

SAN SUPPLIES 14 TIMES MORE STORAGE

German hospital group deploys new storage area network (SAN) to gain 14 times more space for clinical images



Without reliable IT, it would be impossible for hospital staff to provide seamless patient care. As new technologies emerge, IT teams face the challenge of increasing storage space and performance while balancing cost issues.

SOLUTIONS

- VIRTUALIZATION
- CONSOLIDATION
- BACKUP, RECOVERY AND ARCHIVING



CUSTOMER PROFILE

COMPANY: Klinikum Nordfriesland

INDUSTRY: Healthcare

COUNTRY: Germany

FOUNDED: 2005

EMPLOYEES: 1,000

WEBSITE: www.klinikum-nf.de

CHALLENGE

Klinikum Nordfriesland wanted to obtain a stable and reliable IT system, supporting consistent, high quality treatment for all patients at all times. In particular, the hospital group needed additional storage for clinical images and increased flexibility with scalable servers.

SOLUTION

Dell installed the storage system and virtualized servers. They also deployed the systems and provided training for the customer to ensure optimal use of the solution. With Gold Enterprise Support, the hospital has the added reassurance of prompt, expert assistance at any time of the day or night for the solution deployed.

BENEFITS

- Centralised data storage eases system management
- Dell servers provide high stability, with faster back-up and recovery times
- Scalable technology accommodates future growth
- Virtualized infrastructure simplifies administration
- Dell support ensures rapid, expert responses in the event of issues

The Dell logo, consisting of the word 'DELL' in a stylized, bold, sans-serif font. The logo is white and is set against a black circular background with a white border.

Klinikum Nordfriesland GmbH is a non-profit clinical centre based in Husum, Nordfriesland, Germany. This includes four hospitals – at Husum, Niebüll, Tönning, and Föhr /Amrum. Together they employ 1,000 people and treat 20,000 inpatients and 40,000 outpatients annually.



The Picture Archiving and Communication system (PACS) is a crucial element of the IT infrastructure. Deployed in many hospitals worldwide, PACS is for the storage, retrieval and distribution of images such as x-rays and scans. That is, the system replaces film with digital images so that healthcare professionals can access and share from various locations. Johannsen says: “It’s important that we’re able to adapt quickly and effectively to new technologies – such as the move from film-based clinical images to digital. To do this, we need IT systems that we can easily expand and develop, so clinical employees have the latest techniques at their disposal when diagnosing and treating patients.”

The Radiology Information System (RIS) – used to store and distribute data such as patient results – and the Hospital Information System (HIS), are also critical applications. Norbert Johannsen, IT head, Klinikum Nordfriesland, says: “Without IT, our workflow – from initial patient admission to final discharge – would be under huge strain.”

The four hospitals urgently needed more storage space for PACS, having outgrown the 1TB supplied by their EMC CLARiiON AX100i networked storage system.

“WE NOW HAVE A SIMPLE, FLEXIBLE SYSTEM THAT’S ALSO COST-EFFECTIVE. BOTH OUR ELECTRICITY AND AIR-CONDITIONING COSTS HAVE FALLEN”

Gerrit Lehr, Project head, Klinikum Nordfriesland

Project head Gerrit Lehr, says: “The system could no longer cope with the growing volume of patient data produced by the hospitals’ scanning and radiology units.”

In addition, the existing servers also caused problems in terms of performance. Furthermore, the team faced budgetary constraints as each new server created extra electricity and air-conditioning costs. In addition, the system lacked stability, and back-up and recovery times were slow. Johannsen wanted the system to be both simpler and more efficient: “We aimed to lower the risk and complexity associated with our server infrastructure, not only to reduce costs but to create more time for innovative, strategic work through simpler administration,” Johannsen says.

On reviewing potential solutions to these challenges, Johannsen saw that Dell virtualized servers and storage systems would help to unify and simplify the infrastructure.

Dell worked with Johannsen and his team to install a Dell | EMC CX3-20 Storage Area Network (SAN). Dell also installed a Dell™ PowerEdge™ 1900 server and a Dell PowerEdge 2950 server to replace the VMware® GSX Server. These servers run VMware ESX Server 3.01 – a software solution that allows the team to run several virtual machines on each physical server. These virtual machines can run different operating systems and applications without interfering with each other. This has freed up seven processors. Instead of seven computers there are 14 virtual machines.

STORAGE AREA NETWORK PROVIDES 14 TIMES MORE STORAGE CAPACITY

With its new SAN, the hospital has increased its storage space for clinical images from 1TB to 14TB. To provide stability, the SAN has two separate storage processors. These are connected to the servers via redundant Brocade switches. If one processor fails, the other one kicks in immediately.

HOW IT WORKS

HARDWARE

- Dell™ PowerEdge™ 1900, 2950 server
- Dell | EMC CX320 storage area network (SAN)
- Dell OptiPlex™ 745, SX270, GX280

SOFTWARE

- VMware® ESX Server 3.01
- Debian Linux®
- Microsoft® Windows Server® 2003

SERVICES

- Infrastructure Consulting Services
- Project management
- Implementation
- Gold Enterprise Support

“RIGHT FROM THE START OF THE DESIGN PHASE, DELL GAVE US EXCELLENT ADVICE. THEIR PROJECT MANAGEMENT WAS FANTASTIC”

Norbert Johannsen, IT Head, Klinikum Nordfriesland

The SAN provides 4 Gigabits/second of fibre channel data transfer and can support up to 128 servers and 120 drives – providing the flexibility to accommodate future growth.

VIRTUALIZATION INCREASES SIMPLICITY AND REDUCES COSTS

The two Dell servers host 14 virtual machines. Lehr says: “We now have a simple, flexible system that’s cost effective. Both our electricity and air-conditioning costs have fallen. And with real-time business continuity and additional memory, we’ve increased stability dramatically, ensuring that there’s no interruption to the systems used by staff across our four hospitals.”

Dell and VMware® have a long history of collaboration including joint testing and certification of Dell™ PowerEdge™ Servers in conjunction with VMware virtualization software. VMware ESX Server 3.01 acts as a host system, separating multiple operating systems and applications from each other in virtual machines. That is, the two servers manage a huge range of disparate workloads previously divided between 14 machines. “This system consumes less energy and occupies less space, while maximising our server resources,” says Johannsen.

Also, the team can quickly install virtual machines when faced with increased demand. “Now we can respond to the needs of clinical staff more quickly,” says Johannsen. And with simpler system management, the IT team can spend more time on driving new initiatives and less on day-to-day maintenance.

DELL SUPPORT

With the introduction of virtualization and the new SAN, Dell supported the Klinikum

Nordfriesland throughout the deployment of the new servers and SAN. “Right from the start of the design phase, Dell gave us excellent advice,” says Johannsen. “Their project management was fantastic.”

In addition to building, installing and configuring the SAN and the virtualized servers, Dell organised comprehensive hands-on training. “With the skills transfer we gained from Dell, we are confident that we can manage the system on a day-to-day basis,” says Johannsen.

To support his team in the event of serious issues, Johannsen signed-up for Gold Enterprise Support. This guarantees a four-hour response 24 hours-a-day, seven days-a-week. “Even though we’ve never actually had to use Gold Support, it’s vital for us to have access to assistance when we need it. If there’s an emergency, speed is of the essence,” says Johannsen.

FUTURE

Johannsen and his team will work with Dell again in another phase of deployments at Klinikum Nordfriesland. This will include virtualizing the Hospital Information System (HIS) and incorporating existing data into the SAN.

For more information on this case study or to read additional case studies, go to www.dell.com/casestudies and www.dell.de



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