

**SECURE & RESILIENT  
INFRASTRUCTURE**

Infrastructure Design  
Infrastructure Implementation

**CUSTOMER PROFILE**

UK Independent Medical (UKIM) was established in 2003 by a management team with significant experience in the insurance and legal fields, to provide cost efficient, fast and independent medical evidence to the Insurance and Legal industries in England and Wales.

Since 2003 UKIM has grown to become a leading medico-legal agency, maintaining an extensive database of medical experts in all specialties giving nationwide coverage for both medical reporting and rehabilitation.

## Virtually ready for growth

“Waterstons pulled out all the stops to meet our tight deadline... we’re extremely impressed with the Project Team, who provided a thoroughly professional service delivering our chosen solution to time and cost.”

Allan Totty, Operational Software Architect  
UK Independent Medical

**CHALLENGE**

UK Independent Medical (UKIM) has undergone a sustained period of business growth and expansion.

The commensurate increases in IT workload and storage requirements were placing significant strain on the existing server infrastructure, with storage close to capacity and servers struggling to provide adequate performance.

With a number of key business systems relying on IT, business continuity requirements were also increasing in priority.

UKIM required a solution that would provide the raw performance and capacity for further growth, and address the need for improved resilience and system recoverability.

**SOLUTION**

With a clear understanding of UKIM’s requirements, Waterstons explored several different options to find the right solution. These included solutions based on physical and virtualised hardware.

After careful consideration UKIM decided that a virtualised approach offered them the best balance of requirements fit and cost effectiveness:

- The solution comprised two standalone virtual server hosts, with live replication of virtual machines between them (see diagram overleaf).
- Waterstons installed new supporting infrastructure including redundant battery-backed power supplies and network switches, and a management server with local storage to act as a disk to disk to tape backup target.

- New virtual domain controllers were created with roles migrated from existing physical servers.
- Existing user data was migrated from local Outlook files to a new virtual Exchange 2007 server, and roaming user profiles were introduced to support hot-desking.
- Finally, additional virtual machines were cloned from ‘gold-build’ templates to allow UKIM IT staff to migrate remaining physical business applications to the new virtual infrastructure.

**BENEFITS**

UKIM now has a resilient IT infrastructure with the capacity to accommodate the demands of their business:

- This capacity has already been leveraged to implement projects such as an Active Directory migration, introduction of user hot-desking, and deployment of Microsoft Exchange 2007.
- UKIM now enjoy the security of a greatly enhanced IT business continuity position, with the ability to quickly power on recent server replicas should the primary virtual server host suffer catastrophic failure.
- The solution allows for future expansion into a cluster of virtual hosts and beyond as business growth and expansion continues.



# More Information

## REPLICATION FOR VIRTUAL INFRASTRUCTURE

This project deployed two VMware ESX Foundation hosts each with two tiers of direct-attached storage (a high performance 15k SAS array for I/O intensive VMs, and a large 7.2k near-line SAS array).

One host was configured as a 'primary' source host, the other to act as a DR target for VMs replicated using VizionCore vReplicator™.

vReplicator performs a scheduled difference comparison between a live, running source VM and replica target. An initial pass is carried out once (seeding) which copies the entire VM from the source host data-store to a specified target host.

Subsequent passes only copy block-level changes, and therefore usually require much less data to be transferred. For example a complete replica can be taken approximately once every 15 minutes for a typical 12GB VM. Multiple VMs can be replicated in parallel, which limits frequency and quantities dependent on storage performance and the bandwidth available between source and target hosts.

Larger VMs (where the comparison scan might take an hour or more) can use hybrid replication which maintains a permanently open VM snapshot. Each scheduled replication pass transfers the ready-accumulated differences held in the snapshot and incorporates them into the target VM.

The major benefit vReplicator has over traditional scheduled backups is that the DR target contains an application consistent, ready-to-power-on VM (no restores or other recovery steps required), enabling a Recovery Time as low as a few seconds in the event of disaster.

## BLUE PRINTS FOR VIRTUAL INFRASTRUCTURE

Waterstons has architected and implemented many virtualisation solutions ranging in complexity from a single host server to entire enterprise infrastructures. Determining the answers to some key questions is the starting point:

If existing IT infrastructure will be relocated into a virtual infrastructure, what are its capacity requirements? In particular, what resources will

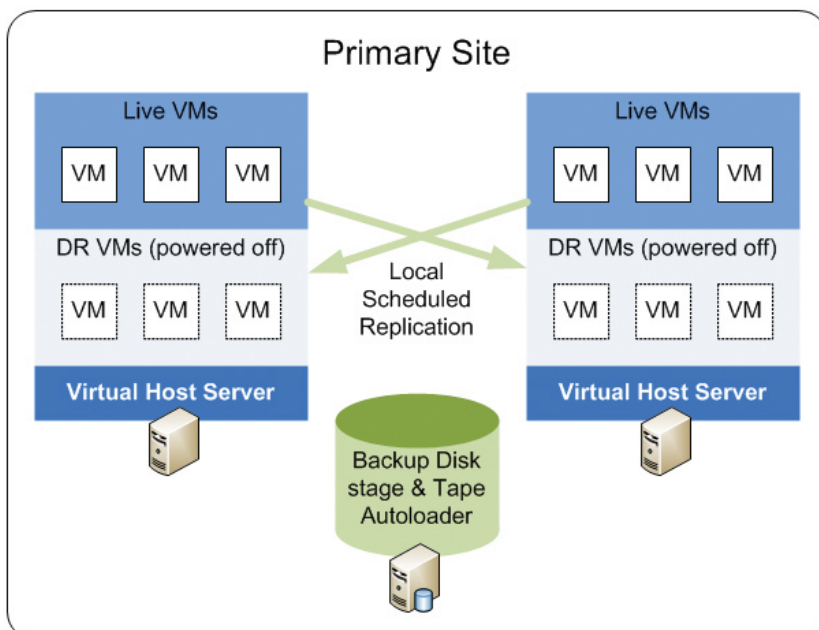
the machines demand; what is their current processor, memory, and disk and network usage? Are all the machines even suitable for virtualisation?

To address these questions, many organisations begin their journey into virtualisation with a capacity analysis and planning exercise.

This includes automated data capture over a period of at least a month to capture these key statistics from existing infrastructure.

Disaster recovery or business continuity considerations will determine the sophistication of the solution:

- Level of uptime needed (Uptime Objective)
- How quickly must systems be recovered if a failure occurs (Recovery Time Objective)
- What level of data-loss could be tolerated if systems have to be recovered (Data-loss Objective)



**VM** Virtual Machine

**I/O** Input / Output

**SAS** Serial attached SCSI

**DR** Disaster Recovery

*"We'll have no hesitation in using Waterstons when we're ready to migrate to ESX Enterprise."*

Allan Totty, Operational Software Architect  
UK Independent Medical