



Liverpool Women's NHS Foundation Trust

Giving Birth to a New Era in Information Management

Profile: Since delivering its first baby 210 years ago, Liverpool Women's Hospital has evolved into England's largest specialist women's healthcare provider. In 2004/5 the Trust delivered 8,000 babies, operated on 11,000 women, performed 900 IVF procedures for infertile couples and carried out over 1,000 procedures in breast surgery.

Challenge: As a result of ongoing growth, an unstructured array of PC servers proliferated at the Trust. This left a huge amount of information spread across a variety of different sources - many of which were not connected to the hospital's outdated storage area network (SAN).

This disparate IT environment was making it difficult for the Trust to ensure high levels of information availability, while storage and backup capabilities were extremely ineffective. The Trust faced some serious failures in this environment which has resulted in essential data loss.

The Way Forward: The problem faced by Liverpool Women's NHS Foundation Trust was three-fold. It needed to consolidate its IT for better information management and cost control, store information more efficiently and backup business critical information more effectively. To do so the Trust enlisted Dell to help identify an alternative approach to its enterprise strategy. Through this engagement Dell proposed a solution to virtualise the applications servers and centralize storage. By deploying a mirrored SAN, in conjunction with VMWare ESX and Virtual Centre, the Trust has achieved an information management system that will cater for its needs well into the 21st century.

Easy Case for Consolidation

As a result of the server and storage consolidation project Liverpool Women's NHS Foundation Trust expects to see:

- Operational cost of IT reduced by up to 70 percent.
- Hardware and software costs reduced by up to 60 percent.
- Total cost of ownership of IT reduced by up to 64 percent.
- Continued performance improvement through use of industry-standard IT systems.

Solution Snapshot

4 x new Dell PowerEdge 2850 Servers configured as VMWare Virtual Infrastructure Nodes, Dell PowerEdge 1850 with VMware Virtual Centre, 2 x EMC CLARiiON CX500. Storage arrays with mirroring and snapshot technology, a Dell PowerVault 132T LTO tape library for data back-up. Server to SAN connectivity is provided through McData 4G Fibre Channel switches in a fully redundant configuration.



The Problem With Too Many Servers

With humble beginnings as a women's charity in 1796, Liverpool Women's NHS Foundation Trust has grown into one of the country's most advanced providers of health services for women and babies.

As it expanded and operational requirements became more complex, the Trust found itself managing a variety of different hardware platforms, operating systems and business applications. This made it difficult to ensure a high level of information availability and its disparate IT environment saw money wasted in the attempt to manage a virtually uncontrollable pool of computing resources.

"In the past it was easy for someone to deploy new servers to solve business problems as and when they arose. A scattered server network at the Trust meant it wasn't uncommon to find servers under people's desks and in closets. Generally, data on these servers was not backed up on a regular basis, if at all," said Dr Zafar Chaudry, Director of Information Management and Technology for Liverpool Women's NHS Foundation Trust.

The Trust saw a potentially huge problem – it was at risk of losing control of its data. With information scattered amongst so many servers it was impossible to reconcile data or even assure consistency. Getting control of the 'server sprawl' became a key focus of the Trust.



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IT Management at Liverpool Women's NHS Foundation Trust decided to initiate a complete infrastructure upgrade. The team called on Dell and EMC to begin the move toward an information lifecycle management strategy.

Dell and EMC Consolidate Information Management

The range of information that the Trust needs to protect is expanding rapidly – from e-mail to patient records to picture files including ultrasound scans. To ensure all critical data is safe, it engaged long-standing and trusted strategic technology partner Dell to provide it with an advanced virtualised server and storage solution.

The first step was to review the existing server environment. Originally, only two of the Trust's servers fed into managed storage facilities. Step two saw information on peripheral servers (those disparate PCs being used as servers) consolidated onto four Dell PowerEdge 2850 servers running VMWare ESX Server software.

The Trust's aging incumbent storage unit was removed and replaced by an EMC CLARiiON CX500 SAN connected to a total of nine servers. To meet disaster recovery and compliance needs a second mirrored EMC CLARiiON CX500 SAN was installed at a separate location within the Trust's facilities.

VMware ESX software was employed to allow the Trust to centrally manage the new network and intelligently provision, reallocate and protect storage assets across the entire system. VMware pools hardware and allows multiple operating systems and applications to access available resources across the IT infrastructure.

This advanced level of control across the organisation has provided the Trust with improved:

- Service availability, ensuring applications meet set availability requirements through data replication and data protection solutions
- Information access control, ensuring that access to information is controlled at both user and application levels
- Data retention, ensuring the accurate retention of specific information for set time periods.

The Case for Two SANs: Disaster Recovery Equipped

Liverpool Women's NHS Foundation Trust's second SAN serves as the hospital's disaster recovery solution with asynchronous replication of all data between SAN one and two. The new environment provides the hospital with a storage capacity of 5.4TB – 20 times more than was available on the old infrastructure. If the hospital's primary data centre was lost the hospital's IT department could be up and running again, with minimal impact, in a matter of hours.



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All data is also backed up on tape and snapshots to disk are taken periodically throughout the production day so that individual files can be recovered very quickly, without having to recover data from tape.

Dr Chaudry said, “Managing data growth, dealing with security, staffing and training, managing migrations and upgrades and understanding new regulations are all critical to the successful running of our organisation. We needed to simplify operations through integrated and automated systems management, and consolidated virtualised servers and storage. With Dell and EMC we will achieve an infrastructure that not only improves our IT operations now, but will also form the critical foundation for the Trust to be prepared for IT challenges of the future.”



EMC Corporation
EMC Tower
Great West Road
Brentford
Middlesex
TW8 9AN
UK
Tel: 0870 608 7777

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