

Hitachi Storage Solutions at Work

Hôpital de la Tour

INDUSTRY Health Care

SOLUTIONS Consolidation/Simplification and Capacity

Hardware—Storage area network with Hitachi Thunder 9570V™ modular Fibre Channel/SATA intermix storage (2), McDATA Sphereon 4500 switches (2), and a McDATA Eclipse 1620 SAN router (for iSCSI)

Software—Hitachi Device Manager, Hitachi TrueCopy® Remote Replication, and Hitachi Copy-on-Write Snapshot software

Services—SAN Implementation Service provided by Hitachi Data Systems Global Solution Services



“Hitachi Data Systems has an impressive list of references and is interested in cultivating long-term business relationships. Not all suppliers make such commitments. In addition, 24-hour support seven days a week is absolutely essential for us—and Hitachi Data Systems is providing this with its Geneva branch.”

*Michael Lawson
Director IT & Telecommunication
Hôpital de la Tour*



Hôpital de la Tour Implemented PACS with Storage Consolidation Solution from Hitachi Data Systems

Hôpital de la Tour, located in Meyrin, Switzerland, is the largest private hospital in the area. However, it still has plenty of local competition. The latest in state-of-the-art equipment helps immeasurably in this regard. When the hospital recognized the need to move to a Picture Archiving Communication System (PACS), it chose to work with Hitachi Data Systems to implement a storage area network (SAN) to support the PACS.

Hôpital de la Tour was founded 30 years ago and since then has grown steadily. Today, it maintains 160 beds, 7 operating rooms, and an intensive care unit with 12 beds, a substantial 24-hour A&E service, and a large outpatient polyclinic treating some 3,500 ambulatory patients each week.

A significant measure of the hospital's success is due to the attention paid to the rapid technological changes occurring in the health care sector. The current focus is on digital radiology and PACS.

In 2002 and 2003, the hospital invested in new CT and MRI scanners. This brought with it a large increase in the number of images being generated, and forced a switch from a traditional film-based approach for diagnosis

to the use of computerised diagnostic workstations equipped with multiple screens.

Initially, the change was managed without the use of RIS (Radiology Information System)/PACS, but it soon became clear that a more structured approach to support the storage and retrieval online of medical images was necessary.

Simultaneously, the IT department was also looking for a solution to consolidate and manage disk space for other applications.

With the exception of disk-based backup, the non-RIS/PACs applications, although large in number, had modest hardware requirements [less than 2 terabytes (TB)] and on their own would not have been sufficient to justify the investment in the SAN.

Thus, the driving force behind implementing the SAN was the need for a PACS system. Currently this uses approximately 6TB of storage, with growth to around 10TB expected over the next two years.

The Solution to Several Problems: the Storage Area Network

Following a thorough evaluation, it became apparent that both problems could be solved by implementing a SAN to cover the radiology department and to provide a consolidated storage solution for the entire hospital.

The deciding factors for Hôpital de la Tour in this evaluation were the 24/7 support service by Hitachi Data Systems engineers, the system's scalability (it is very modular) and, last but not least, the costs (especially the total cost of ownership) of the solution.

Michael Lawson, Director of Informatics & Telecommunications explains, "Our IT department was responsible for selecting the SAN. Of the six systems that were offered to us, we ultimately decided on the proposal from Hitachi Data Systems. This was not only the best solution from a technical standpoint (something which didn't surprise us), but also from a cost standpoint (which did surprise us)." Lawson makes an additional argument: "Hitachi Data Systems does not manufacture servers and therefore brings a well-founded interest in interoperability to the table. The company's list of clients also impressed us and gave us confidence."

The initial situation for Hôpital de la Tour was as follows: The network consisted of around 300 networked PCs and about 40 servers with the respective integrated storage systems that were required. There were no virtual servers. The operating system environment was heterogeneous (UNIX, Linux, Microsoft® Windows NT/2000).

Work began just one month after the order was placed: Hitachi Data Systems equipped the hospital with a SAN and an ADVA multiplexer, which allows the hospital to carry both

IP and Fibre Channel traffic on a single fibre optic pair between two buildings that house separate storage bays. This supports real-time replication of data from one storage bay to another, using Hitachi TrueCopy® Remote Replication software, and provides a significant degree of redundancy in the event of a disaster. The secondary building also houses a virtual tape backup system on the SAN. The entire system was implemented within two months.

The Main Effects: Simplification and Cost Savings

Significant savings are now being achieved through the reduction in the usage of film and the associated shipping fees.

In addition, the IT department has been able to leverage the SAN for server consolidation using server virtualization software, an approach which yields capital, deployment,

The SAN has also enabled the hospital to implement a two-phase backup system using NetVault from BakBone. Most applications are backed up first to a virtual tape library on the SAN, with the virtual tapes subsequently being migrated to physical tape. This has significant advantages: the initial phase is heavily multiplexed so that many applications can be backed up simultaneously, making the most of a small backup window. The second phase serves to stream data at very high rates from the virtual library (on the SAN) to high performance LTO3 drives, thus ensuring low wear on the physical tape drives, and optimal write speeds.

Reliability: the Greatest Value

In the Radiology department, the implementation of a RIS/PACs system supported on the SAN has ensured that the hospital can now track the workflow, from the initial

a Web-based interface. In addition, staff no longer post charges to patient accounts: this happens automatically, reducing the workload significantly and allowing staff to focus entirely on the clinical aspects of their work.

In the IT department, the advent of the SAN has provided a previously unknown degree of flexibility in allocating disk space; it has also provided a platform for implementing virtual server technology, disk-based backups, and low-level data replication between sites for redundancy. In particular, the leveraging of server virtualization with the SAN is speeding the deployment of new applications and reducing their costs dramatically.

System reliability is critically important for the hospital's operations. Hitachi Data Systems provides support around the clock, something that Lawson values very highly.



L to R: Michael Lawson, Director IT & Telecommunications; Philip Veitch, Head of Department; Dr. Hermann Hauser, Radiologist.

“Hitachi Data Systems engineers occasionally show up with disks under their arms without prior notification. This is due to the fact that, with their monitoring system, they see errors before we do. It is very comforting to be supported in such a conscientious way.”

Michael Lawson
Director IT & Telecommunication
Hôpital de la Tour

and operating cost savings. The key word is virtualization: besides saving costs, it allows savings in terms energy consumption and also guarantees simple handling of the servers and applications and better use of the server hardware. This would not be possible without the SAN.

booking, through to the exam, the diagnosis, the dictation of the report (voice recognition software is used to assist in typing it), the validation of the report, and the generation of a CD/DVD with the exam and report on it.

This degree of process integration has ensured that reports and images no longer get lost, and are available online instantaneously, on a 24/7 basis to all the medical staff via

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