

TOP TO BOTTOM

we know

they know

END TO END

## Kliniken des Landkreises Lörrach enhances patient care and cuts costs with SAP and IBM

### Overview

#### ■ The Challenge

*Kliniken des Landkreises Lörrach wanted to improve both business and clinical efficiency. Users found that SAP applications were slow to respond to their requests, as the underlying database had reached its performance limit. The system could not be extended or developed, and the database had to be taken offline for maintenance. Healthcare legislation requires that records are retained for 30 years, and increasing data volumes presented an additional challenge.*

#### ■ The Solution

*The hospital implemented the latest SAP applications and selected IBM DB2 running under Red Hat Enterprise Linux on the IBM BladeCenter platform. It also chose IBM System Storage and IBM System x hardware to support a new storage area network for clinical imaging.*

#### ■ The Benefits

*SAP application and database response times have been cut by more than 30 per cent, and users gain rapid, reliable access to critical business data. Database maintenance can be completed online, avoiding interruptions, and a clustering solution ensures system reliability. The new SAN offers scalable storage up to 112TB, a tenfold increase in current capacity.*

#### ■ Key Solution Components

*Industry: Healthcare*

*Applications: SAP® for Healthcare, including SAP ERP with financial accounting, asset management, materials management, project systems and project management functionalities*

*Hardware: IBM® BladeCenter® with Intel® Xeon® based HS21 blade servers, IBM System x™ 3850 and x3450, IBM System Storage™ DS4700 Express*

*Software: IBM DB2®*

*Services: EGT InformationsSysteme, an IBM Business Partner*

The Lörrach region is tucked into the south-western tip of Germany, bordering France and Switzerland. Kliniken des Landkreises Lörrach, based in the city of Lörrach itself, serves the local population with both in- and outpatient general healthcare. The hospital employs some 1,400 staff, with an annual budget of around €100 million, very largely generated by medical insurance payments.

Approximately 600 people require regular access to business and patient management systems. The hospital had been using SAP applications, supported by a Microsoft SQL Server database running on the Microsoft Windows platform. System response was slow and becoming slower, and the opportunities for database tuning – which required downtime – were limited. Additionally, healthcare legislation requires that medical records and images are retained for 30 years, contributing to a significant rise in storage needs.

Dieter Reichl, Head of Business Technology, comments, “The aim was to introduce the latest SAP applications, which would enhance

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Dieter Reichl, Head of Business Technology,  
Kliniken des Landkreises Lörrach



our business processes and give us new reporting and control capabilities. The existing system landscape would not be capable of supporting the new applications.

“Ultimately this was a technical issue. Based on the 32-bit Microsoft Windows Server operating system, the MS SQL database had reached its performance limit. To meet our business needs, we wanted to shift to a 64-bit operating system and database, and looked for the best combination of software and hardware to give us high performance, high reliability and low operational cost.”

#### **Choosing a SAP application landscape**

Starting with the target SAP applications, the clinic selected the SAP for Healthcare solution portfolio, with the addition of specific financial accounting, asset management, materials management, project systems and project management applications.

“The SAP applications provide a powerful environment for all our hospital operations,” says Dieter Reichl. “We track every patient, procedure and process within the SAP ERP landscape. With a shared information resource for all our activities, the SAP applications

help us to run a highly efficient healthcare service for the citizens of the Lörrach district.”

Knowing that database performance, scalability and reliability would be key to providing effective service to clinicians and managers, Dieter Reichl selected IBM DB2.

“DB2 offers key advantages for the hospital, particularly its close integration with SAP applications, its ability to complete administration tasks online, and its very high performance,” says Dieter Reichl. “The exceptional price-performance combination offered by DB2 met our desire to reduce operational costs, and simple administration means there is no need to employ a specialist database administrator.

“The migration process ran smoothly and efficiently, and we found that we needed very little training to transfer to the new DB2 environment.”

“The price-performance ratio lead us to the decision to select DB2. In addition, we have no time for reorganization runs of the database, which is not possible in our environment, and DB2 is able to handle these runs even during production.”

#### **Linux on BladeCenter**

Kliniken des Landkreises Lörrach looked at possible 64-bit operating systems, including Windows Server, UNIX and Linux, and selected Red Hat Enterprise Linux. The next stage was to select suitable infrastructure, capable of delivering the promised improvements and offering a stable long-term solution.

The hospital chose to deploy an IBM BladeCenter with HS21 blade servers, featuring quad-core Intel Xeon processors, to support the SAP applications and DB2 database. IBM



BladeCenter offers integrated servers, storage and networking systems in a single chassis. The BladeCenter's future-proof design, with the emphasis on high availability, is the right solution for meeting the challenging demands of the hospital's IT infrastructure.

"Our 32-bit operating system was limited to 4GB of main memory, which was limiting our ability to improve performance. Running 64-bit Red Hat Linux on IBM blade servers immediately allowed us to increase system RAM to 16GB, and this alone produced significant improvements in performance," says Dieter Reichl. "We run the servers in a cluster, and the BladeCenter approach allows us to increase total compute capacity quickly and easily by adding another blade server to the cluster with minimum physical deployment effort."

Implementation was completed in partnership with EGT, a division of DataGroup. Server clustering, using Veritas Cluster Server, ensures that should an application or physical server fail, the environment can be restarted on an available server and reconnected to storage and services – so users can continue working.

"The collaboration with EGT and Veritas was very good, and IBM completed the database migration effectively. The transfer to the new systems was completed on time and without a hitch," says Dieter Reichl.

#### **Medical imaging database**

Medical images generated by x-ray, CT and similar scanning techniques, are retained in a separate database. Image storage and retrieval requests are generated by clinicians using the SAP patient management applications, and slow response time was becoming a significant source of frustration. Healthcare legislation requires 30-year retention of patients' medical records

and associated images, which means that image data could not be deleted to reduce storage needs or increase performance.

With some 12TB of live and archived images, existing storage systems were struggling to deliver image requests rapidly and reliably. The hospital replaced its direct-attached storage servers with a new storage area network (SAN), based on an IBM System Storage DS4700 Express, controlled by two IBM System x servers.

"The DS4700 offers very high performance, and total capacity of up to 112TB – almost ten times more than our current needs. It offers very cost-effective expansion opportunities, and is helping us meet our legal requirements with reliable, secure data retention."

#### **Improved performance and reliability**

The new, fully integrated SAP and IBM solutions are already proving their worth at Kliniken des Landkreises Lörrach. Clinicians and business users report that system response times have halved or are even faster. The Red Hat Linux cluster ensures that the SAP applications and DB2 database is always available, essential to hospital efficiency.

"Using SAP applications we have a fully integrated performance monitoring and communications system, and some 90 per cent of departments and services rely on this solution. Operating theatres, endoscopy and x-ray – and of course patients – all depend on IT reliability and performance, and without it the hospital stops working."

Dieter Reichl concludes, "The SAP and IBM solution brings us low costs and high reliability, perfect for critical healthcare at Kliniken des Landkreises Lörrach."

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Dieter Reichl, Head of Business Technology,  
Kliniken des Landkreises Lörrach



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