

TOP MARKS FOR VIRTUALIZATION

Education provider halves energy consumption and management time with virtualized Dell server solution



Technology offers a growing range of possibilities in education – from wikis, blogs and online lessons, to interactive whiteboards in classrooms. But balancing budgets when faced with demands for greater capacity and better performance can be a challenge.

SOLUTIONS:

- DATA CONSOLIDATION AND MANAGEMENT
- DATA PROTECTION
- GREEN IT
- VIRTUALIZATION



ECKERT
SCHULEN

CUSTOMER PROFILE

COMPANY: Dr. Robert Eckert-Schulen

INDUSTRY: Education

COUNTRY: Germany

FOUNDED: 1946

EMPLOYEES: 800 employees, 3,200 students

WEBSITES: www.eckert-schulen.de

CHALLENGE

Dr. Robert Eckert-Schulen (ES) wanted to increase the availability and capacity of its IT systems. Rising server volumes led to increased costs and management time, but less space in datacentres.

SOLUTION

ES installed a virtualized server environment with Dell disk-and-tape-based solutions for storage, back-up and archiving. Dell ProSupport for IT* ensures maximum availability.

BENEFITS

Get IT Faster

- No end-user disruption
- Virtual servers deployed in just two hours

Run IT Better

- Total cost of ownership almost 50 per cent lower than competing solutions
- Management time cut by up to 50 per cent
- Power and cooling costs fall by nearly 50 per cent
- Server down from to two from 18
- Maximum uptime maintained since deployment

Grow IT Smarter

- Infrastructure supports four years of growth



The dilemma is a familiar one for IT staff at Dr. Robert Eckert-Schulen (ES) – a public sector organisation that runs a number of educational facilities in Germany. Focuses include occupational rehabilitation for disabled adults, medicine and technology. With courses relating to 70 different professions, ES has helped more than 40,000 students gain degrees since it was founded in 1946.

The student population, which numbers 3,500, is supported by 800 staff. Around 1,200 students live on campus at Regenstauf. Others study from home, having enrolled on distance learning courses, and attend online tutorials via the ES IT system. In addition, twenty regional educational institutions use a virtual private network (VPN) to access services via the ES datacentre. Reliable round-the-clock access to the IT infrastructure is crucial to all these people – whether for remote learning, classroom activities, or student registration and administration.

However, as IT manager Gerhard Lubber explains, the server and storage infrastructure at ES was increasingly problematic: “Our storage and servers were no longer fit for purpose. Availability was too low, and we weren’t happy with the level of service from our supplier. We had three outages in 18 months – one of them lasting 1.5 days. And when we

needed replacement parts, they took days to arrive, delaying repairs. We lost time and money and our staff were unable to work.”

Performance was also impaired during back-ups, which were done manually each night between 6pm and 9pm. And students and teachers noted that Internet pages generally took up to 20 seconds to download, rather than the fraction of a second they expected.

With 18 physical servers acquired over five years, space in the datacentre was running out, while energy costs and complexity steadily increased. Lubber and his team wanted a new infrastructure that would improve end-user experience, save time on maintenance and reduce running costs.



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Gerhard Lubber, IT manager, Dr. Robert Eckert-Schulen

HOW IT WORKS

HARDWARE

- Dell™ PowerEdge™ 2950 and 2900 servers with Intel® Xeon® processors
- Dell PowerVault™ MD3000i Modular Disk Storage Array
- Dell PowerVault 2000 tape library

SOFTWARE

- VMware® Virtual Infrastructure 3 – VMware ESX server – VMware High Availability (HA) – VMware VMotion – VMware VirtualCenter
- Dell OpenManage™ Systems Management
- CommVault Simpana
- Windows Server® 2003

SERVICES

- Dell Global Infrastructure Consulting Services
- Dell ProSupport for IT* – Mission Critical

Encouraged by past experience, the team turned to Dell Global Infrastructure Consulting Services (GICS) for advice. ES already had 600 Dell™ OptiPlex™ 745 and 320 desktops, and Latitude™ D520 and D630 laptops, while servers and storage remained with an alternative supplier. “When we standardised on Dell for our client systems, we were impressed by the quality of the hardware, the support and the smoothness of the deployment. So when it came to revisiting our servers and storage strategy, Dell was in the lead from the start.”

Working with GICS, Lubber quickly identified a solution: virtualization. His team then chose servers and storage based on a thorough infrastructure review from Dell. “Dell’s Virtualization Readiness Assessment showed us that we could use an iSCSI storage solution – the Dell PowerVault MD3000i – with virtual servers. That gave us a cost-effective, high performance solution,” Lubber says.

Two Dell™ PowerEdge™ 2950 servers running VMware® ESX server software replaced the existing servers. A third virtualized server in another room – a PowerEdge™ 2900 with Dual Core Intel® Xeon® processors – acts as a back-up server. ES now has 14 virtual servers, managed through VMware® vCenter Server.

The Dell PowerVault™ MD3000i Modular Disk Storage Array took the place of the ageing network storage area network (SAN). The new array provides expandable, consolidated and highly available iSCSI SAN storage. ES opted for the Dell PowerVault 2000 tape library for fully automated back-up and archiving. To simplify administration, the team chose Dell OpenManage™ Systems Management, and CommVault Simpana for data management and protection. After the deployment, Dell trained the team on both software tools as well as the use of VMware.

“OUR SERVER ESTATE WAS GROWING EACH YEAR. NOW, IT’S COMPACT AND ENERGY EFFICIENT, WITH HIGHER SERVER UTILISATION AND A FOUR-YEAR STRATEGY FOR GROWTH THAT WON’T INVOLVE ANY MORE HARDWARE.”

Gerhard Lubber, IT manager, Dr. Robert Eckert-Schulen

The infrastructure is covered by Dell ProSupport for IT* Mission Critical, with a four-hour on-site response time to ensure fast incident resolution and minimise unplanned downtime.

GICS DELIVERS ON MULTIPLE OBJECTIVES

Lubber and his team needed to improve performance, but also drive down total cost of ownership. They also wanted to establish a relationship with a long-term IT solution provider. Dell GICS responded with a strategic solution that boosted uptime, and offered immediate and long-term savings.

“Dell GICS consultants were thorough, professional and efficient—we knew we could trust them to get all the details right as well as understand our wider objectives. I was amazed by their skill and enthusiasm throughout the project,” Lubber says.

DELL TECHNOLOGY AND SERVICES SAVES 50 PER CENT ON TOTAL COST OF OWNERSHIP

With Dell, ES dramatically reduced the potential cost of its new infrastructure. The Dell solution was almost two times more cost-effective than those offered by competitors. “The total hardware cost was nearly 35 per cent lower than competing offerings. And when we took Dell’s consultancy, project management, deployment and education services into account, we were looking at an overall saving of 50-60 per cent.”

RAPID DEPLOYMENT AND ONGOING SUPPORT KEEP SERVICES UP AND RUNNING

A smooth installation process was crucial to avoid disruption to life on campus. The guarantee of timely support was also important. “Our account manager coordinated the process expertly,” Lubber recalls. “There was no disruption to our end-users.”

Dell provided effective training for personnel during deployment. This helps them gain the most from the infrastructure and maximises ES’s return on investment (ROI). “Our week of VMware training was invaluable, says Lubber.

“We got to know the new system, deployed eight virtual servers and migrated data from the old ones. It gave us the confidence to use the new infrastructure to its full potential.”

RELIABLE HARDWARE AND DELL PROSUPPORT ENSURE MAXIMUM UPTIME

System outages were costing ES time and money. Since deployment, the Dell infrastructure has provided 100 per cent availability. “With Dell, we have the ideal solution: robust technology and the reassurance of a four-hour on-site response time with Dell ProSupport for IT Mission Critical,” Lubber explains. “We’ve had no problems whatsoever in six months of running our Dell solution.”

On one occasion, a routine server check revealed an issue with a hard disk, but the redundant design of the PowerEdge 2950 server meant that it continued to work at full capacity. Lubber says: “We detected an issue, called Dell, received a new hard disk and installed it—all in three hours. No fuss, no downtime—we couldn’t ask for more.”

ES also uses VMware High Availability (HA). Included with VMware Virtual Infrastructure 3, this software solution continuously monitors physical servers, detects failures in virtual machines and prompts automatic restarts. “VMware HA gives us extra peace of mind in terms of availability, and reduces human intervention,” Lubber says.

VIRTUALIZATION CONSOLIDATES THE DATACENTRE FROM 18 TO TWO SERVERS

ES now has 14 virtual machines running on just three physical servers. In addition to a number of management benefits, space is no longer a problem, and power and cooling costs have fallen drastically. “Our server estate was growing each year. Now, it’s compact and energy efficient, with higher server utilisation and a four-year strategy for growth that won’t involve any more hardware,” comments Lubber.

Automatic load balancing also helps maximise utilisation. VMware Distributed Resource

Scheduling allocates resources to servers on an as-needed basis, according to criteria set by the IT team, such as server memory or CPU limits.

SIMPLE, COST-EFFECTIVE EXPANSION SUPPORTS FOUR YEARS OF GROWTH

System capacity now matches ES’s needs. End-users no longer experience disruptions due to bottlenecks. And if requirements increase, expansion will be straightforward and inexpensive.

The ES IT team benefits from flexibility and simplified management—characteristics that were difficult to achieve with the previous infrastructure. In the past, increasing capacity meant ordering hardware. So, each increase required an investment on several levels—initial purchasing costs, extra space, and higher energy bills. Now it’s simply a matter of deploying a virtual machine. Hardware costs, footprints, and power and cooling stay the same, with speed of deployment increased more than 100-fold.

Lubber explains: “Our virtual environment will deliver increasing ROI as it matures, and it saves us an enormous amount of time. If we want to roll out a new service for students or add an application, we simply create a virtual machine. At the most, that takes two hours. Before, it took eight weeks to order and install a new server.”

This virtual expansion will support ES for several years without the need for additional hardware: “I estimate that our virtualized PowerEdge 2950 servers will support four years of growth,” Lubber says.

VIRTUAL SERVERS CUT ENERGY COSTS BY ALMOST 50 PER CENT

For ES, reduced power consumption means two things: lower costs and a reduced carbon footprint. “We have a datacentre with reduced environmental impact, thanks to the reduced power and cooling requirements of virtual servers,” Lubber says. “With Dell virtualization we’ve simultaneously cut our energy costs and carbon footprint by almost 50 per cent.”

CommVault Simpana also supports this with hierarchical data management, which automatically allocates data to the appropriate storage tier. In other words, it prevents faster drives that consume more power being used for rarely accessed data. It can also eliminate redundant copies of data, which avoids unnecessary demands on space.

SIMPLIFIED ARCHITECTURE REDUCES ADMINISTRATION TIME BY NEARLY 50 PER CENT

With consolidated, virtualized servers and software tools to automate and centralise management, ES has simplified routine tasks. The servers offer enough capacity for 14 virtual machines while tools in VMware High Availability (HA) and VMotion provide high flexibility during server maintenance. "With Dell, we're saving nearly 50 per cent on system maintenance, which amounts to almost one day a week. All our applications are on just two physical servers, which automatically simplifies management," explains Luber. "And because Dell OpenManage Systems Management integrates with VMware VirtualCenter, we can manage all physical and virtual servers from a single console."

Dell OpenManage Systems Management allows the team to manage servers, storage and client devices seamlessly using standards-based tools. With VMware VirtualCenter Server and VMotion, they can shift workloads from one physical server to another. Comments Luber: "To expand the memory of our two PowerEdge 2950 servers, we simply used VMotion to transfer workloads onto the other server, added the memory, rebooted, and moved everything back again. There was no downtime or

disruption at all. That really showed us the value of our virtual environment."

Now that back-ups can be done without affecting service, the team is not restricted to awkward night-time windows. Says Luber: "Even starting at 6pm, it was sometimes difficult to complete back-ups by 9am. But with our PowerEdge 2900 server, we can back-up to our PowerVault MD3000i Storage Array and archive to our PowerVault tape library at any time. The process is completely invisible to end-users."

Less administration means more time for project development and programming. Without the burden of complex, time-consuming maintenance, Luber and his team can adopt a more proactive, forward-looking approach that will benefit end-users and support the long-term evolution of ES facilities.

"We made the right strategic decision. As a market leader, Dell provides us with high quality solutions at very good prices and all the support we need. With Dell, we have a partner, not just a vendor," Luber concludes.

For more information on this case study or to read additional case studies, go to www.dell.com/casestudies and www.dell.de

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