-faceted academic center offering education and research of international quality. The University of Utrecht is one of the top universities in the world, standing at number 11 in Europe, number 1 in the Netherlands and number 50 in the world on the Shanghai Rankings. The University was founded in 1636 and has seven faculties. Its former students include 12 Nobel Prize winners, and 13 Spinoza Prize winners came from the University of Utrecht in the period between 1995 and 2010. It had 29,927 students in 2010, with 2,532 of them coming from 130 foreign countries. The University of Utrecht has the widest range of English-language masters' courses in the Netherlands (167, of which 83 are provided in English), 45 bachelor courses (3 in English) and 32 teacher training courses.

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RENÉ RITZEN
CORPORATE INFORMATION SECURITY OFFICER
UNIVERSITY OF UTRECHT.

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