Mobile ward rounds and digital entertainment for patients
The Bethanien Hospital puts its faith in the latest technology

With its 510 beds, the Bethanien Hospital in Moers is the largest acute hospital in the Lower Rhine region. Throughout its 160-year history, the hospital had not only placed humanity and dignity at the top of its agenda, but had also consistently chosen cutting-edge technology solutions.

The hospital was one of the early adopters in the move to digitise clinical services. As far back as the early 2000s, the organisation took an innovative outlook and ensured that its network infrastructure was ready to provide the services of the future. Employees had been using a VoIP-based telephone system and Wi-Fi for mobile telephone services since 2008. Over the years, the entire network has been updated on an ongoing basis. Fundamental Consulting GmbH & Co. KG, an experienced IT service provider of clinical settings and long-standing partner of Westcon-Comstor, was the hospital's trusted partner for the development and expansion of its infrastructure.

The challenge

The Bethanien Hospital contracted Fundamental Consulting to upgrade the network, giving it the capacity to support mobile ward rounds and be used for all employee communication. As part of the project, it was necessary to incorporate four medical centres into the network. In addition, the hospital wanted to roll out patient terminals across 450 beds, providing entertainment services, TV and phone calls.

The solution

The modernisation project began when several component service and support packages expired. The core switches were initially replaced, followed by the server switches. 90 layer switches with 48 ports were then installed.

In a third stage, 1,000 access points were installed, including 80 outdoor access points with special directional aerials alongside a controller unit.

The project also saw the installation of a more efficient infrastructure, including a brand new cabling system. In combination with the Cisco Nexus Switch series, this provided an innovative, scalable platform to operate the server infrastructure. The previous fault-prone 2.4 GHz network would no longer be used to run the clinical network, thus guaranteeing a high degree of network availability.

By implementing 5 GHz Wi-Fi, the hospital wanted to ensure that mobile ward rounds took place without interruption and that none of the clinical systems (such as patient-monitoring systems) or Voice-over-WLAN calls experienced faults.

For example, a mobile ward round trolley is used which is pushed right to the patient's bed. Doctors and medical staff can access the patient's data via Wi-Fi while standing in close proximity to the patient.

"As the human body consists largely of water, and the fabric of the building significantly reduces the Wi-Fi range, higher density mesh coverage was required," says Michael Pfeilschifter, senior sales consultant at fundamental consulting GmbH & Co. KG.

"This was also important from the employee communication perspective, as all doctors wear a bleeper that receives alerts. The number of Wi-Fi access points deployed was therefore increased from 400 to 1,000," adds Michael Pfeilschifter.

"And we have installed enough points outside to ensure that doctors can be reached at all times."

Cisco Access Points 3702 were used for this, and the entire infrastructure is managed through the Cisco Prime Management solution.

When setting up critical infrastructures such as those found in hospitals, efficient logistics systems are critical.

"We do not have large storage facilities and the close collaboration with Westcon-Comstor's supply-chain services was therefore crucial in that regard."

"Ensuring that specific deliveries are made on time or that several products can be obtained in succession is always challenging. Here too, we collaborated closely with Westcon-Comstor to negotiate ordering, configuration, finance and even an extension to the credit period," sums up a clearly satisfied Michael Pfeilschifter. "We have been particularly impressed by these aspects since the start of our collaboration."

Outcomes

Now that the modernisation project is complete, the medical facility has a fast, secure and high-performing 5 GHz clinical network. All critical applications benefit from a multi-layer security approach, featuring internal security zones, network access control and end-point security.

Four medical centres have been connected to the network. Communication with the main building is controlled and managed via Cisco Unified Communications Manager 11.5.

The cutting-edge patient network is linked to a centralised payment system. Patients can access internet, telephony and TV services direct from their bedside through a terminal. Payment is made via an automated pay station in the main building, and a Sophos firewall keeps the two networks separate.

Partner:
Fundamental Consulting
GmbH & Co. KG

Partner level:
Cisco Premier Partner

Cisco products used:
Access points and controller,
Cisco Nexus switch series,
Cisco Prime management software

Architectures:
Networking, Data centre

Sector:
Healthcare

fundamental
consulting