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Katholische Hospitalgesellschaft Südwestfalen gGmbH

St. Martinus-Hospital GmbH

INDUSTRY	Healthcare
SOLUTIONS	Modular Platform, Storage Management **Hardware** — Hitachi Adaptable Modular Storage 2100 with SAS and SATA disks, Hitachi Adaptable Modular Storage 200 **Software** — Hitachi Dynamic Link Manager, Hitachi Device Manager and Storage Navigator Modular 2 software Hi-Track® Remote Monitoring system; and Hitachi Resource Manager™ utility package **Services** — Provided by Hitachi TrueNorth Channel Partner Computacenter

St. Martinus-Hospital Chooses Hitachi Modular Storage to Fully Manage Hospital Data

Legal regulations require today's hospitals to make significant adjustments in IT. Patient data must be stored securely and for the long term, and subsequently archived efficiently. St. Martinus-Hospital in Olpe is now tackling these requirements in a second stage with Hitachi Adaptable Modular Storage 2100 from Hitachi Data Systems.

The Hospital Operations Environment and Activities

The Catholic hospital company Südwestfalen gGmbH is a modern group that came into being in 2000 as the result of the union of the two hospitals: St. Martinus-Hospital, Olpe, and St. Josefs-Hospital, Lennestadt. Meanwhile, the company has taken three nursing facilities, two dialysis centers and two medical supply centers into the fold, in addition to the two hospitals. In the Olpe region, the company provides the greatest number of offers for training for qualified professions in healthcare. More than 1200 employees are responsible for the facilities for patient recovery and the well-being of occupants.

The St. Martinus-Hospital is a hospital for primary and secondary care with accredited cardiology and dialysis-nephrology divisions, infection department (10 private consultant beds) and emphasis on accident and rehabilitation surgery, vascular and visceral surgery, angiology, gastroenterology, internal oncology, pain therapy, operative breast center, gynecological oncology and interventional radiology. The psychiatric specialty department at St. Martinus-Hospital provides acute psychiatric care for adult psychiatric patients for the entire region.

In addition, there is a psychiatric day clinic and psychiatric outpatient clinic. Since 2005, the gynecology department at St. Martinus-Hospital has been acknowledged by the federal government of North Rhine Westphalia as the operation center in the South Westphalia breast center along with the St. Marien and Jung-Stilling hospitals. It also offers extensive ambulatory treatment options within the departments of internal medicine (oncology, nephrology), gynecology, surgery and psychiatry.

Challenges: Safeguard and Support Data, Lower Costs

There are two dominant themes or approaches in IT for health services information relating to hospitals: picture archiving and communication systems (PACS) and the hospital information system (HIS). In addition, perhaps even more so than other "normal" commercial companies, hospitals are compelled to lower costs. Currently, competition in the hospital market is cut-throat, a situation that, some experts say, many hospitals will not survive.

In particular, if establishments that are not part of a big hospital chain are to have a chance in the market, they must make sure in particular that they trim their IT infrastructure prudently and over the long term. The St. Martinus-Hospital in Olpe also has to act to meet these challenges; to do so, it introduced PACS and HIS systems several years ago. Consequently, by 2006, managers had adjusted their IT and relied on Hitachi Adaptable Modular Storage 200 in order to meet the storage requirements stemming from HIS and PACS.

The success and broad acceptance of the system as well as the constantly increasing amounts of data had already reached the limits of the installed systems by 2008. "Our medical personnel quickly accepted the digital systems," affirmed Ingo Steiger, IT manager at St. Martinus-Hospital. "The current situation in healthcare makes

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Heiko Börger
Computacenter

increased use of EDP (electronic data processing) systems necessary. Ever greater amounts of data will have to be available." After all, individual files, such as analysis using magnetic resonance imaging, can be up to several hundred megabytes in size. In order to prepare for the increasing amounts of data and further memory-intensive applications, such as desktop virtualization, data security and archiving, there has been discussion of the possibility of expansion.

Based on positive experiences with the previous project, Steiger used the IT service provider, Computacenter, which has a lot of experience with IT solutions in the hospital environment. "Two successfully implemented projects to date using the recently available Hitachi Adaptable Modular Storage 2000 family have led us to contemplate something more than an upgrade," said Heiko Börger of Computacenter. Three concepts for possible memory system expansion or adaptation were proposed:

1. Expand from existing system to another storage rack.
2. Add a second Adaptable Modular Storage 200 system to go alongside the Adaptable Modular Storage 200 already installed.
3. Install an Adaptable Modular Storage 2100 system to expand the storage volume and redistribute the existing data on the Adaptable Modular Storage 200 and Adaptable Modular Storage 2100 to optimize the I/O load.

The parties involved quickly came to the decision that an expansion of the existing system with an additional rack or by using another Adaptable Modular Storage 200 would not be sufficient for future developments. The hospital opted to purchase an Adaptable Modular Storage 2100 to expand storage volume and migrate the high performance servers to the new storage. Purchasing the Adaptable Modular Storage 2100 only meant slightly higher initial costs, which was not significant, particularly in relation to increased output. In addition, in Olpe there are hopes of savings in the operating costs for the new system, perhaps through optimized Adaptable Modular Storage configuration or maintenance, and from additional energy savings resulting from reducing the rotational speed of the hard disks.

High Availability Makes It Possible

After the decision on the Adaptable Modular Storage 2100 was made and the basic conditions defined with Computacenter, the implementation phase began immediately. The storage systems were merged and the existing data was transferred and/or the loads were distributed between the two systems. When the systems were configured, the previous parameters were maintained and just transferred to the new system. The Fibre Channel disks work with 64K blocks and are therefore ideal for rapid database access. For SATA disks, the hospital uses 256K blocks. This way, large amounts of data can be transferred from and to the storage system quickly. In addition, SATA disks are used in all areas instead of the Fibre Channel equivalents, since, used with the efficient Adaptable Modular Storage 2100 controller, they are more than sufficient for the applications.

Virtualized servers (using VMware as a platform) also have access to the storage system, thereby guaranteeing high availability and reliability of applications. In this way, the HIS application also benefits from virtualization, since the high availability feature of the solution adopted has a very positive effect on system security. The Adaptable Modular Storage 200 systems have window servers attached using Hitachi Dynamic Link Manager software.

Meanwhile, more than 40 server teams are virtualized and hosted on four ESX servers. The data is available centrally over redundant paths in both SANs. There is also a cluster consisting of two servers for the Ambulatory Healthcare Center practice software and the user directories. In addition to PACS and KIS, the user directories and practice software are used with five affiliated practices in the Adaptable Modular Storage 2100. The optional path manager software ensures that, in the event of a breakdown, a connection is automatically redirected to the second.

Currently, the system is equipped with a capacity of 12TB, which is a 50 percent increase over the old system. Additionally, the St. Martinus-Hospital also uses the storage solutions for backup purposes. The secure data is copied from the backup to disk area to the LT04 (Linear Tape Open) tape drive.

Security Is the Top Priority

The Adaptable Modular Storage 2100 system is monitored by the Hi-Track® Remote Monitoring system so that the technicians in the service center are the first to be notified when the system is no longer working within its normal parameters. The Adaptable Modular Storage recognizes breakdowns long before they become critical and independently notifies a technician. The IT department only receives a call if the Adaptable Modular Storage 2100 does not report to the service center every day. In this way, in addition to the sheer increase in capacity, system availability and security requirements are guaranteed.

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