

Case Study

For online storage, Lechwerke relies on Fujitsu's ETERNUS DX systems

»We are very positively surprised by the high performance of the ETERNUS DX440 S2 storage systems. Thanks to Fujitsu's Storage Integration Services, the switch to running operations was extremely quick and absolutely smooth.«

Werner Gruber, Systems Management, LEW Service & Consulting GmbH



The customer

Lechwerke AG (LEW) is a regional utility company responsible for around 500,000 customers in Bavaria and parts of Baden-Württemberg. LEW is part of the RWE Group.
www.lew.de



The challenge

To increase the storage performance – especially in the SAP environment – while simultaneously reducing administrative time and expense.

The solution

ETERNUS DX440 S2 from Fujitsu as storage systems plus ETERNUS SF Storage Cruiser for optimal management in conjunction with Fujitsu's Storage Integration Services.

Effective Storage Strategies for Utility Companies

If you need to securely store and evaluate the user data for half a million customers, your options inevitably point to a high-end storage system. And to achieve the highest possible level of storage performance, comprehensive consulting is also advisable. In both of these cases, Lechwerke AG (LEW) turned to Fujitsu – and is now enjoying a considerable increase in performance through using the ETERNUS DX440 S2 storage systems including Storage Integration Services.

Lechwerke – Energy for the Local Area

Lechwerke AG provides both electricity and gas products along with services in the fields of network and plant construction, energy generation and telecommunications. Via the electricity network, Lechwerke supplies more than one million people in Bavaria and parts of Baden-Württemberg with energy. The Bayern Electricity Works (BEW) is also part of the LEW Group. Between them, they have complete responsibility for operating a total of 35 hydroelectric power plants. The BEW is one of Bavaria's leading hydroelectric power plant operators. The power plants that the BEW operates in Donau, Iller, Günz, Lech and Wertach produce an average of one billion kilowatt hours of environmentally-friendly electricity every year from renewable water power.

Refreshing and Mirroring the Storage Network

Within the LEW Group, LEW Service & Consulting counts IT operations among its areas of responsibility. This is where Datacenter Manager Werner Gruber and his team guard the data from around half a million customers. To ensure that these customers can depend on the highest possible level of security, two mirrored storage systems were recently installed in two separate LEW datacenters in Augsburg. The two ETERNUS DX440 S2 systems are connected via a rapid Storage Area Network (SAN). "The performance of our old EMC systems was no longer up to the challenge," says Werner Gruber, explaining the reasons for the new purchases. "They couldn't provide the capabilities we needed any longer. The system had reached its efficiency ceiling and we couldn't expand it any further."

ETERNUS DX – The flexible Data Safe



Faster Operation in Critical Phases

It didn't take long for positive feedback to arrive from the LEW staff members. "Our SAP users definitely noticed the faster access times," says Werner Gruber, the Head of Systems Management.

"For a utility company like LEW, the annual consumption billing is of course a very critical phase with intensive use of both computer resources and data. Compared with the previous year, the response and running times of our dialogue and batch processes have improved by around 30 per cent. And that is largely due to our new ETERNUS DX440 S2 Systems from Fujitsu."

Secure Storage

Depending on the application, LEW's performance increase is between 20 per cent and – in exceptional cases – even as much as 100 per cent. One noticeable "turbo" for this is the ETERNUS DX440 S2's large cache, which has been expanded to 96 Gigabytes. "This cache forms an additional rapid main memory which is used for interim buffering," says Gruber. "That's where the majority of the currently-used data is located. So the first read request is operated directly from the cache – even before the hard drives are accessed. And that happens very rapidly."

»We are more than surprised by the high performance of Fujitsu's ETERNUS DX440 S2. Even the start-up process was completely straightforward and ran without interruptions – that's something I have never experienced.«

Werner Gruber, Systems Management, LEW Service & Consulting GmbH

What's more, the ETERNUS DX440 S2 System maintains the data stored in the RAID Controller Cache with an extremely high level of security. In the case of a power cut, the data are automatically written into a Flash storage module and securely preserved there until the power is restored. Naturally, there are also security mechanisms that come into effect to protect the data stored on the hard drives and which significantly reduce the risk of data loss. For example, ETERNUS DX Systems have internal system control authorities, which warn in advance about breakdowns or damage, plus RAID mirroring etc. In the case of LEW, there is the additional factor of the data mirroring on twin systems. Should one system suffer a breakdown, the affected data can be very easily and quickly restored.

Optimal Scalability

For LEW, there was another important aspect to consider alongside the security factor. "Our annual data growth is around 15 to 20 per cent," is Werner Gruber's estimate. "At the moment, we're operating our ETERNUS DX440 S2 systems with 25 Terabytes respectively, distributed between 60 drives. Thanks to the excellent scalability, we still have some room to expand." That is something of an understatement considering that Lechwerke AG would be able to store around 50 times as much data on their ETERNUS DX440 S2 systems. The systems can be expanded to a capacity of up to 1,440 Terabytes (which corresponds to a placement of 240 3.5" or 480 2.5" HDDs).

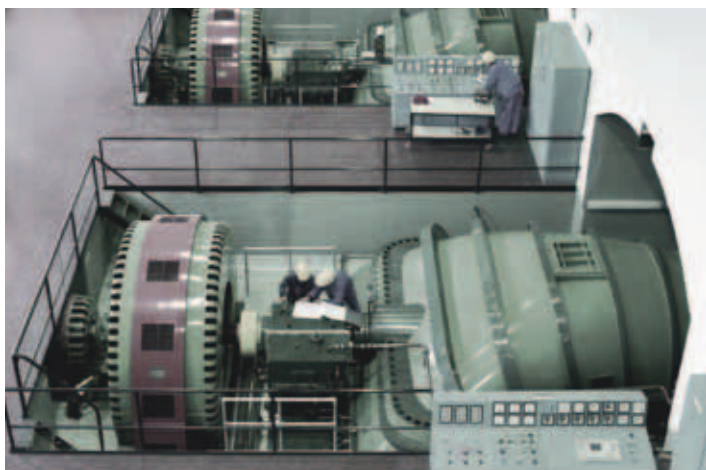
Comprehensive Monitoring via ETERNUS SF

To provide absolutely comprehensive storage management, Fujitsu supplies the ETERNUS SF software as standard. LEW opted for a considerably more complex version (at extra cost), the ETERNUS SF

Storage Cruiser. Marc Harnisch, Senior Systems Engineer at Fujitsu, installed the software: "The Storage Cruiser doesn't just take into consideration the ETERNUS DX storage systems in the datacenter, but looks at the complete SAN, the servers and all associated components." This solution, therefore, provides all-round monitoring including performance and correlation management. As Harnisch puts it: "This allows the administrator to detect the typical bottlenecks in the network."

The Storage Cruiser: A Graphical Overview

Werner Gruber agrees that this investment makes financial sense for LEW: "With the Storage Cruiser, we can precisely determine the degree of capacity utilization for the storage controller CPUs and the hard drives. We can see exactly how much performance margin we still have left." Gruber particularly appreciates the overview that the software provides him with: "We now have an extremely good graphical evaluation that makes it possible to view the connection from the server to the smallest logistical unit in the storage system. The path that the data takes can now be traced at a glance, the SAN port and fibre channel connection that the data uses. This is an extremely helpful resource. "In the past, we had to create a lot of sketches on pieces of paper to collect this information for an overview." If the data flow becomes slower, it is now easier for Gruber's team to locate the bottleneck that is causing the reduction in speed. "The Storage Cruiser makes it much simpler for us to provide a diagnosis about why some aspect is not performing optimally," Gruber explains. As a result, the time and cost of administration have been reduced.



The benefit

- Reliable and safe storage of critical business data
- Continuous access to data
- Rapid expansion of the storage capacity
- Optimal scalability
- Fast access times
- High energy efficiency

Storage Integration Services

Marc Harnisch also assisted LEW with the implementation of the two ETERNUS DX440 S2 systems. These "Storage Integration Services" provided by Fujitsu offer advantages to customers beyond simply the amount of time saved. "The main installation was completed within a day, then we needed an additional day to install the Storage Cruisers," Harnisch says. "The alternative would have been four weeks of training for the IT team." This training took place anyway, but due to the precise knowledge of the client environment and following a detailed consultation regarding the courses that were absolutely necessary, the training time was reduced to two weeks.

An additional advantage is the in-depth customization of the storage systems. "We know how to get the best possible performance from such a system," Harnisch explains. "In our consultation, we were able to support Werner Gruber and his team with all the necessary cali-

Products and services

- Storage systems: 2 x ETERNUS DX440 S2 with a disk storage capacity of 25 Terabytes respectively
- Storage management software: ETERNUS SF Storage Cruiser
- Storage Integration Services from Fujitsu

brations. And at the same time, warning messages were logged in the SAN via the Storage Cruiser. So we were able to correct these in time, before any critical errors arose."

Professional Planning and Implementation

So it took just over a week until Lechwerke AG were able to transfer the system to running operations. Werner Gruber is very satisfied with the results:

"Fujitsu's planning to prepare the server systems for operation was extremely professional from powering on the hardware to the distribution of the RAID groups. The actual switching of both systems into running operations during a brief downtime was something our users hardly even noticed."



Contact

FUJITSU Technology Solutions
Customer Interaction Centre
Mo. – Fr. 8 am – 6 pm
E-mail: cic@ts.fujitsu.com
Telephone: +49 (0) 1805-372 100
(14 cents/min via German landline,
max. 42 cents/min via German mobile network)

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Realization: fujitsu@cafe-palermo.de