Oxford Fertility Unit keeps patient data secure and strengthens compliance

Ensuring 100 percent data integrity with a storage service from Arkivum, based on IBM tape technology

Overview

The need
With nationwide and international expansion plans expected to deliver a tenfold increase in patient numbers, the Oxford Fertility Unit needed to find a cost-effective way to meet regulations mandating the retention of medical records for at least 30 years.

The solution
The Oxford Fertility Unit uses an innovative digital archiving service from Arkivum – based on IBM® System Storage® TS3310 and TS3500 tape libraries – to guarantee 100 percent data integrity.

The benefit
Offers secure, long-term storage for large quantities of patient records that is 50 percent cheaper than comparative disk storage; ensures compliance with regulatory guidelines around data retention.

The Oxford Fertility Unit is one of the foremost centres for fertility treatment and reproductive medicine in the UK. The unit has close links with the University of Oxford and the Oxford University Hospital Trust, and provides care to both NHS and private patients.

Originally founded as a small, university-based service in 1985, treating around 500 patients a year, the Oxford Fertility Unit currently sees 1,500 patients annually – a number which is expected to rise to more than 15,000 as a result of nationwide expansion plans.

Meeting regulatory requirements

The unit operates in a highly regulated environment, and must adhere to strict policies established by the Human Fertility and Embryology Authority (HFEA), including a number of rules regarding the storage of patient data.

Daniel Watkins, Head of Operations and Infrastructure at the Oxford Fertility Unit, elaborates: "Following the HFEA's directive, we are required to retain patient records for a minimum of 30 years. We also need to ensure that this information is kept secure, and can be easily accessed many years down the line when, for example, we need to inform someone about who a child's biological parents are.

"If patient records were to be lost or compromised in any way it would have huge repercussions – not only could we be subject to regulatory action, we could run the risk of being unable to share very crucial information with our patients."

Safely storing huge volumes of patient data

Poised for a significant increase in patient numbers, the Oxford Fertility Unit knew that it needed to find a safe and secure way of storing the huge volumes of data that it would soon be collecting. Recognising that traditional paper records were not an effective medium for storing such a large volume of data over so long a period, the unit decided to make the transition to electronic records.

Solution components

Hardware

- IBM® System Storage® TS3310 and TS3500 tape libraries

IBM Business Partner

- Arkivum

"Digitizing our records was the logical step, but it required a very robust, long-term storage system," notes Daniel Watkins. "We simply did not wish to invest in securing the resources to build and maintain this kind of system ourselves, so we looked for a solution provider who could offer a highly secure and cost-effective archiving platform."

Selecting Arkivum's innovative service

The search led the Oxford Fertility Unit to Arkivum – a specialist provider of secure, long-term digital archiving. The company's ultra-dependable A-Stor archiving service is based on an innovative combination of technology and best practices, and is underwritten by a 100 percent guarantee against data loss, fully backed by professional indemnity insurance.

Jim Cook, CEO of Arkivum, states: "In our opinion, no-one else does what we do. None of the large service providers currently offer an adequate service-level agreement [SLA], which is what really counts. With our 100 percent guarantee on data integrity, clients can be certain that their data is safe and available whenever it is needed."

Convinced by these credentials, Oxford Fertility Unit made the move from paper to electronic records with A-Stor, which provides straightforward data management and storage. Reading and writing data to the system is simple – a gateway appliance sits on the Oxford Fertility Unit's network and presents the archive to users in the form of a simple file system to which files can be easily copied.

While Arkivum's archiving service appears to clients as a standard cloud-based storage drive, behind the scenes the storage process and infrastructure is very different. When data is encrypted and moved into the archive, Arkivum's technology calculates checksums that ensure that the right files have been copied, and that the version in the archive perfectly matches the source file.

For maximum security, Arkivum creates three copies of the data, which are stored at three separate locations. Two of the copies are stored at established co-located data centres, while a third is held in escrow at a third party location, ensuring that the data can always be recovered.

Solid IBM backbone

IBM System Storage TS3310 and TS3500 tape libraries form the core of Arkivum's storage infrastructure, providing the potential for a combination of LTO (Linear Tape Open) and IBM System Storage TS1100 enterprise tape technologies. Tape storage is an ideal medium for long-term storage, and offers Arkivum a much more reliable and cost-efficient alternative to powered hard disks.

"Arkivum offers a fantastic service that allows us to take large quantities of information that would have otherwise been exceptionally expensive to store, and keep it highly secure."

— Daniel Watkins, Head of Operations and Infrastructure, Oxford Fertility Unit

Jim Cook comments: "We use tapes instead of disks because they are substantially less prone to failure and also dramatically more cost-effective. Running a typical hard disk for a year consumes the equivalent of 3,400 'D' batteries in electricity; writing the same amount of data to a tape takes about six 'D' batteries – and once you've written the data, the tape can exist for years with zero energy cost until you want to read something from it.

"Factoring in the acquisition and operational costs, our tape infrastructure is about 50 percent of the cost of a disk landscape in year one – and as you increase the volume of data to the petabyte scale and the duration of storage to multiple years, it becomes several orders of magnitude more cost-effective. These savings mean that we can offer our archiving service to customers at a highly competitive price."

For Arkivum, selecting a tape storage solution from IBM was an easy decision, as Jim Cook explains: "We liked the fact that IBM supports both LTO and enterprise tape formats. The diversity in formats gives us another weapon in the battle against digital obsolescence. It doesn't matter which format ends up having greater longevity because IBM allows us to hedge our bets.

"The other reason for choosing IBM was probably even more important: support. The team at IBM's tape storage development laboratory in Tucson, Arizona is excellent; and overall we felt that IBM had deeper expertise in tape technologies than any of the other vendors we considered."

Total data security at a cost-effective price

With vital patient information stored securely in Arkivum's data archive, Oxford Fertility Unit can easily ensure compliance with regulatory guidelines and gain complete peace of mind that patient records are kept safe and readily available – now and many years down the line.

"Once we upload data to Arkivum's system, we don't have to worry about it again – we're completely confident that we will be able to get it back whenever it is needed," says Daniel Watkins. "This means that if someone comes to us in 20 years' time and wants to know who their biological parents are, for example, our clinicians will be able to get that information to them reliably and quickly."

Importantly, Arkivum's service comes at a low cost for Oxford Fertility Unit, as it eliminates the need for the unit to invest in an expensive in-house archiving system or recruit specialists with skills in digital preservation.

Daniel Watkins concludes: "Arkivum offers a fantastic service that allows us to take large quantities of information that would have otherwise been exceptionally expensive to store, and keep it highly secure. We can meet regulatory requirements and give patients correct, timely information at low expense and effort, which is a huge benefit as our business continues to grow."

About Arkivum

Established in 2011 as a spin-out from the University of Southampton IT Innovation Centre, Arkivum provides a cost-effective, highly secure and easy-to-use archiving service. It is the only digital archiving service underwritten by a 100 percent data integrity guarantee, fully backed by professional indemnity insurance.

To learn more about products, services and solutions from Arkivum, please visit: **www.arkivum.com**

For more information

To learn more about IBM System Storage solutions, contact your IBM sales representative or IBM Business Partner, or visit us at: **ibm.com**/storage

IBM United Kingdom Limited
PO Box 41
North Harbour
Portsmouth
Hampshire
PO6 3AU

Produced in the United Kingdom
October 2013

TSC03246-GBEN-00