IBM

Natural History Museum virtualises data storage with Tectrade and IBM System Storage SAN Volume Controller

Image from Dino Jaws exhibition, Natural History Museum, London, which runs until 15 April 2007. Copyright - Natural History Museum

The National History Museum in London first opened its doors to the public in 1881, and has been internationally renowned ever since as the home of one of the largest and most important collection of natural history specimens in the world.

It is also a major scientific research centre, with more than 300 scientists working on a diverse range of research projects.

The Museum realised that the various types of electronic data used by its scientific researchers – everything from digitized microscope slides through to videos of scientists researching in the field – were as important a contribution to its collection as the specimens in its jars or the books in its library.

Scientific endeavour is founded on the accumulation of data, so even when a research paper is completed, the data on which its conclusions are based should be retained and made available for subsequent projects.

To ensure that this data could be retained safely and to enable the creation of a searchable catalogue of research materials, the Museum needed to implement a centralised storage infrastructure. Its existing Storage Area Network (SAN) was running out of capacity.

Overview

■ **The Challenge**

Manage growing volumes of data efficiently, and build a storage architecture capable of scaling to meet significant future growth in data volumes; accelerate transfer of data to and from near-line storage, to enable better responsiveness to researchers' needs

■ **The Solution**

Worked with Tectrade, an IBM Premier Business Partner, to implement IBM SAN Volume Controller (SVC) for storage virtualisation; migrated data to one IBM System Storage DS4300 and two DS4100 storage systems, increasing total capacity to 30TB; Tivoli Storage Manager is used to handle incremental backups

■ **The Benefit**

Flexible, scalable SVC architecture enables modular growth of SAN to meet storage needs on demand; single point of control for storage management helps reduce staff workload; required backup window reduced by 83 percent; faster delivery of near-line data to researchers

Without a new IT strategy, the Museum's infrastructure would not have been able to handle a centralisation of the large volume of high-definition images, documents and video files already stored on researchers' local machines, let alone provide a platform for future expansion.

Modular architecture, organic growth

The Museum considered its requirements and initiated a public sector procurement process. A key requirement was that any solution proposed would have to be capable of scaling in a modular manner, as Paul Richards, Head of Information and Communication Technology (ICT) at the Natural History Museum, explains:

"As an organisation which depends to a large extent on government funding, we always need to demonstrate responsible use of public money. We didn't want to implement a vast, expensive solution all at once and be left with a huge empty frame. Instead, we wanted to start small and grow organically as the need arises. A modular architecture was a must."

The Museum chose a solution from IBM and Tectrade, which would use IBM SAN Volume Controller (SVC) to migrate data from the existing FAStT500 and from researchers' local machines onto one IBM System Storage DS4300 and two DS4100 storage systems, increasing the SAN's capacity to 30 TB. Tectrade also optimised backup performance by recalibrating the Museum's Tivoli Storage Manager policies and upgrading its IBM TotalStorage 3583 Tape Library to an IBM TS3500 using LTO3 tape drives.

"Tectrade's service has been excellent at every stage, from presales through implementation to support," says Gavin Malarky, Senior Infrastructure Analyst at the Museum. "They really listened to what we needed, and as storage experts, they made sure that the migration went smoothly."

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SVC virtualises the storage environment, treating all attached devices as a single pool of storage, so the Museum can simply plug more disk systems into the SAN as and when they are required.

"SVC also enables the use of tiered storage, so frequently-accessed data can be stored on high-speed disks, while cheaper storage holds files that are less often used," explains Gavin Malarky. "It's a useful feature that we're looking at using more in the future."

"More importantly, SVC gives us a single interface through which we can manage the entire storage environment, however large it grows," adds Paul Richards. "We can expand easily and seamlessly without increasing the administrative workload, and even add other forms of storage like optical media if needed."

Fast near-line storage
Upgrading to faster IBM LTO3 tape drives has considerably reduced the Museum's required backup window, making it much easier to keep a comprehensive near-line repository of image data.

"We don't talk about archiving data – we just move it from online to near-line," explains Gavin Malarky. "Implementing a high-performance tape storage system was absolutely vital because we need to be able to backup and restore files quickly and easily. With the LTO3 drives, average backup times have reduced by around 83 per cent, and some transfers are quicker still. For example, sending 80GB to tape with the old system took around four hours – now we can do it inside 30 minutes."

SVC gives the Museum a fully-virtualised storage environment which can be extended as the need arises, without increasing complexity of management.

By freeing up skilled staff from repetitive storage management tasks, the solution enables the IT department to concentrate on service improvements and ensure that the data is correctly catalogued.

"This IBM and Tectrade solution is helping the Natural History Museum treat research data as an important part of its collection – an asset every bit as valuable as our books and specimens," concludes Paul Richards.

"SVC gives us a storage platform which can start small and grow organically as data volumes increase, making effective use of public money and helping to ensure that information is efficiently preserved for future generations of scientists and researchers."

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Paul Richards
Head of Information and
Communication Technology
Natural History Museum

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