

Luxembourg Hospital Becomes a European Mobility Leader

Hospital St. Louis improves hospital operations and patient quality of life with wireless and location-based solutions.

EXECUTIVE SUMMARY
HOSPITAL ST. LOUIS <ul style="list-style-type: none"> Healthcare Ettelbruck, Luxembourg 765 employees, 91 doctors
CHALLENGE <ul style="list-style-type: none"> Improve wireless network reliability to support continuous access of digital medical records Deploy patient-tracking solution to prevent disoriented patients from leaving permitted areas
SOLUTION <ul style="list-style-type: none"> Cisco Unified Wireless Network enables medical practitioners and mobile staff to access records while on the go Cisco Context-Aware Mobility Solution, with AeroScout MobileView and Wi-Fi-based RFID tags, enables tracking of disoriented patients Cisco Context-Aware Mobility Solution, with AeroScout MobileView and Wi-Fi-based RFID tags, helps track hospital assets
RESULTS <ul style="list-style-type: none"> Simplified network management and maintenance, resulting in crucial time-savings and better IT resource allocation Facilitated compliance with numerous hospital legal and security requirements Improved patient quality of care and life and reinforced hospital's position as technologically-advanced healthcare institution

Challenge

With a history of providing advanced healthcare to its residents since 1855, the city of Ettelbruck opened the new Hospital St. Louis in October 2003. This 32,000-square-meter modern facility was specially architected and designed to meet the needs of patients in the 21st century. From the hospital's inception, technology has played an integral role in providing the highest levels of security, efficiency and patient care. "We began using wireless networking to improve the quality of patient care through the use of digital medical records," says Daniel Schartz, a member of the IT network and security staff at Hospital St. Louis.

In 2007, however, the hospital's wireless network solution from Nortel was causing problems. "The availability of the network was not reliable, especially while roaming. The connectivity issues were beginning to affect our ability to treat patients because practitioners were not able to access digital medical records at all times," says Schartz. In addition, the hospital's IT team received a request from the patient care department for a solution that could track disoriented patients, especially if they tried to leave their wards. "We needed to find a location-tracking solution that would not require the IT team to open up walls and cause the disruption of hospital operations," says Schartz. "It became apparent that we needed to build a network that could provide reliable and seamless mobility services."

Solution

To improve the reliability and functionality of its mobile network, Hospital St. Louis turned to Cisco. After performing a test pilot with Cisco® access points, the hospital decided to replace its existing Nortel wireless network. "We were very impressed by the performance of the Cisco equipment," says Schartz. By the end of 2007, the hospital had deployed 75 Cisco autonomous access points and replaced its entire Nortel core infrastructure with Cisco.

To provide location tracking of patients, the hospital chose AeroScout, one of Cisco's strategic technology partners. "We selected the AeroScout Healthcare Visibility solutions because they enabled easy integration with Cisco's wireless network," says Schartz. A year later, the hospital decided to upgrade the capabilities and simplify the management of its mobile network by deploying a Cisco Unified Wireless Network, consisting of 175 Cisco Aironet® 1100 and 1200 Access Points and the Cisco 3300 Series Mobility Services Engine. "We chose to deploy the Cisco Unified Wireless Network and Mobility Services Engine," says Schartz, "to provide us with easy scalability as the mobile needs of the hospital continue to grow."

Today, the Cisco Unified Wireless Network enables doctors, nurses, and mobile staff to treat patients efficiently and conveniently. Nurses and doctors use laptops to access electronic medical records (EMR/EHR), radiology images (PACS), and lab results at the patient bedside. As they move from floor to floor, physical therapists check their PDAs to reference lists of patients requiring treatment. Similarly, technicians also use PDAs to respond to service requests from different areas of the hospital. "Instant access to this type of information," says Schartz, "enables our mobile staff to reach their patients quicker and input data while they're on the go."

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— Georges Wolfers, ITG manager, Hospital St. Louis

The Cisco Context-Aware Mobility Solution, consisting of the Cisco Mobility Services Engine integrated via an open API to AeroScout's MobileView application, now tracks disoriented patients throughout the hospital. Hospital St. Louis provides AeroScout Wi-Fi-based RFID tags to patients with dementia and psychiatric illnesses, and AeroScout Exciters serve as chokepoints that have been placed near the elevators and staircases on every floor, as well as by all hospital exits. If a patient with a tag wanders away from the ward and attempts to leave the floor or the hospital, the exciter triggers the tag. The Cisco Unified Wireless Network transmits the alerts, including the name and picture of the patient, to the nurses' mobile telephones, call system and ward PCs, as well as to security staff PDAs.

The hospital has also begun using the Cisco Context-Aware Mobility Solution with AeroScout to track medical supplies and equipment. Using PDAs, personnel are now able to locate tagged oxygen bottles and send the information on their status back to the PCs and laptops located in the pharmacy. "The location-tracking capability will help us reduce the number of bottles we dispense, which will save us money on rental fees," says Schartz. One of the hospital's Masters-degree students is also working on a project to track infusion pumps and wheelchairs. "Asset tracking will reduce the time that it takes our nurses to find the nearest infusion pump and increase the efficiency of the technicians who service the equipment," he says. "It will also enable our internal transport team to locate missing wheelchairs by simply checking their PDAs."

Results

The Cisco Unified Wireless Network simplified network maintenance and management significantly. The centralized architecture of the Cisco Unified Wireless Network enables the IT team to add access points easily and configure them all at once whenever they install a new upgrade or application. In addition, the hospital has strict zoning security policies, requiring the creation of different wireless LANs for each user group. "With Cisco, we're able to create a VLAN for every ward and care station quickly and easily," says Schartz. Since the hospital develops almost all of its clinical and administrative applications in-house, IT resource-allocation is crucial. "The management flexibility," says Schartz, "has resulted in huge time-savings for the IT team, enabling us to focus on developing new hospital applications."

The Cisco Unified Wireless Network also helps Hospital St. Louis meet a number of legal and security requirements. "Because we provide our patients with guest access capabilities, we are considered a service provider in Luxembourg and are subject to auditing requirements," says Schartz. "We use the Cisco Secure ACS Solution Engine, which makes it easy to monitor patient logins." The ACS also records who accesses and changes patient data, meeting hospital security and patient privacy standards. In addition, the Cisco Context-Aware Mobility Solution helps the hospital comply with the Luxembourg law that requires the continuous maintenance of all hospital equipment. "The location-based capabilities make it easy to track and service equipment, such as infusion pumps, on a regular basis, fulfilling another important legal quality requirement," says Schartz.

PRODUCT LIST

Wireless

- Cisco Aironet 1100 Series Access Points
- Cisco Aironet 1200 Series Access Points
- Cisco Catalyst® 6500 Series Wireless Services Modules
- Cisco Wireless Control System
- Cisco 3300 Series Mobility Services Engine

Routing and Switching

- Cisco Catalyst 3750 Series Switches
- Cisco Catalyst 4500 Series Switches
- Cisco Catalyst 6500 Series Switches

Security and VPN

- Cisco Secure ACS Solution Engine

Furthermore, the Cisco Context-Aware Mobility Solution, together with AeroScout's Healthcare Visibility solutions, has improved patient quality of life at Hospital St. Louis and reinforced the hospital's position as one of Europe's most technologically-advanced healthcare institutions. "The location-tracking capabilities made it easier for us to track and care for disoriented patients while expanding their mobility and comfort," says Scharzt.

Guest access capabilities also provide patients with Internet access, enabling them to work conveniently during their hospital stay. "The wireless services we offer are not provided yet in most hospitals throughout Luxembourg," says Georges Wolfers, the hospital's ITG manager. Mobility and continuous access to digital medical records provide the most accurate diagnostic tools and a convenient working

environment for doctors and nurses. "We are one of the showcases for RFID solutions in Europe and for wireless technology in the country," says Wolfers. "Providing advanced wireless services helps us attract the best talent to our hospital and continually offer the highest quality of patient care."

Next Steps

The hospital plans to expand the Cisco Unified Wireless Network deployment to 300 access points by the end of 2009. In addition, Hospital St. Louis is currently merging with another hospital located in northern Luxembourg. "We are currently rebuilding part of the other hospital, but will deploy a complete Cisco wireless network when the renovation is complete," says Scharzt.

Hospital St. Louis is just at the beginning of discovering the many applications for mobility services. In the future, the IT team plans to use location-based tracking for patient identification in operating rooms and to facilitate emergency evacuations. "We would like to use location-based tracking to help distribute patients and their medical records accurately to different locations, such as other emergency hospitals, during disasters or major accidents," says Scharzt. Wolfers adds, "Our ideas are endless, but we know that the Cisco Unified Wireless Network and mobility solutions can support them."

For More Information

To find out more about the Cisco Unified Wireless Network and 802.11n technology, visit: <http://www.cisco.com/go/nextgen-wireless>.

To find out more about Hospital St. Louis, visit: <http://www.hsl.lu/>.

To learn more about AeroScout, visit: <http://www.aeroscout.com>.



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