# FUJITSU

# Case Study
# Universitätsklinik Leipzig

"Our existing storage system was under a huge amount of strain when we virtualized our SAP environment, and response times were high. But we managed to reduce latency to just a few milliseconds by using SSD storage media in the servers."

Daniel Pfuhl, Head of IT, Universitätsklinik Leipzig data center

## The customer

Country: Germany
Sector: Medicine, public services
Employees: 6,000
Website: www.uniklinikum-leipzig.de

Universitätsklinikum Leipzig
Medizin ist unsere Berufung.

## The challenge

During the hospital's conversion to a virtualized data center infrastructure, it became clear that the existing storage system was not powerful enough to provide the fast response times needed for its SAP applications.

## The solution

Using SSD storage media to further reduce read and write latency for CPU intensive applications following virtualization.

## The customer

The Universitätsklinikum Leipzig (UKL) is a full-service hospital which covers the entire spectrum of medical care with the exception of cardiac surgery and paediatric cardiology. Over 6,000 people are employed across the hospital and its research and teaching departments at Leipzig University's faculty of medicine (UML). The UKL is one of two full-service hospitals in the German state of Saxony, and is therefore an important center for inpatient and outpatient treatment in the region. Two data centers on the hospital campus form the core of its IT systems.

## The challenge

The UKL's data centers had been gradually converted to virtual servers and the existing Solaris server had been replaced with the FUJITSU Server PRIMERGY RX600 and FUJITSU Server PRIMERGY RX4770. But the hospital's storage resources were no longer sufficient: "At the time we were working on the virtualization project, both of our storage systems were under so much strain that we had no reserve capacity at all," says the Head of IT, Daniel Pfuhl. This meant that response times had become very poor and individual jobs were taking far longer than the users had expected. The SAP system had up to 2,000 users accessing it at any one time and the database had reached 600 GB. "So we started looking for server-side caching solutions. These cache the majority of the load from the virtual machines and so relieve the strain on the storage system," says Pfuhl.

## The solution

The hospital chose a solution from PernixData which the department manager felt would work well with the solution from SanDisk and FUJITSU. It now uses a 5.2 TB Fusion ioMemory™ PCIe flash cards from SanDisk in each of its four FUJITSU Servers and four 400 GB SSD drives in its four FUJITSU Hosts. Of the peak load of 5,000 IOPS for the hospital's applications, around 4,800 now run on the flash media and 200 on the storage system.

## The benefit

- No expensive storage capacity upgrades
- Individual applications can be accelerated as needed

## Products and services

- FUJITSU Server PRIMERGY RX600
- FUJITSU Server PRIMERGY RX4770
- SanDisk Fusion ioMemory 5.2 TB

The main challenge was that the hospital needed very high capacity storage media. "We determined that the 400 GB storage cards we had previously purchased would not have provided enough capacity to accelerate the SAP system," says Pfuhl. The reason: the majority of the data in the 600 GB database is accessed on a daily basis and changes constantly. "This meant that we needed the largest capacity flash drives possible to run the SAP system and other virtual machines." However, no flash storage of this kind had been approved at the time the hospital was installing the FUJITSU Server PRIMERGY RX4770.

### The benefit

Fujitsu worked with SanDisk to test the PCIe flash cards the hospital wanted to use, and issued a special approval as a result. This was then certified so that support could be provided. Once the caching solution was installed, users' response times improved immediately and are now down to less than a millisecond. The solution has been running reliably with no issues for more than a year.

The hospital will continue using SSD drives when the time comes to invest in additional storage. "We have seen that our SAN architecture, with its central SAN running over Fibre Channel switches and various intermediate points, creates a chain of latency points that really add up."

"Having flash media in the server gives us the option to accelerate certain latency-sensitive applications on individual virtual machines," says Pfuhl. Plus: "We can even activate read and write acceleration separately – you can't get down to this granular level with a central storage system." The alternative would have been to, "invest lots of money in an additional storage system to improve the performance of the central storage system. But that would have been significantly more expensive".

### Conclusion

The original plan was to use the SSDs to accelerate the SAP applications and so improve response times after the virtualization process without having to invest a lot of money into the storage infrastructure. But the team were so impressed with the results that further CPU intensive applications such as SQL Server for SharePoint and other databases are now being supported by the new solution too. The system is certified and has been running reliably for over a year.

"It is exactly what we hoped for. The overall costs proved to be significantly lower than investing in a new storage system would have been. So we can put off making the larger investment for a while yet."
Daniel Pfuhl, Head of IT, Universitätsklinik Leipzig data center