

Case Study

Ordnance Survey

Implementing Replication as a service in the Storage Area Network



Ordnance Survey has been providing accurate, reliable and detailed geographic information of Great Britain for more than 200 years. Today they are a dynamic, modern organisation employing over 1400 people. Over the years, the introduction of new technologies and higher resolution images has led to an increase in storage capacity requirements and a greater emphasis on digital data. This coupled with the increased revenue generated by e-commerce based applications meant that Ordnance Survey had to find a mechanism for protecting their digital assets in the event of a disaster.

Objectives

- Provide advanced storage services, including replication and snapshot.
- Recover data back to a point-in-time seconds before a disaster.
- Guarantee Consistency of Application Data across servers and storage arrays.
- Enable replication over low bandwidth IP connections.
- Out-of-band solution with no host footprint.

Environment

- **Storage: Multiple JetStor SATA2 416F Arrays**
- Switches: Cisco MDS 9216 and 9509, 32 port Storage Services Modules
- Servers: HP Proliant, Dell PowerEdge, Sun V440 & 6800
- Operating systems: Red Hat Linux, Solaris 9, Windows 2003, VMware ESX 2.5
- Applications: Oracle 10G, Microsoft SQL
- WAN environment: 34Mbps 25ms latency

Key Benefits

- Integration with Cisco MDS 9000 Series Multilayer Switches to offer replication as a service within the storage network.
- Continuous Real-Time Data Protection.
- Single solution able to offer data recovery.

I. The Challenge

With a greater emphasis being placed on recoverability of data and applications in the event of a disaster, Ordnance Survey required a solution that would enable them to replicate data from their headquarters in Southampton to a DR site.

The primary business driver was the introduction of a new multi server Oracle based spatial database system that at the time of inception was to be the largest known in Europe.

The challenge for Ordnance Survey was that their existing storage arrays did not provide replication services and they did not want to implement a host based replication solution that could result in contractual concerns over operating system and application software support.

II. The Selection Process

The objective not to have a host agent installed vastly reduced the number of options available to Ordnance Survey immediately eliminating all software based replication solutions and leaving Ordnance Survey with two alternative choices to Kashya; either they would have to change their storage arrays to a model that supported replication or they would have to implement a virtualisation technology that included a replication capability.

Neither option was considered a viable alternative. Whilst virtualisation was investigated, the fact that the majority of solutions were in the data-path, required a host driver or required all storage that needed to be replicated to be virtualised, ruled those solutions out for the purposes of this project. Having already invested in the storage platform it did not make commercial sense to replace it; in addition Ordnance Survey did not wish to be tied to a particular storage vendor and wanted the ability to buy additional capacity based on cost and performance not because it was required to support replication.

Ordnance Survey's Storage Area Network was already based on the Cisco MDS platform and they recognised that the integration between Kashya and Cisco's Storage Services Module could offer them a solution, which on paper at least, fulfilled their objectives.

Ordnance Survey, Kashya and Cisco worked together through an extensive testing and evaluation period, initially to allow Ordnance Survey to verify that the claims made on paper were indeed real and then subsequently to test the solution in their own environment to ensure it met the business and technical requirements of the project. Following successful testing, Ordnance Survey placed an order for Kashya's KBX5000 and Continuous

Remote Replication (CRR) module to provide heterogeneous replication services.

When deployed into the production environment the Kashya KBX5000 and Cisco Storage Services Module:-

- Will provide Data Protection as a service within the storage area network that is server and storage agnostic.
- Enable consistency across multiple servers and storage volumes.
- Enable replication of fibre channel storage over IP without the need for expensive fibre channel to IP converters.
- Enable successful and rapid point in time recovery of Oracle and SQL database systems.

III. The Future

Kashya's CRR module will provide Ordnance Survey with a method of recovering data in the event of a site wide disaster; however during evaluation Ordnance Survey also identified a requirement to maintain local copies of data at their headquarters to enable them to rapidly recover in the event of a more localised failure. This additional copy of data would enable recovery without the need to copy data from the remote site, a process which could be time consuming dependent upon the amount of data to be recovered.

Using the Kashya module for Continuous Data Protection (CDP), Kashya is able to provide local copies of the volumes that Ordnance Survey wishes to safeguard, with the same point in time recovery capability offered by the remote replication solution. When used alongside the CRR module, Kashya is able to provide a complete solution that can be used to deliver both local and remote copies of the same primary volumes and enable recovery of those volumes either locally or remotely dependent upon the nature of the disaster.

