



KANTONSSPITAL GRAUBÜNDEN CREATES A CONVERGED INFRASTRUCTURE WITH NEW NETWORKING SOLUTION

Case Study

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Kantonsspital
Graubünden

Objective

Needed to enhance network performance, reliability and scalability, introduce redundancy for disaster recovery and support IP telephony as a network service to the clinic

Approach

Assessed a Cisco solution, designed an equivalent HP solution with the same functionality at a better price/performance ratio and sought a suitable partner

IT improvements

- Offers a reliable, high-availability networking capability within a Converged Infrastructure, boosting performance ten-fold
- Provides a robust disaster recovery capability, safeguarding mission-critical data
- Delivers increased Quality of Service (QoS) and bandwidth, supporting clinical systems, real-time applications and multimedia services
- Aids the introduction of wireless technology and IP telephony, supporting future business plans to create more flexible working

Business benefits

- Delivers continuous access to mission-critical data, safeguarding business continuity and the delivery of efficient healthcare services
- Decreases energy costs by 30 per cent and reduces maintenance costs, lowering Total Cost of Ownership (TCO) significantly
- Supports network services such as IP telephony to clinics, increasing revenues



Based in Chur, Switzerland, Kantonsspital Graubünden (KSGR) came into existence following the merger of the city's Cantonal, Fontana Catholic Woman's and Chapel of the Cross Hospitals in 2006. Although the Swiss healthcare system comprises public and private clinics and hospitals, KSGR forms part of a government-funded network of 129 general hospitals. Swiss citizens have to purchase basic health insurance and insurance companies are obliged to provide basic cover to everyone regardless of age or medical condition, without making a profit. However, they can profit from supplementary plans which usually only offer better accommodation. With 400 beds, KSGR treats approximately 70,000 patients annually from the Chur Rhine valley region under the basic healthcare scheme. It employs 1,800 medical professionals and support staff.

Outdated network lacks performance and Quality of Service

The primary function of KSGR is to deliver efficient, high-quality healthcare services to patients within a safe environment. Medical practitioners therefore require round-the-clock access to mission-critical data held by several clinical systems including a Patient Administrations System (PAS), a Picture Archiving and Communications System (PACS) and an Electronic Medical Records System (EMS). Staff access the information from workstations across a networking infrastructure connecting all systems and departments.

HP customer case study:

Kantonsspital Graubünden deploys networking solution to boost performance and availability to mission-critical clinical systems

Industry:

Public sector, healthcare



KSGR needed to enhance the performance and reliability of an outdated network linking the three neighbouring sites. In addition, it wanted to deliver network services to a nearby psychiatric clinic. In addition, the clinic also decided to enhance communications and lower telecommunication costs by deploying IP telephony, the first stage of a long-term project by KSGR to introduce various IP technologies across the entire complex.

“Over the last decade, our networking environment had become unmanageable and many switches were more than ten years old,” explains Stefan Juon, network manager, Kantonsspital Graubünden. “In our high-demand, 24-hour a day business, we required better backbone connectivity and reliable core and edge switches to satisfy a growing need for additional bandwidth. Two gigabytes at the core and 100 megabytes to the edge were far too low. Increasing network performance and bandwidth would allow the hospital to handle increasing data volumes from clinical systems more effectively and support the introduction of new technologies.

“The previous network also lacked redundancy for disaster recovery purposes, low latency and the Quality of Service (QoS) required for multimedia services such as broadband internet and IP television. The topology was far too flat and there was no segmentation of the IP layer. Moreover, it would not support our long-term plan to introduce wireless technology across our campus,” continues Juon. “The new network had to act as a vehicle for all current and future services regardless of their bandwidth requirement.”

After deciding to replace the existing networking infrastructure, KSGR appointed an IP telephony partner and then asked a Cisco partner to propose a solution. “When we knew the cost of the Cisco

solution, we made a strategic decision to design an infrastructure with the same functionality using HP switching technology, which offers a better price/performance,” reveals Juon. “Choosing an HP solution would also accelerate the procurement processes.”

KSGR then chose Softec Integrations AG as its networking partner. Locally-based Softec is an HP Preferred Gold Partner and an Enterprise Networking Specialist. “Softec has sound knowledge and experience of our solution components, offers good on-site support services and its team is a good match with our own IT team. They work well together,” says Juon.

Moving towards a Converged Infrastructure

At the core, the HP Networking solution comprises a pair of HP 7500 switches in a redundant configuration deployed at two data centres; one located at the hospital and the other at a disaster recovery site four kilometres away. The solution also incorporates HP 5800 fixed port, layer three managed switches, HP 5120 fixed port, layer two-layer two plus managed switches and HP 4500 access switches. Connectivity between the core switches consists of two 10GB links while two 1GB links connect the core to the edge switches. HP Intelligent Management Center (IMC), a stand-alone management platform, will shortly provide KSGR with a comprehensive network management capability.

By deploying the HP Networking solution, KSGR has added another major component towards generating an HP Converged Infrastructure across two data centres, three hospital sites and a clinic. Each data centre contains two HP CloudSystem c7000 enclosures with up to 10 HP ProLiant BL460 or BL480 c-Class server blades running HP-UX 3i within a virtualised environment generated by VMware ESXi.

An HP Storage Enterprise Virtual Array 8000 (EVA8000) at each data centre currently holds between 500GB and 600GB of information, providing a secure storage environment for mission-critical data. However, data volumes will continue to rise relentlessly year-on-year as the hospital treats more patients and conforms to regulatory requirements by retaining sensitive medical information for several decades.

The HP Converged Infrastructure is ideally suited to the hospital's around-the-clock medical environment as it enables the Instant-On Enterprise. In a world of continuous connectivity, KSGR embeds technology at all levels to serve patients, employees and partners with whatever they need, instantly.

Lower energy and maintenance costs drive down TCO

After deploying the HP Networking solution with minimal business downtime, all three hospital sites and several nearby clinics are currently benefitting from a reliable, high-availability networking infrastructure, which forms part of an HP Converged Infrastructure.

Network performance has increased significantly and substantially higher bandwidth with QoS will allow KSGR to deliver multimedia facilities such as telephone, television, cinema and Internet services to patients' bedside terminals. In addition, the organisation now has a robust disaster recovery capability for the mission-critical information held at two data centres, safeguarding business continuity and ensuring good patient care.

Today, KSGR also provides network services to several clinics. A nearby psychiatric clinic, for example, uses the network to support IP telephony as the clinic considers clear communications are especially important within this type of medical environment. In conjunction with 100 IP handsets, the HP network delivers communications that rank five on the Mean Opinion Score (MOS) for Voice over Internet Protocol (VoIP) quality. This highest ranking denotes perfect clarity for voice communications.

"Our hospital relies on bandwidth intensive systems and real-time applications, so we needed a fast and highly flexible networking system. The HP networking solution also has the advantage of low initial investment and on-going operating costs," states Martin Liver, chief information officer, Kantonsspital Graubünden.

Customer at a glance

Primary applications

- Unified Communications & Collaboration
- Datacentre
- End to End unified network
- Network management
- Security
- Campus

Primary hardware

- 4 x HP 7500 Switch Series
- 24 x HP 5800 Switch Series
- 120 x HP 5120 Switch Series
- 80 x HP 4500 Switch Series
- 20 x HP ProLiant BL460 c-Class server blades
- 20 x HP ProLiant BL480 c-Class server blades
- 2 x HP Storage Enterprise Virtual Arrays 8000 (EVA8000)

Primary software

- HP Intelligent Management Center
- HP-UX 3i
- VMware ESXi Server

The healthcare organisation is reaping some cost and efficiency benefits too. "Total Cost of Ownership (TCO) has fallen primarily due to a 30 per cent fall in energy consumption and the switches' lower maintenance requirement. Thanks to their reliability, only one person rather than several people now manages the 150-node network, releasing valuable resources for more important project work. This new network will support our requirements for the foreseeable future," comments Juon.

"With the network running day in and day out for 15 months, we have never lost connectivity during that period. Network performance in the core and to the edge has increased ten-fold and we will deploy wireless technology in the near future. These are major steps forward for our medical staff, patients and the business as a whole," concludes Juon.

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