



## SECURE & RESILIENT INFRASTRUCTURE

Infrastructure Design  
Infrastructure Implementation



### CUSTOMER PROFILE

Radford Shelving are part of HMY France, one of Europe's Largest leading specialists in the design, manufacture, installation and project management of retail display equipment.

With many established blue chip and household name customers, they are committed to very high standards of commercial and technical excellence.

Occupying a 70,000m<sup>2</sup> site near Newcastle upon Tyne, they specialise in new store area development, extensions, refit, rehabilitation, roll-out initiatives, reconfigurations and a range of modular units for market stall environments and "in-shop" developments.

## High availability & virtual agility

"Waterstons has long been able to demonstrate the understanding and importance of our business operations and processes over the years. From this 100% successful implementation, the potential and possibilities we now have for the future - using our new virtual server infrastructure - is abundantly clear"

Mark McDonald, IT Manager, Radford Shelving Ltd

### THE CHALLENGE

Although remarkably reliable, Radford Shelving's aging servers would have proved very problematic for the business in the event of a failure. They could have faced issues with:

- Continuing to operate their critical business systems.
- Sourcing replacement parts.
- Recovering their systems to modern replacement hardware.

Because Radford require 24/7 availability for key business applications, upgrades needed to be delivered efficiently.

An additional requirement arose as the company's mailboxes were also increasing in size and extra space was required to accommodate them.

### IMPLEMENTATION

Waterstons worked closely with Radford Shelving to create an infrastructure solution comprising of the latest virtual server technologies:

- A detailed consultation of Radford's servers and business systems was initially conducted.
- In order to confirm the servers' suitability for virtualisation, Waterstons recommended a 'proof of concept' trial in which key physical servers were trial migrated to a temporary VMware ESX Virtual Infrastructure and operationally tested in isolation from the live network.
- Waterstons implemented a full server rack deployment; tight windows of scheduled downtime were used to migrate old servers to the new virtual infrastructure.

- The existing Microsoft Exchange mailbox and public folders were migrated to a high performance SAN volume – sized to accommodate anticipated business growth.
- Finally, the storage server and NAS (Network-attached storage) boxes were migrated to a new virtual machine, using a combination of third-party utilities and scripts.

### POTENTIAL REALISED

- Immediate risks have been addressed by moving legacy services from aging equipment onto the new infrastructure.
- Storage requirements have been pooled, reducing wastage, and storage can now be much more efficiently provisioned from the centralised infrastructure.
- Radford are now experiencing the advantages of a totally up to date, resilient virtual infrastructure, with ample capacity to enable further adoption of this technology in the future with no extra costs and taking minimal time.
- The system provides the facility to 'snapshot' running servers so they can be recovered in seconds rather than hours if future patches or upgrades cause problems.
- Radford have the luxury of knowing that the solution they have implemented is well protected against a very broad range of possible failure scenarios.



# More Information

## SAN

In order to provision shared storage for the new Virtual Infrastructure with the highest possible level of fault tolerance (but without incurring heavy setup or annual support costs), Waterstons consultants deployed commodity IBM server hardware complemented with DataCore SANmelody in a synchronously mirrored high availability architecture.

In this configuration, all disk write I/Os are replicated instantly between two storage servers over isolated Gigabit Ethernet links, providing total '2-N' redundancy. This solution, unlike many traditional hardware SAN appliances which share a common back-plane or disk-shelf fabric, allows an entire storage server to fail without impact on the SAN-attached Exchange mailstore or ESX hosts.

*At Radford Shelving, we knew that it was important to act swiftly. We had legacy servers in desperate need of upgrade but also the need to retain business critical server based applications. The professional planning & implementation from Waterstons' dedicated experts made the decision to move to a new Virtual environment extremely easy.*

Mark McDonald, IT Manager, Radford Shelving Ltd

## BACKUP

Although the SAN provides a totally resilient data repository for Exchange and ESX VMs, long term storage is still required to enable point in time backup protection against data corruption, and to provide the ability to restore files deleted in error by users.

Waterstons consultants deployed a cost-effective solution based around Symantec Backup Exec v12, a high capacity LTO autoloader and intermediary disk stage. This 'disk-to-disk-to-tape' architecture allows parallel server backups to take place quickly to disk, and then stream serially to tape, effectively extending the backup window.

## VMware ESX Virtual Infrastructure

The VMware VI deployed provides Radford with:

**VMotion** Live, running migration of VMs from one host to another without downtime, making scheduled maintenance windows simple to arrange.

**DRS** Automated, dynamic load balancing of VMs across cluster hosts.

**HA** Host and guest heartbeat/isolation detection, with automated failover of VMs between faulted cluster hosts.

<b>VI</b>	Virtual Infrastructure
<b>VM</b>	Virtual Machine
<b>SAN</b>	Storage Area Network
<b>SCSI</b>	Small Computer Systems Interface
<b>iSCSI</b>	IP SCSI
<b>I/O</b>	Input/Output
<b>VC</b>	Virtual Centre
<b>AD</b>	Active Directory
<b>HA</b>	High Availability
<b>DRS</b>	Distributed Resource Scheduling
<b>LTO</b>	Linear Tape-Open

