How New Technology Is Helping a University Grow a World-Class Digital Campus

By Sarah Tanksalvala

To remain competitive and agile, universities across the world are building digital campuses. Also known as e-campsus, these cloud-based, online platforms improve the quality and accessibility of educational resources, expanding the geographic scope of universities and increasing the number of services they can offer.

But e-campsus have also created new challenges for organizations, namely how they can handle large volumes of digital activity in a cost-effective manner. Universities with tens of thousands of students or more generate a nearly unmatched amount of communication and information.

In 2012, the University of Lübeck in Germany tried to build a digital campus for 24,000 students and 53,000 staff members. The public university, which also has a teaching hospital, specializes in medicine, science, technology and natural sciences.

But the initiative placed increasing demands on its technology infrastructure. Lübeck had a choice — either expand the infrastructure or migrate it to a new platform. Hoping to improve education quality, management efficiency, and access to scientific research resources, it chose the latter.

“That university decided to migrate the existing storage infrastructure to a new technology platform,” said Fan Ruqi, president of the Huawei Storage Product Line. “In addition to the technical framework, easy integration with VMware Server virtualization software played a particularly important role.”

Lübeck’s digital campus would include an eLibrary, forum, online storage, and file sharing. More than other universities, Lübeck needed a high-performance density system — meaning high Input/Output Per Second (IOPS).

Serving the Needs of a Vital Institution

The digital campus’s existing storage loads created some serious challenges. The new solution needed storage with high enough performance to meet the requirements of more than 150 VMware servers. It had to have a long uptime to serve the needs of an institution that not only conducted scientific research, but also treated medical patients. It also needed to be easily scalable — meaning it had to be easy to increase the size to suit future needs and applications.

Finally, migration needed to be smooth, as disruptions would affect more than 150 campus services and applications — harming students, researchers, faculty, and patients. This meant seamless VMware integration. If new storage devices weren’t fully compatible with the existing, outdated ones, storage performance, reliability, and scalability would all be compromised.

The university reviewed several proposals before narrowing the field to two finalists. Lübeck initially had concerns about both. E-campsus looking to expand the infrastructure or migrate it to a new platform would have to simply expand its existing architecture, it would overburden the campus, and services delivered faster and more reliably — and accessible any time.

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For other universities facing issues of limited storage and outdated digital infrastructure, Lübeck’s example offers valuable lessons.

The first is simply that the benefits of using new architectures outweigh the risks. Had Lübeck elected to simply expand its existing architecture, it would have been unable to increase performance, speed, and services to the degree it did. Lübeck didn’t have to update all its storage devices and software at once. In fact adding the OceanStor technology alleviated pressure on the existing devices.

One of the university’s strongest initial concerns was a smooth transition and integration with existing infrastructures. This is a concern for other institutions, but Lübeck’s example should alleviate those fears and show that a seamless transition is possible. In fact, companies like Huawei are dedicated to assisting this transition.

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Fiber channel connections delivered high-performance storage, and the system was designed with a tiering feature to help maximize both performance and cost-efficiency.

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Five Times as Fast

The system has delivered stable, reliable 24/7 service operation since its deployment, and it currently operates 150 VMware servers. Lübeck’s new system operates five times faster than its predecessor. For teachers and students, this has meant more campus applications and services delivered faster and more reliably — and accessible any time.

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