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Global Leader in Software Defined Storage.

Nexenta delivers right result for renowned international research centre

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NEUTRONS FOR SCIENCE

Business impact

- Open storage and ZFS foundations deliver high availability, snapshots and automatic failover at a lower price and better performance.

- More flexible and easier to customize than proprietary solutions.

- Enabled the ILL to break out of a vendor lock-in so it will not be forced to follow an expensive and inflexible proprietary upgrade path.

- Very quick to install and easy to implement.

Business overview

The Institut Laue-Langevin (ILL) is an international research centre at the leading edge of neutron science and technology. Funded and managed by France, Germany and the United Kingdom, in partnership with 12 other countries and situated in Grenoble, France, the ILL provides scientists with a very high flux of neutrons feeding some 40 state-of-the-art instruments, which are constantly being developed and upgraded.

Every year, 1500 researchers from over 40 countries visit the ILL and more than 800 experiments, selected by a scientific review committee, are performed annually. Research focuses primarily on fundamental science in a variety of fields: condensed matter physics, chemistry, biology, nuclear physics and materials science.

All scientists at the ILL – chemists, physicists, biologists, crystallographers, specialists in magnetism and nuclear physics – are also experts in neutron research and technology and their combined knowhow is made available to the scientific community.

System Configuration
- Two data centre locations
- 4 Dell R720 servers
- 4 Dell MD3060e JBOD with 58 x 2TB NS-SAS

Disks + STEC ZeusRam for Zil and STEC S8 for L2ARC
- 4 Brocade F300 switches in dual-fabric topology
- 4 Nexentstor HA SW (2 x 128TB) and 2 x 64TB
- 100 Physical servers (Fujitsu and Dells)
- 150 Virtual machines (VMware ESX)
- 1500 PC and workstations (Windows, Linux, MacOSX)
- Oracle MYSQL and SQL Server
- Open source applications: mail, web apps and infrastructure services

Challenges

The ILL has two data centres, 500m apart, which house 100 physical servers and 150 virtual machines. It has 1500 PCs and workstations running Windows, Linux and Mac OS on campus. The institute runs a mixture of Oracle MySQL and SQL Server databases, internally developed vertical applications and a number of open source applications for email, web and infrastructure services. ZFS-based servers (running Solaris) and a tape archive are used for disaster recovery and back up.

The organisation was struggling to cope with annual user data growth rates of 25% while matching the unpredictable increases in

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scientific data generated every year. The ILL had the option of adding more capacity to its existing NetApp MetroCluster and NetApp Filer solution to try and keep pace with the growth in data but it was an expensive and unwieldy approach.

In addition to increasing its storage capacity, the institute was also looking for a solution with high availability capabilities to provide business continuity and protect the data in the event of failure. The ILL decided to split the data in two, retaining the scientific data on its existing system and moving the user data to a separate platform.

The Nexenta Solution
The institute identified high availability, snapshots and automatic failover as important features for the new system and was also keen to adopt an open platform that would allow it to centralise backups and build on its familiarity with ZFS and open source software.

Dell, which supplied many of the institute's servers, suggested that Software-Defined Storage (SDS) vendor Nexenta could provide the solution it was looking for. As a Nexenta partner, Dell was well aware of the software's capabilities and its suitability for the institute's requirements.

The NexentaStor platform's ZFS foundation was particularly attractive to the ILL because it could be integrated with the existing Solaris ZFS storage platform. Nexenta's open source roots also provided the institute with a level of customisation that would allow it to mix the commercial solution with its internal one.

The ILL deployed Nexenta's MetroHA cluster configuration option to deliver high availability, storage redundancy and disaster recovery across the two data centres. Because Nexenta MetroHA is a true clustered storage solution, the active-active pair is managed from a single location. Administration, configuration, and maintenance for the primary and secondary site are simplified, reducing overheads, personnel cost, and the risk of configuration inconsistencies that can arise between two or more arrays. Recovery from failure is instant.

Once it decided to make the move to Nexenta, the institute experienced very little difficulty in migrating the user data to the platform. The ILL

deployed the hardware itself and the software installation was handled by Nexenta and Dell. The process took five days.

NexentaStor benefits
The ZFS roots of NexentaStor provide the institute with a strong technological foundation for massively scalable storage environments, a virtually unlimited number of snapshots, free versioning and high granularity of data protection.
The system is fast, stable and significantly cheaper than rival products. The institute estimates that Nexenta was up to 40% cheaper than the other storage solutions it considered. Time spent on storage management is a mere two hours a week.

"We have had very good contact with Nexenta support and its engineers. They always provide a smart solution and explanation for us" - Stephane Armanet, IT-Infrastructure Manager