

Lüneburg Municipal Medical Centre

EXECUTIVE SUMMARY

Challenge

Redesign the network infrastructure to deliver the high performance, availability, security, and scalability required to support next-generation medical applications

Solution

- Brocade FastIron SX Series switches
- Brocade FastIron GS Series switches
- Brocade FastIron LS Series switches

Results

- Increased overall network performance by 30 percent while reducing maintenance costs
- Improved stability and availability of network resources
- Reduced complexity and support requirements by standardizing on Brocade network technology
- Enabled innovative hospital applications for managing electronic patient records, billing, medical images, and other specialized information

Brocade Switches Enable High-Performance Hospital Networks for Innovative Applications

The Lüneburg Municipal Medical Centre, a university teaching hospital affiliated with the University of Göttingen in Germany, offers its patients a variety of leading-edge medical services. Since its founding in 2007, the Lüneburg Municipal Medical Centre has grown considerably and today employs 1160 staff, including approximately 200 doctors, 630 nursing and support staff, 210 medical technicians, and 120 administrative staff. Over the years, the challenges of managing a network infrastructure for such an innovative, highly regarded medical center have also grown.

With 25 network cabinets spanning 50,000 square miles and 12 buildings, the center's network was outdated and becoming increasingly complex. More important, it could not provide the high performance and capacity required to support newer, bandwidth-intensive medical applications and the 1200 regular users who depend on them.

"The network cabinets had evolved over time and were not set up in a sufficiently structured or standardized manner, and were therefore very cluttered," recalls Sandra Kuetz, IT Director at the Lüneburg Municipal Medical Centre.

Furthermore, part of the infrastructure was still running at 100 Mbps, too slow to keep pace with continuously increasing bandwidth requirements. It

was impossible to implement critical applications at these speeds, including the Picture Archiving and Communication System (PACS) used by radiology, CAD applications, and the hospital's patient information and billing systems.

Standardizing on Brocade Network Technology

Given the center's reliance on applications, the new network would need to "to provide a high level of performance, availability, and security," stresses Kuetz. With these requirements in mind, a team of select hospital staff and systems integrator Euromicron set out to upgrade the system with the goals of safeguarding the availability of all (patient) data, ensuring network and systems availability, and increasing network performance and bandwidth—all while avoiding system downtime.

In the course of the project, the IT department decided to standardize on Brocade® network technology. According to Michael Dierks, Network Administrator within the center's 12-person IT team, Brocade solutions enabled greater ease of use and increased efficiency. "Brocade's switches are easier to handle with regard to installation and programming," notes Dierks. "The ventilation duct fits in with the design of the cabinet better, which facilitates ventilation and saves energy."

As part of the project, the team planned to migrate the 100 Mbps infrastructure to 1 Gbps to better meet the demands of bandwidth-hungry medical applications. They subsequently categorized all 25 cabinets according to their specialty department and began reconstructing them based on their criticality. The team then built in the desired level of redundancy based on the newly planned backbone in the Lampertz security enclosure. This will eventually secure two identical backbone components located in different fire compartments. The two backbones are connected by 2 Gbps fiber optic cabling.

By standardizing the layout for the cabinets and preparing a system-wide plan, the project team was able to minimize the time required to set up each unit. In addition, the time required to migrate a cabinet was reduced from about six to three hours, thanks to the simple configuration of the Brocade switches.

Increasing Speed and Availability While Reducing Maintenance

The positive effects of the redesign are already apparent to the center's IT department. "Port errors have been reduced by half," says Dierks. "When a fault does occur, it can be quickly traced to its source, thanks to the detailed patch list that belongs to each cabinet. This makes it easy to remedy the problem."

The refurbishment of the network topology also enabled the IT department to implement DIN/EN 80001-1, an international standard that defines the roles, responsibilities, and activities necessary for risk management of IT networks incorporating medical devices. Medical and administrative networks at the Lüneburg Municipal Medical Centre

now can be easily and clearly separated as required with the help of simple-to-use Virtual LAN (VLAN) technology. With 25 VLANs, the IT department can ensure that each staff member has access only to data that he or she is authorized to view, significantly reducing the likelihood of loss or damages due to accidental data leaks.

Building an Infrastructure to Support Future Applications

Looking ahead, Kuetz has more plans for the network, including the installation of a second Brocade FastTron® SX 1600 core switch in the second security enclosure. This will help provide complete hardware redundancy in the core. And with demand for bandwidth-hungry applications growing, Kuetz soon expects to upgrade the backbone to 10 Gbps. With Brocade, the network infrastructure is in place to support this move, thereby reducing the need for any major future investment.

Plans to integrate wireless networks, a prerequisite for electronic patient care documentation, also can now be easily executed. "This was simply impossible with our old network for capacity reasons. But thanks to our Brocade infrastructure, which gives us 30 percent higher performance overall, we now have the network technology to implement everything to meet the medical requirements of our hospital," explains Kuetz.

For more information, visit www.brocade.com.

WHY BROCADE

"Brocade enables us to build a highly scalable, standardized network that is efficient, stable, secure, and easy to administer—and can support our most bandwidth-intensive applications."

—Sandra Kuetz, IT Director at the Lüneburg Municipal Medical Centre

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