Renowned Teaching Hospital Sets New Standards for Providing Healthcare in Germany, and Beyond

Executive Summary

CUSTOMER NAME
SANA-Klinikum Remscheid GmbH, Germany

INDUSTRY
Healthcare

BUSINESS CHALLENGES
- Improve patient care, while optimizing efficiency
- Respond to major restructuring of the German health service and intensified competition within the healthcare sector

SOLUTION
Connected healthcare environment based on a Cisco medical-grade network design and delivered over a converged, wireless, intelligent IP infrastructure

BUSINESS RESULTS
- Model is the first of its kind in Germany
- Medical staff have improved access to critical patient data—anytime, anyplace
- New standards in healthcare operational effectiveness
- Future best practice for both private and public sector healthcare has been defined

SANA-Klinikum Remscheid GmbH is setting new standards for planning and operating hospitals in Germany and around the world. SANA has transformed the hospital environment by implementing a vision for connected healthcare that builds an intelligent IP network around the needs of patients and caregivers. Medical staff benefit from ubiquitous access to patient information, while greater process efficiency and better utilization of shared resources has delivered cost savings.

BUSINESS CHALLENGES

Part of the Sana Group, the SANA-Klinikum Remscheid GmbH hospital in Germany, is a renowned academic teaching hospital and one of the country's most forward-looking healthcare providers. With 1,100 staff members—including more than 160 doctors and over 450 nurses—16 specialist departments and 680 permanent beds, it provides vital care services to more than 19,000 inpatients and 20,000 outpatients.

Medical standards in Germany are among the highest in Europe. The constant challenge for healthcare providers like SANA is to improve patient care, while optimizing efficiency. The healthcare sector is also experiencing unprecedented change and intensified competition as a result of German healthcare reform, which may lead to the closing of up to 600 of the country's 2,200 hospitals within the next three years.

CISCO SYSTEMS

Prepared by
Internet Business Solutions Group

In response to these challenges, the organization built the new €70 million SANA-Klinikum Remscheid hospital, which opened in May 2005. The hospital has completely reinvented the core processes of a traditional hospital to improve efficiency. Michael Willmann, head of IT for the hospital, explains: "Our goal was to develop a new business and technology model to deliver the highest healthcare operational effectiveness, optimum patient care, and sustainable economic success."

SOLUTIONS

To help make this transition, SANA-Klinikum Remscheid turned to its strategic supplier Cisco®. Over the last several years the two companies had worked together to share best practices and build the hospital's existing network. SANA was interested to hear Cisco's perspective drawn from lessons learned from other business sectors.

Working alongside the hospital's service provider, ISIS Multimedia Net GmbH, Cisco helped to develop a networking feasibility study—based on combining clinical excellence with a process, resource siting, and management-planning methodology born from manufacturing-plant best practices.

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> **SANA-Klinikum Remscheid GmbH, Germany**

Further discussions with the Cisco Internet Business Solutions Group (IBSG) provided an opportunity to share Cisco's view of "connected healthcare," where networking technology brings all stakeholders together with the information and resources they need both to improve the quality of healthcare and reduce costs through optimized processes and resource sharing.

"SANA and Cisco share the same vision and understanding of the role that a converged, intelligent IP network can play in helping to take healthcare to the next level," says Willmann.

The new network infrastructure design embodies the core principles of a Cisco medical-grade network, which is a proven foundation for connecting people, processes, information, and devices to intelligently and successfully apply technology to healthcare. A Gigabit Ethernet core comprising Cisco Catalyst 6500 Series Switches supports a campuswide Cisco wireless network and enables IP telephony, using Cisco Unified CallManager technology that provides call processing for Cisco Unified IP phones.

The new hospital has been designed to optimize resources, down to the physical location of each functional area in order to streamline the movement of a patient from one area to another. For example, in the central admissions area, patients can be diagnosed using a full range of equipment, thereby avoiding the need to move around several departments. In an emergency, a

patient can be taken to one of the adjoining operating rooms and subsequently moved to a recovery area within the intensive care unit just three meters away. In the old hospital, a patient had to travel up to 500 meters to intensive care.

There are no wards, rather three patient areas—intensive care, intermediate care, and normal care—which can be flexed to reflect demand. The goal of optimization extends to diagnostic machines and other common resources that are "checked out" by clinicians to other areas of the hospital, as opposed to being dedicated to a department and laying idle some of the time.

A picture-archiving and communications system enables the storage, retrieval, and distribution of medical images, such as X-rays, from bedside computer terminals that double up as patient entertainment centers, complete with Internet access and e-mail.

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In an environment where every second counts, patients can use a light-signal call system located by their beds to request attention. The call system is integrated with a Cisco wireless IP phone that enables the nurse on duty to immediately pinpoint the location of the patient. Rather than go to the bedside to discover what the patient requires, the nurse can phone him or her to immediately answer the patient's question. This saves time and enables the nurse to collect, in one single journey, any items that are needed. The same functionality also applies to the doctors' call button in the hospital-ward office.

Unified messaging is helping to ensure a safer hospital—providing, for example, broadcast alerts that detail precise fire alarm locations and personal safety features that can be used by caregivers working in places such as psychiatric wards. Some phones can also be loaned to patients who are not confined to beds to allow them to freely move around the hospital's premises. Staff can then contact them when they are ready to be seen.

BUSINESS RESULTS
The SANA-Klinikum Remscheid hospital is the first example in Germany of an end-to-end connected healthcare environment. It has created a pioneering blueprint and set new standards for planning and operating hospitals—not only across the entire SANA group of 90 hospitals and healthcare-related institutions but also, potentially, to other major healthcare providers. Moreover, while privately owned, SANA-Klinikum Remscheid runs like a public hospital and its lessons are, therefore, also of direct value to all public-sector hospitals.

Migration to a connected healthcare environment—based on a converged, wireless intelligent IP network—has transformed the hospital environment. The greater mobility—provided by IP phones—gives doctors and nurses access to critical patient data—anytime, anyplace. Easier communications enable medical staff to respond to patient needs faster, as well as create a much safer and well-informed workplace.

Cisco IBSG has also helped the hospital to map out the benefits achieved in terms of quality of care and cost savings. The technology back bone installed will allow improvements in efficiency and patient care which comprises the following:

- **Significant space savings—**the new hospital serves the same number of patients as the two former locations as a result of streamlining operations and outsourcing of noncore functions. The replacement of paper-based documents with digital records has reduced storage space.

- **Better utilization of resources—**the provision of beds in the three patient care areas can now be flexed to better meet demand, while devices, machines, and other common resources can be easily shared by clinicians and medical staff controlled by central resource managers (OP, diagnostics, emergency unit)

- **Greater efficiency of operational management—**provided by better integration of processes and communications, along with highly efficient, flexible workflow

In creating the new hospital, SANA-Klinikum Remscheid has also ensured better use of financial resources. Cisco Systems Capital, a wholly-owned Cisco subsidiary that provides end-to-end financial services for Cisco customers, has helped the hospital to optimize cash flow and spread its investment over six years. Flexible repayments, deferred for eight months (to cover the implementation period) have helped to map costs to benefits and better track return on investment.

"Facing tough challenges is nothing new for our hospital or any other," says Willmann. "The fact that we have put in place a connected healthcare environment means that we are without doubt better placed to not only respond to those challenges, but to also succeed in the future."

NEXT STEPS
Having implemented a connected healthcare environment, the next phase of the hospital's technology roadmap will shift toward the integration of other value-added services. Additional video security will be made possible on a special basis over the network by using low-cost IP Webcams to monitor sensitive areas such as the stroke unit. There are also plans to trial location-based services—using wireless radio frequency identification (RFID) technology—to provide map-based location-tracking capabilities that protect expensive equipment or alert staff when a patient wanders away from a ward.

MORE INFORMATION

The Cisco Internet Business Solutions Group (IBSG), the global strategic consulting arm of Cisco, helps Global Fortune 500 companies and public organizations transform the way they do business—first designing innovative business processes and then by integrating advanced technologies into visionary roadmaps that improve customer experience and revenue growth.

For further information about IBSG, visit **http://www.cisco.com/go/ibsg**

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