

FIFTH LARGEST AUSTRIAN HOSPITAL STORES PACS IMAGES ON HIGH-DENSITY, ENERGY-EFFICIENT STORAGE

The fifth largest Austrian clinical centre, Wels-Grieskirchen, was challenged with a consistently rising tide of patient records, treatment information and administrative data. IT executives expect that the volume of stored data will grow twenty-fold by 2015. In order to preemptively meet this challenge, the IT management of the hospital looked for a high-density and high-capacity storage solution. Management needed to ensure that the system was cost-efficient (both to purchase and operate), energy-efficient and highly scalable. They also needed a system with a small footprint to conserve limited space in their data centre.

SATABEAST BENEFITS

- **High Performance.** SATABeast offers access to data up to 500X faster than tape libraries and 20X faster than other MAID systems;
- **High reliability.** SATABeast offers fully redundant and individually hot-swappable active components (RAID controllers, fans, power supplies and disks). SATABeast delivers industry leading system reliability with innovative design in vibration reduction and cooling;
- **“Single pane of glass” management.** SATABeast supports management in one, central location through a simplified management console without the need for special agents or capacity keys.
- **Highly efficient storage for data mining and processing.** SATABeast provides Wels-Grieskirchen with industry leading density - up to 42 TB in only 4U. SATABeast also comes standard with AutoMAID® energy saving technology that reduces power consumption and cooling without penalizing storage performance.

CUSTOMER OVERVIEW

Since the merger of the Wels and Grieskirchen medical centres at the beginning of 2008, the unified clinical centre, Wels-Grieskirchen, has become the fifth largest hospital in Austria. The centre delivers quality care at four locations, with services ranging from twenty-four-seven acute, primary and secondary care, to various specialized medical offerings such as urgent presbyiatrics, geriatric psychiatry, psychosomatic medicine or triage nurse. About 3,400 employees, including 500 medical scientists and practitioners and 1,800 registered nursing staffers, provide care in 37 directorates, departments and institutes at the locations in Wels and Grieskirchen. In 2008, centre staff treated approximately 82,000 inpatients, conducted 30,000 surgeries and delivered 2,400 babies.

The centre’s impressive growth meant an accompanying increase in patient records, treatment information and administrative data. Since the merger, the Wels location has become a central service centre, with services including diagnostics and tele-radiology. These services have resulted in a constantly growing mountain of data. Additionally, medical centres around the world are obliged to comply with regulations governing retention of medical records. In order to comply with the Austrian government’s requirements, the hospital must retain for a specified period records including a variety of storage-hungry images such as x-rays, sonograms, computed tomography images and video sequence. Compliance will result in twenty-fold data growth by 2015, making a cost-efficient, energy-efficient and highly scalable storage system essential.

All of these factors combined to force the centre’s IT staff to reassess its current IT infrastructure.

In order to find the solution that was perfectly suited to needs of the hospital, the IT team worked closely with its full-service IT provider x-tention Through a comprehensive evaluation process, the consolidated team compared various vendor offerings. The main objective was to find a storage solution that provided high performance, scalability and availability of middleware systems, but offered ultimate flexibility, cost-effectiveness, energy-efficiency and reduced space requirements.



CASESTUDY 2

ENVIRONMENT

- 588 TB of storage provided by 14 Nexsan SATABeast high density storage systems with AutoMAID® energy saving technology

SITUATION

- Twenty-fold growth of secondary storage til 2015

REQUIREMENTS

- Scale capacity and performance on-demand in an economical manner
- Reduce storage energy consumption
- Save data center space
- Eliminate license costs
- Flexible deployment: used for primary direct access storage as well as VTL

SOLUTION

- SATABeast

RESULT

- Unprecedented energy savings and reduced operating costs through AutoMAID technology, without sacrificing storage performance
- Highest storage density per rack inch – 10.5 drives per one rack unit
- Flexible deployment as primary as well as archiving storage
- Highest performance for accelerated access and backup times
- Best price/performance value

BUSINESS CHALLENGE

Hospitals need to ensure around-the-clock availability of their data. In order to coordinate medical services effectively and provide high-quality health care, every component of a patient's medical record must be immediately available. Additionally, medical centres must provide secure data backup to comply with regulatory requirements. This is an especially difficult situation in times of increasing cost pressure. Increasingly, organizations need a future-oriented storage strategy, one that will continue to meet both technology and business needs. The Wels-Grieskirchen decision to redesign its existing storage infrastructure precisely reflects this necessity.

The growing complexity of managing and archiving all of the medical data and images captured with PACS presents a big challenge for hospitals due to the sheer amount of information. As an example: A complete computer tomography scan might generate a half-gigabyte of raw data. Even after processing and selection, the file size is still 50 megabytes on average. Clearly, use of medical imaging technologies creates volumes of data, with the bandwidth going from one megabyte for ultrasonic testing to 150 megabytes or more when conducting a mammogram. The general rule says that a hospital with an average of 1,000 beds—the Austrian clinical centre counts 1,328 beds—has to handle approximately 100,000 images per year. So the information volume, all of which must be immediately accessible, is immense.

To ensure that costs for managing the estimated significant data growth not get out of control, the hospital looked for an expandable storage solution with a small footprint, one that would keep pace with the increasing amount of online information in a cost-efficient manner. It was also important that the system serve as primary direct access storage and as virtual tape library. On one hand, it was absolutely essential that doctors have ready access to all patient data. Additionally, the IT service provider needed a solution to back up vast amounts of data quickly, efficiently and on a daily basis. They also needed to know that any information deleted knowingly or inadvertently could be recovered in the blink of an eye.

“From a corporate standpoint, it was very important for us to be able to grow beyond the existing limits,” explains Flamme. “We are aware that we will experience dramatic data growth during the next few years. Even if we work with deduplication technologies, we’ll still see tremendous data growth. So we needed a solution that does not require that we move every two years to a larger data centre with more space, bigger uninterrupted power supply facilities or expanded air conditioning. We also needed to limit additional licensing costs. Nexsan’s SATABeast fulfills this criteria and saves us from approaching management every two years with bad news.”

“Nexsan’s AutoMAID turned out to be the most appropriate technology for our needs at Wels-Grieskirchen.”

HARALD WAIBEL

REGISTERED MANAGER OF THE X-TENTION INFORMATIONSTECHNOLOGIE GMBH

AUTOMAID® ENERGY SAVINGS

Nexsan’s revolutionary AutoMAID (Automatic Massive Array of Idle Disks) energy saving technology transparently places disk drives into an idle state to vastly reduce power and cooling costs. AutoMAID delivers the cost-effective benefits of MAID 2.0 without the limitations of slow access times and special host software.

- AutoMAID reduces power and cooling costs
- Nexsan’s AutoMAID® delivers the benefits of MAID without the performance limitations
- Available on all Nexsan products

AUTOMAID® SAFETY FEATURES

- In maximum power saving mode, drive spin up is sequenced to reduce power surges
- Drives automatically wake up for periodic surface scan to ensure data integrity (user configurable)
- AutoMAID can be used with data-intensive server applications by delivering energy savings without performance compromise

SOLUTION:

SATABeast with AutoMAID technology

Nexsan’s SATABeast exceeded the high-performance, availability and scalability requirements of the IT team at Wels-Grieskirchen. The solution also scored high points in the energy-saving category, which was a key component of the team’s evaluation. Because data and images must be archived securely for long periods, with most information accessed most within the first 30 days after creation, the clinical centre exclusively short-listed systems with fully integrated MAID technology. This technology gives them the opportunity to vary response times for individual disk drives, or RAID sets, reducing power consumption. The intelligent management of energy consumption avoids unnecessary heating and cooling, while storage and application performance remains at a consistently high level.

RESULTS

After thoroughly evaluating solutions offered by different vendors, the clinical centre decided to replace its middleware and enterprise systems Hitachi AMS200 and AMS500 used previously for their primary direct access storage and VLT environment with 14 Nexsan SATABeasts.

With 588-terabyte capacity in a 56-inch rack unit, the hospital now had sufficient capacity to migrate the data of the Siemens PACS to the new storage system. Information and images could be stored securely at different locations. This is especially important for storage of roentgenograms because regulations require safe retention of copies. One can now save locally at the main location on a Nexsan SATABeast, with another copy at a remote location, and still another one offline on a tape library. The fully redundant SATABeast architecture guarantees business continuity even in the case of failures or emergencies.

The technical benefits of Nexsan SATABeast systems, in combination with the service and support provided by the partner x-tention, are unmatched. Due to the efficiency and the ease of management, less administrative staff is necessary, thus lowering ongoing operational costs.

“Nexsan’s SATABeast precisely meets our needs in terms of performance and scalability. When coupled with Picture Archiving and Communication System (PACS), the solution gives us the reliability we need. We are confident that we can lower the costs per terabyte of storage by making the most of AutoMAID. Thanks to the ease of installation and management, we’re experiencing failure-free operation.”

ELMAR FLAMME

HEAD IT TECHNOLOGIES OF
THE DEPARTMENT
OE/QM/IT

The SATABeast high-density storage solution with AutoMAID technology provides the clinical centre, Wels-Grieskirchen, with unmatched reliability, efficiency and functional value including:

- **Energy savings and reduced operating costs:** The SATABeast’s integrated AutoMAID, technology gives the centre the choice between three energy modes, which can be individually assigned to meet specific their needs. Power and cooling savings range between 20 and 60 percent, with no impact on storage performance when accessing data.
- **Highest storage density per rack inch:** With the SATABeast, the clinical centre implemented a storage solution that easily fits into its data centre and can be cost-effectively expanded within the available space. If demand increases, the systems can be economically scaled to an extreme density (42 drives in 4U form factor).
- **Flexibility in deployment:** The hospital can deploy the Nexsan SATABeast as primary storage, as well as VTL.
- **Highest performance:** The high throughput offered by the Nexsan SATABeast ensures rapid access times to PACS data and administrative patient information, while also accelerating backup and recovery times.
- **Price/Performance value:** The high performance SATABeast delivers outstanding price/performance; comprehensive features guarantees high performance without incurring further license costs.
- **High Reliability Design:** Nexsan’s state-of-the-art design reduces component count, vibration and heat, providing an enterprise storage subsystem that exceeds enterprise class-field reliability metrics.

ABOUT NEXSAN

Nexsan® is a leading independent provider of disk-based storage systems purpose-built and priced for the mid-market, offering industry-leading reliability, space and power efficiency. Overcoming the challenges of traditional storage, the company’s disk-based systems reduce the complexity and cost of storage with easy-to-use, efficient and enterprise-class features, delivering a different kind of storage experience.

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