Ordnance Survey Chooses Plasmon for Low TCO, Long-Term Archive

QuickView

Organization
> Ordnance Survey

Industry
> National Geographic Mapping

Application
> Electronic image archive

Solution
> Plasmon® G-Series™ Libraries
Bridgehead HT FileStore

Back in 1791 the British Government realized that in planning adequate defenses to repel any invasion, the South Coast of England needed to be comprehensively and accurately mapped. So it instructed its Board of Ordnance — the defense ministry of its day — to do the necessary survey work. That decision led to the mapping of the whole of Great Britain in detail, and is also the source of the intriguing name 'Ordnance Survey' for an organization which has grown to become the world's leading map-maker and a major provider of digital geographic information.

Today Ordnance Survey is a self-financing £100-million-a-year civilian organization producing computer data products and paper maps for business, leisure, administrative, and educational use. It is still part of the British government, but it covers its operating costs by selling products and services or licensing others to use its copyrighted material.

Although Ordnance Survey is best known for its paper maps, computer data already accounts for more than 90% of its business. Digital product customers include the Land Registry, Forestry Commission, Police and Fire services, and

Britain's national mapping agency creates a geographic blueprint for long term archiving and disaster recovery with the help of UDO™ technology, improving storage management and reducing the cost of primary storage.

other government departments throughout Britain. It is also involved in a collaborative project to produce a geographical blueprint of Great Britain, called the Digital National Framework.

> The combined solution from Plasmon and Bridgehead Software is the latest in archiving software and long-term storage media technology, and will save Ordnance Survey almost £500,000 in storage costs. The project will break even in four years, with an investment return rate of 13.5%, a figure that is well above the government minimum of 5% and our own benchmark of 7%."
>
> **Dave Lipsey**
> Information Systems Infrastructure Manager, Ordnance Survey

The Problem

Ordnance Survey is creating the definitive national geographic database, digitally mapping the changing face of Britain for perpetuity. Its considerable investment in global positioning systems, digital aerial photography and new surveying techniques enables it to constantly update, enhance and maintain the database with at least 5,000 changes every day.

High-definition digital aerial photography provides a significant part of the data for this project; camera data took up more than 20% of Ordnance Survey's primary disk storage space in 2005. This is expected to grow by 20%, a further 40 terabytes (TB), per year. Ordnance Survey keeps all its raw images and corresponding edited JPEG files for an infinite length of time. As a consequence, it faces a huge problem caused by never-ending growth of high-volume data files and the need to store them.

Ordnance Survey
UK

www.alliancestoragetechnologies.com

OS MasterMap is a digital representation of the real world containing more than 450 million uniquely identified geographic features. It is updated daily as a consistent framework for the referencing of geographic information in Great Britain. OS MasterMap is available in four data layers: Topography Layer, Imagery Layer, Integrated Transport Network Layer, and Address Layer. Photo courtesy of Ordnance Survey.

Dave Lipsey, Information Systems Infrastructure Manager at Ordnance Survey, said, "the project to digitally map Great Britain presented us with a storage challenge that requires us to quickly access terabytes of large files far into the future without crippling our infrastructure. We needed a solution for eternal storage, otherwise the project itself could not be completed and our IT system would be brought to its knees."

Historically, Ordnance Survey had used online disk storage, adding hardware to absorb data growth — a strategy based on the falling price of disk. However, the increased use of digital graphical data strained its SAN-based arrays running on Windows 2003 servers. Not only is Ordnance Survey creating millions of new images each flying season, but also the underlying files are massive; each raw file is 700 megabytes (MB) and edited JPEGs are a minimum of 90MB each.

Continually created image files, which needed to be retained forever, were accumulating on it faster than the SAN could be backed up. The system had increasing errors due to unavailable tapes, and backup-time windows were being exceeded, putting other systems at risk.

Ordnance Survey estimated that within four to six months, the data being received would surpass its backup capabilities, putting the organization at risk in the event of a disaster. It had almost come to a physical stop, reaching the capacity limits of its online disk hardware. Ordnance Survey needed to act shrewdly and quickly to

tackle escalating storage and management costs and to reduce backup windows. In addition, although the cost of online storage was coming down, Ordnance Survey did not benefit from the cost reductions because its data management costs soared.

The Solution

"We knew that throwing capacity at this problem was not the answer. The best solution for reducing the burden of growing digital geographical data storage needs was automated archiving to long-life, removable media. A new system would need to operate openly, integrate into our existing infrastructure, and provide multiple copies for backup and robust disaster recovery," Lipsey explained.

Working with system integrator OptoMedia, Ordnance Survey selected BridgeHead's storage-agnostic, automated, policy-based HT FileStore archive software and a Plasmon® UDO™ (Ultra Density Optical) archival solution for secure long-term archiving. This combined solution stores and manages massive lifelong digital archives for years without the need to migrate data regularly to new storage media.

Plasmon's UDO WORM (Write Once Read Many) technology ensures that Ordnance Survey's geographic and historical information is kept for many decades with unquestionable data authenticity and unmatched media longevity. The stability of UDO media dramatically reduces

archive management overhead. By deploying UDO, Ordnance Survey can comfortably operate on an 8-to-12 year data migration cycle, which is much greater than the typical 2-to-3 year life cycle of disk or tape.

BridgeHead's HT FileStore provides long-term data management and uses intelligent automated policies to locate new files and archive them to onsite and offsite Plasmon G-Series™ UDO Libraries. After a given time, it checks the archive's status and then leaves a stub impression of just 1KB on the server in place of the original larger raw file, thus reducing the huge cost and management burden of primary storage — and at the same time allowing fully transparent access to the file in the archive. The stubbed files are also indexed so users can perform in-depth searching of the archive. Once found, files will be restored to the required location, available to be worked on.

The ability to archive to multiple copies and multiple locations was a major factor in the selection of HT FileStore. Its self-replicating archive feature eliminates nearly all the expense of performing separate backup and disaster-recovery procedures and, combined with UDO media, it provides a robust disaster-recovery solution.

HT FileStore's policies migrate digital files to the onsite Plasmon archive solution and at the same time, copy them to the smaller UDO library at the disaster-recovery site.
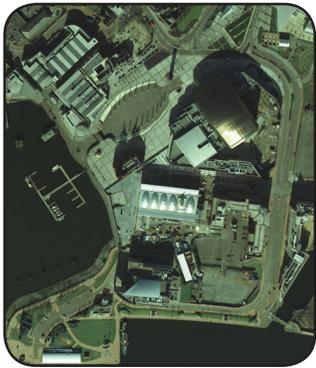
Of using HT FileStore, Lipsey said, "simply put, it's like an automatic valve, controlling the flow of data in, out, and within the system, policing the data flow through the defined policies. Rather than manually guessing which files are available to be archived or deleted, the process is now completely automated." In total, Ordnance Survey will be using more than 1,300 pieces of 30GB UDO media to archive historic information. HT FileStore's policy-based media management and automated file migration will ensure the media pieces are managed and that the data will be moved to newer technology at the appointed time in the future.

The Benefits
Ordnance Survey estimated that the previous hard disk storage system was costing around £2,500 per TB. The proposed BridgeHead/Plasmon package would only cost around £1,200 per TB in the short term, and in the longer term, this would fall to a mere £600 per TB.

"The combined solution from Bridgehead Software and Plasmon is the latest in archiving software and long-term storage media technology, and will save Ordnance Survey almost £500,000 in storage costs," said Lipsey. "The project will break even in four years, with an investment return rate of 13.5%, a figure that is well above the government minimum of 5% and our own benchmark of 7%."

By using BridgeHead's automated archiving software, HT FileStore, and Plasmon's UDO long-term storage media, Ordnance Survey has already saved 20TB of capacity in the first few months of operation.

HT FileStore has enabled Ordnance Survey to manage its media transparently across both production and disaster-recovery sites, providing a resilient archiving approach by using multiple copies to support both the disaster-recovery needs and the access needs of the business. The result is an archive infrastructure that is easy and cost-effective to manage.

Ordnance Survey's maps and paper archives from its 200-year history are available today, and it can now work towards ensuring that its newest digital data is around for at least another 200 years, providing a continual record of geographical transformations.

Lipsey explained: "Plasmon's UDO storage media has a life expectancy of 50 years, unparalleled in technology available today. And BridgeHead's HT FileStore enables us to securely migrate data to any future technology when it becomes available, no matter which vendor develops it."

The Future
The digital geographic archiving project will influence archiving throughout Ordnance Survey's infrastructure. This project is setting the standard for rolling out similar combined HT FileStore/UDO automated archive solutions to meet other departmental archiving and disaster-recovery requirements, such as those for its SAP and Oracle applications.

"Overcoming this challenge using the BridgeHead and Plasmon archiving solution has provided us with a blueprint for our archiving needs moving forward," concluded Lipsey.

CS020_00_US