

# HOSPITALS EASE PROCESSING PAINS

German hospitals deploy digital imaging technology on virtualized servers, saving approximately €60,000 in hardware costs



Due to tighter budgets and new regulations, nurses in Germany are increasingly responsible for administrative work, as well as caring for patients. Hospitals, however, are keen to reduce the admin burden as much as possible and make it quick and easy to update patient records. Many hospitals are currently centralising applications and storage and going digital. This helps reduce administration and create more efficient ways of working, so staff can focus on optimising patient care.

## SOLUTIONS

- BACKUP, ARCHIVING AND RECOVERY
- DATA CONSOLIDATION AND MANAGEMENT
- GREEN IT
- VIRTUALIZATION

Kreiskrankenhaus  
Rendsburg 

## CUSTOMER PROFILE

**COMPANY:** Regional Hospitals and Retirement Homes Rendsburg-Eckernförde GmbH

**INDUSTRY:** Healthcare

**COUNTRY:** Germany

**FOUNDED:** 1993

**EMPLOYEES:** 16,800

**WEBSITE:** [www.kkh-rendsburg.de](http://www.kkh-rendsburg.de)

## CHALLENGE

Rendsburg hospital chose a Picture Archiving and Communications System (PACS) to optimise the productivity of medical staff and reduce X-ray development costs – but needed a more powerful and scalable IT infrastructure to support the new system.

## SOLUTION

The PACS solution is now supported by a virtualized Dell server infrastructure, a Dell/EMC storage array and Dell tape library. The new environment has modular components for easy expansion.

## BENEFITS

### Get IT Faster

- Rapid implementation within three months

### Run IT Better

- Simplified management saves IT team about five hours a week
- Manual transport of X-rays eliminated
- Reduced energy consumption and carbon emissions
- Saved approximately €60,000 on hardware costs

### Grow IT Smarter

- Future-ready storage supports up to 60 drives



The regional hospital Rendsburg-Eckernförde resulted from the merger of two hospitals in Rendsburg and Eckernförde, Germany. With around 1,600 staff, it is one of the largest health providers in the state of Schleswig-Holstein, offering 836 beds and treating over 40,000 patients a year.



The hospital strives to provide the best possible patient care, as well as high levels of staff satisfaction. Michael Brandt, head of IT at regional hospitals and retirement homes Rendsburg-Eckernförde, says: "We want to give staff tools that help them make the most of their skills. But to do this, we need to ensure that our IT infrastructure is robust and reliable, with the ability to run state-of-the-art applications 24 hours a day, seven days a week."

The department of diagnostic and interventional radiology in the hospital Rendsburg produce around 75,000 X-rays a year. Materials for imaging technology and film are expensive, and processing is time consuming, resulting in high overheads. "If a doctor needs to view an X-ray, a member of staff has to collect it from the radiography department. In hospitals, saving time is crucial and this long, manual process was unacceptable," says Brandt.

## **"THIS OPTIMISATION OF THE WORKFLOW WILL REFLECT POSITIVELY ON THE CONTENTMENT OF THE DOCTORS WITH REGARDS TO THEIR WORK."**

Michael Brandt, head of the IT department of the regional hospitals and regional retirement home Rendsburg-Eckernförde

To address these issues, the hospital decided to deploy the new PACS for company Visus X-ray storage. This solution stores all X-rays and X-ray films on digital media, so files are in one central place and hospital staff can access results almost instantly. However, the existing hospitals' IT infrastructure nevertheless lacked the capacity to support the advanced technology.

The hospital Rendsburg needed an affordable, but highly available infrastructure to run the application. "We wanted a solution that offered data security alongside easy expansion," says Brandt. "PACS produces huge amounts of data. An X-ray of the thorax (lung) produces for example approximately 35 megabytes of data and we produce 2,000 per month. "The hospital needs capacity of 1,000 gigabyte per year for storing lung data. In total, when we add data from mammograms and other productions, we find the amount of stored picture data rises to 2,500 gigabytes per year."

The existing archiving system consisted of six tape drives. But this was outdated. "Somebody had to change all six tapes at the end of each day," explains Jalel Gnounou, IT systems administrator. "Tape storage was expensive, and data retrieval was a laborious process." Furthermore, system availability and minimal downtime are vital to ensure continuous data delivery for all the doctors and nurses. Brandt says: "System failure blocks access to patient data and results – we need products with an excellent track record."

Facing these challenges, the hospital Rendsburg decided that a new system was essential to run PACS. As a Dell customer for the last six years, Brandt and his colleagues turned to Dell Global Infrastructure Consulting Services (GICS) for advice. "We had no idea what we needed, but the Dell team presented all the options to us brilliantly," says Brandt. "When Dell suggested that we install a virtual infrastructure, we realised it was the best solution."

### **HOW IT WORKS**

#### **HARDWARE**

- Dell | EMC CX3-20 storage area network (SAN)
- Dell™ PowerEdge™ 2950 server
- Dell PowerVault™ ML6010

#### **SOFTWARE**

- VMware® ESX Serversoftware
- VMware VirtualCenter
- Dell OpenManage™ Systems Management
- EMC PowerPath®
- Windows Server® 2003
- VISUS JiveX (Picture Archiving and Communications System) PACS solution

#### **SERVICES**

- Global Infrastructure Consulting Services (GICS)
  - Assessment, Design and Implementation
- ProSupport<sup>1</sup> for IT

# “DELL’S SOLUTION SAVES US TIME AND MONEY. WE SPEND LESS ON HARDWARE, THE DEPLOYMENT WAS QUICK AND EASY, AND WE CAN CREATE VIRTUAL SERVERS EFFORTLESSLY.”

Michael Brandt, head of the IT department of the regional hospitals and regional retirement home Rendsburg Eckernförde gGmbH.

With confidence in the expertise of the GICS team, Brandt selected Dell to deploy the new virtual infrastructure and PACS solution. The Dell consultants implemented VMware on three Dell™ PowerEdge™ 2950 servers, which are connected to a Dell | EMC CX3-20 storage area network (SAN) with a capacity of gross 15 terabytes, together with a Dell PowerVault® ML6010 modular tape library for disaster recovery, backup and archiving operations.

VMware® ESX server software runs Windows Server 2003 on two servers as a guest operating system, which, in turn, runs VISUS JiveX PACS. The third – a dedicated VMware VirtualCenter management server – is used to centrally manage and monitor system resources and availability. Failover software EMC PowerPath® adds security to data flow.

The Dell consultants worked closely with Brandt and the products met the requirements for high performance and scalable capacity, while remaining within budget. “We are very happy with the performance of our new system,” says Brandt, “particularly when we compare Dell prices with the competition.”

## DELL GICS PROVIDES CUSTOMISED END-TO-END PACS SOLUTION

The Dell consultants created a complete end-to-end solution through their expert knowledge of PACS, skilful analysis and a thorough understanding of the requirements. Brandt was very satisfied with the service. “It was a great partnership from the start.

The Dell team answered every question we had, and we received all the advice and help we needed,” he says. “They were available any time of day. It couldn’t have been any better.”

## THREE VIRTUALIZED SERVERS SAVE €60,000 IN HARDWARE COSTS

The virtual solution has significantly reduced the number of servers required. Originally, Brandt planned to purchase 15 servers at a cost of €5,000 each. However, virtualization means the hospitals can run several servers on one physical machine. “We only needed three servers, saving €60,000 in hardware costs,” says Brandt.

There are 24 virtual machines running at present and this number is growing. The datacentres are flexible and can expand to support future technologies. In addition, the IT team can easily add, delete or change servers. The process is simple and can significantly cut maintenance time, taking minutes, instead of days to deploy servers.

## VIRTUALIZATION HELPS CUT ENERGY CONSUMPTION AND CARBON EMISSIONS

The solution supports the regional hospital Rendsburg-Eckernförde in its ongoing efforts to minimise environmental impact. On average, each server consumes 200 watts per hour, plus another 50 watts for cooling. By using only three servers, the hospitals cut electricity consumption by approximately 26,000 kilowatt-hours a year, helping to significantly reduce its carbon footprint.

## RELIABLE DELL HARDWARE PROVIDES IDEAL INFRASTRUCTURE FOR VISUS PACS

VISUS JiveX PACS delivers a reliable, rapid X-ray service so that doctors can obtain X-rays and test results fast. To enhance system performance, Brandt and his team use server-resident EMC PowerPath. The software monitors and removes failed paths and automatically reroutes the data to the remaining paths.

Furthermore, system administration is simple. Using VMware VirtualCenter, the IT team can easily schedule tasks, provision virtual machines and monitor server performance. “Thanks to VirtualCenter, datacentre management is much easier. Our team is more flexible and we can react faster to changes,” says Brandt. He and his team can save time and help eliminate possible human error, while guaranteeing high availability of the system.

## DELL’S SCALABLE STORAGE SOLUTION PROVIDES A FUTURE-READY INFRASTRUCTURE

The new SAN gives Brandt and this team a maximum storage capacity of 15 terabytes. The Dell | EMC CX3-20 SAN supports up to 64 servers and 60 drives so the team can add capacity as required. “We won’t have to replace the Dell | EMC SAN in the next couple of years,” says Brandt. “We have a future-ready storage solution.”

## **FAST, RELIABLE SYSTEM SUPPORTS OPTIMISED PATIENT CARE**

With the high-performance system, doctors can simultaneously see data on their individual screens in moments and because results are stored centrally, the hospital can save operational costs, because the results are no longer manually distributed.

This optimisation of the workflow reflects positive on the contentedness of the doctors with regards to their work. Brandt says: "The patient information is visible straight away and helps doctors make fast and accurate decisions."

## **POWERSHIELD AUTOMATED BACKUP AND ARCHIVING SAVES THE IT TEAM APPROXIMATELY FIVE HOURS A WEEK**

The IT team can easily and securely backup patient data and save time on administration with the Dell tape library. "The Dell PowerVault stores and archives data automatically," says Gnounou, IT systems administrator. "It saves us about half an hour a day." The PowerVault also provides fast data retention and restoration functionality, in the event of system failure.

## **DELL PROSUPPORT FOR IT HELPS INSTILL ADDITIONAL PEACE OF MIND**

With Dell ProSupport<sup>1</sup> for IT, hospital Rendsburg has the additional reassurance that patient data is safe and that they can deliver a consistent service to their patients. The modular support options can be customised to fit any level of response time, type of protection or service to match individual hospitals. Hospital Rendsburg also has Mission Critical support that can have a service engineer onsite within two hours after completion of phone-based troubleshooting<sup>2</sup>.

"Dell's solution saves us time and money. We spend less on hardware, the deployment was quick and easy, and we can create virtual servers effortlessly," Brandt concludes. "Dell has done a wonderful job."

**For more information on this case study or to read additional case studies, go to [www.dell.com/casestudies](http://www.dell.com/casestudies) and [www.dell.de](http://www.dell.de)**

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