



Faculty of Physics at LMU meet storage challenges by switching to NexentaStor

Faculty of Physics, Ludwig Maximilian Universität München
Munich, Germany
Research and Education



Summary

Storage Solution: NexentaStor High Availability Cluster

Infrastructure: SuperMicro

Use Case: University consolidates traditional storage solutions onto NexentaStor arrays

Business Overview

Ludwig Maximilian University (LMU) is a public research university located in Munich, Germany. One of Germany's oldest universities, it is considered one of the country's (and Europe's) most prestigious universities with 34 Nobel laureates associated with it. It is the second-largest university in Germany in terms of student population with a total of more than 50,000 matriculated students. The Faculty of Physics, with six Nobel laureates and many other notable physicians, is a global powerhouse for physics research and education.

Challenges

The faculty's IT staff face a daily challenge offering IT services to 3,500 staff and students at various sites across Munich. Klaus Steinberger, Head of IT at the faculty explains: "Our environment is spread across eight different sites in and around Munich. A central data center that supports every site is not possible, as we need low latencies at every site. In addition, each site has different requirements, making it impossible to settle on a single central solution. Our faculties' diverse IT environments were underpinned by countless storage solutions from a variety of hardware vendors."

Benefits

- NexentaStor provided massively scaleable storage environments
- The solution offers virtually unlimited number of snapshots
- Nexenta offers free versioning and high granularity of data protection
- No vendor lock-in due to usage of standard hardware

On the lookout for a better solution that would help the team improve the network, Steinberger attended a seminar for the university's IT staff on Software-Defined Storage (SDS) which was presented by Nexenta, and was interested by the ZFS-based approach. "It made a lot of sense and we decided straight away to test the NexentaStor Community Version on an existing older system," Steinberger explains. "We liked what we saw, especially the easy way to create snapshots, so when we had to replace some of our primary storage at one of our sites, we decided to pick NexentaStor, and got in contact with our partner BASIS in Munich."

The Nexenta Solution

The first deployment of a storage solution based on NexentaStor in 2012 was a huge success. This led to more and more NexentaStor solutions being added. By mid 2014, seven systems had been installed by BASIS, three of them high availability (HA) Clusters to support critical applications at bigger sites on the network.

As most of the servers in the environment were already virtualized, transparent failover was one of the main requirements for the clusters that support most of the IT systems. But high availability was not the only reason for the IT team to start using SDS. Steinberger comments: "The first thing we noticed when we tested the initial system was the advantages of ZFS, which is incredibly powerful and has features built in that are hard to find anywhere else, like the self-healing functionality that prevents data corruption. NexentaStor is also very flexible and we can use it for a powerful HA Cluster, a simple single head primary storage or a high-powered solution for ultimate speed that underpins the systems at the high performance computing (HPC) department."

The clusters and HPC systems benefit from advanced caching technology built into ZFS: Hybrid Storage Pooling, enables the systems to fully utilize high performance SSDs and DRAM provided by high performance and durability specialist HGST.

The faculty had been using different systems from some of the big vendors in the storage world but choosing SDS helped it to escape lock-in with expensive and inflexible proprietary upgrade paths from hardware vendors. NexentaStor runs on standard hardware, providing a very favorable price performance ratio for purchase and maintenance over the entire system lifecycle.

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Klaus Steinberger, Head of IT, LMU

Nexenta's partner in Munich, BASIS GmbH (www.basis.biz), delivered and integrated the solutions, along with proactive software and onsite hardware-services. "NexentaStor is simply the best solution," comments Stefan Fischer, CEO at BASIS. "The flexibility of Nexenta's SDS solution means LMU can use one system for different purposes and they don't have to work with different management platforms. The lower price from using standard hardware was not the deciding factor for any of the seven solutions we have installed so far. The full package of features built into ZFS and NexentaStor and the enormous performance of the resulting systems were convincing enough. Saving some budget on top is really just the icing on the cake for the university."

The benefits of SDS did not go unnoticed in other parts of LMU. Word about the advantages of SDS and NexentaStor has spread and the Faculty for Mathematics, Information Technology and Statistics has already installed its first NexentaStor system, with the likelihood of more to come.



Impact on Education

NexentaStor provides 100% uptime for all applications at the main sites that support the virtualized environment and provides more than enough performance for an untouched user experience for students and research.

By choosing NexentaStor to replace existing systems, the Faculty of Physics avoided extending vendor lock-in with expensive and inflexible proprietary upgrade paths for existing systems.