

University Hospital Coventry & Warwickshire NHS Trust

Consolidating data and preparing for a paperless future at an acute hospital trust

The volume of data hospitals have to store is growing exponentially. When the SAN at University Hospitals Coventry & Warwickshire NHS Trust reached the end of life, the Trust chose Fordway to design and install a new scalable solution which would consolidate storage from across the Trust, provide a platform for a new PACS implementation and support future growth. The new storage solution delivers better availability and resilience and provides a flexible platform for future developments, including the electronic storage and retrieval of all patient notes by 2016.



University Hospitals
Coventry and Warwickshire
NHS Trust

At a Glance

Company: University Hospital Coventry & Warwickshire NHS Trust

Product: NetApp Storage Array

Successes:

- SAN as a Service delivered on time and below budget
- Fully scalable solution to consolidate storage from across the entire Trust
- SANaaS delivers zero downtime and better resilience while providing a flexible platform for future developments
- SANaaS linked to the Trust's vendor-neutral archiving system allowing easier data management
- Future-proofed picture archiving and communications systems (PACS) platform delivered
- Long-term fixed price guarantee to help with financial planning and a clear plan to support growth
- 24x7 Service Desk support and monitoring

University Hospitals Coventry and Warwickshire NHS Trust (UHCW) is one of the UK's largest acute teaching hospitals, serving a population of over a million people. It is responsible for two major hospitals - University Hospital in Coventry and the Hospital of St Cross in Rugby - and is a specialist centre for cardiology, brain, stroke, joint replacements, diabetes, cancer care and kidney transplants, with MRI, PET and CT scanners. The Trust employs around 6,400 staff and has 1,100 in-patient beds.

UHCW is also the principal teaching hospital for Warwick Medical School and works in close partnership with the School to develop innovative medical education programmes and clinical research. In 2012-13 the Trust and its staff were nominated for several awards for its clinical care, research and training.

The business need: islands of storage, with equipment and contracts nearing end of life

A combination of factors prompted the Trust to carry out a strategic review of its entire storage strategy in 2012. First, its existing EMC SAN, which handled the Trust's main storage and critical systems, was nearing end of life. Second, the national PACS (picture archiving and communications systems) contract outside London was due to end in June 2013, so Trusts across England had to decide whether to continue with their existing supplier or take a new approach to handle a huge volume of images.

The third factor was the government's long-term plan for a 'paperless' NHS by 2018, which will enable Trusts to store and retrieve patient notes on demand. UHCW is already one of three exemplar sites for paperless working in the UK and plans to implement a fully paperless system by 2016. To do this it will need to scan all patient notes and store them electronically, further increasing its volume of data.

The EMC SAN would reach the end of its maintenance life in 2014. Associate Director of IT Charles Yeomanson and his colleagues decided that there was no benefit in buying additional capacity to get the most from their existing storage assets.

"We didn't want to tie our new PACS solution to the current SAN, which would then have to be replaced in a year's time, especially with the high volume of data we'd have to transfer," Charles explained. "We were working with two other major acute trusts on a joint PACS procurement and would need to share images across the network.

"We also decided to use the opportunity to consolidate storage across the Trust in a single solution. Historically 'islands' of storage had developed in departments such as pathology, obstetrics and cardiology, as well as for the area-wide breast screening service we provide. Pathology was already planning to replace its system, and other departments would follow. A converged storage solution is much more cost-effective, easier to manage, and would make the data more widely available across the Trust."



The team agreed that the new SAN should have the ability to support all the existing disparate storage systems. As these were replaced, their data would be transferred to the SAN. The new solution also had to be highly resilient, ensuring service continuity in the event of a problem at one of the Trust's two data centres.

The solution: consolidating storage across the Trust in a scalable solution

Charles began by meeting several enterprise storage vendors to assess the products available before drawing up and publishing an open tender for a new SAN, data storage, back-up, disaster recovery and management infrastructure that would meet the Trust's requirements for at least five years. He had met Fordway's managing director Richard Blanford earlier in 2012 and, knowing the company's experience in the healthcare sector, suggested that they should respond.

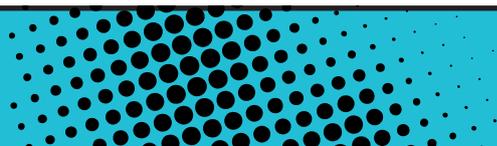
The Trust's preferred storage solution was a NetApp storage array due to the SAN's MetroCluster solution, which combines array-based clustering with synchronous mirroring to provide what is effectively virtual storage across two or more sites.

Fordway is an established NetApp partner and offered UHCW a scalable solution which included a long-term pricing guarantee and an eight-year vendor partnership. Based on this and Fordway's extensive experience in healthcare and across the public sector, UCWH awarded them the contract.

Fordway was appointed in February 2013 and immediately began work to fine-tune the system design and develop a detailed implementation plan.

The MetroCluster solution comprises two controllers that are partnered but geographically split, each with its stack of disk shelves and providing back-up for the other. UHCW has two data centres a quarter of a mile apart and so one controller is located in each data centre. Two fibre channel switches per controller are dedicated to inter-cluster communications, and data written to one controller is synchronously mirrored to its partner to provide maximum resilience and zero RPO in the event of a data centre, controller or disk shelf failure. If the controller fails in one location, the partner controller will detect the failure and automatically assume the responsibility of the failed controller.

Each site provides 150TB of storage and Fordway has designed the solution to be scalable up to the Trust's forecast expansion of 350TB and beyond this should there be additional data growth in the future. The initial 150TB solution is deployed in two standard 19" racks and these have sufficient capacity to support expansion up to and beyond 350TB. The SAN provides data compression at all storage tiers and snapshotting and deduplication ensure optimum use of storage capacity



The new SAN was live by July and work has now begun to migrate data to the new solution, beginning with the new PACS system. Fordway also provided both skills transfer and formal training to UCHW staff.

“The implementation went extremely smoothly, considering,” commented Charles Yeomanson. “Fordway had a very short initial period to order and obtain equipment so we could begin work on the PACS project, and they pulled out all the stops to manage the process and ensure that all the components were delivered on time.

“There were occasional issues during the implementation, as you’d expect with any complex IT programme, but they were always resolved quickly and amicably. Fordway delivered the project on schedule and within budget so we could immediately begin migrating systems and transferring data to our new SAN.”



The benefits: easier management, better availability and resilience and significant savings

The new storage solution has enabled the Trust to consolidate storage from several different applications into a single solution, which is easier to manage, has reduced power and cooling requirements and provides a flexible platform for the future.

It provides significantly better availability and resilience, with fixed costs to help with financial planning and a clear plan to support future growth. For example, if UCHW decides to implement virtualised desktops in the future, the new SAN will be able to support this. The SAN is also linked to the Trust’s new vendor-neutral archiving system, which will help to meet its aim of decoupling applications from storage to make it easier to manage data throughout its lifecycle.

“By taking a holistic view of our storage requirements, we’ve been able to create a futureproof solution which supports both current projects such as the PACS migration and plans for electronic patient records and a paperless future,” concludes Charles Yeomanson. “It will enable us to make significant savings in operational costs as well as improve efficiency.

“Fordway’s experience in the healthcare sector enabled them to understand what we wanted to achieve and to work in partnership with us and NetApp to deliver the solution within a very short timescale.”

Charles Yeomanson, Associate Director of IT, University Hospital Coventry & Warwickshire NHS Trust

Next steps

The Trust is planning to begin implementing its electronic document management system for patient records and existing film records in 2014. It is also reviewing its back-up and archiving due to the continually expanding volume of data

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