Quantum

CASE STUDY

Tiered Storage Gives Broadcaster Easy Access to Full Content Archive

One of the greatest assets for any sports broadcaster is a good archive. BBC Sport has content dating back more than 75 years, and an ever-growing comprehensive collection of modern sporting action. To continue producing first-class sports broadcasts, BBC Sport needed to put all this content at the fingertips of its journalists and producers quickly and easily.

BBC Sport

FEATURED PRODUCTS

StorNext® 5

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Managing Director, Trams

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> **Declan Wood** - Managing Director, Media Manor

BBC Sport

SOLUTION OVERVIEW

- StorNext® 5 powered four-tiered storage architecture from high-performance, high-capacity and tape systems providing over 5PB of usable storage space

KEY BENEFITS

- High data transfer bandwidth of 6.4GB/s ensures easy transcoding functions and stops content flow bottlenecks
- Automated policy-based content migration to LTO-based archive
- Tape archive automatically creates additional copies for off-site vault storage
- EDLM drives ensure data is self-healing over time
- Architecture designed to easily expand to over ten petabytes of storage

While live action is always incredibly important for any sports fan, being able to put that action into context using historical and recent content is just as key for modern broadcasts. If someone hits a hole-in-one or scores a hat trick in a key game, audiences want to know when it happened. What are the previous highlights of this player's career? How does he or she compare with the past's greatest players?

BBC Sport calls its rich library of sports content its "production archive", because it needs to be available and routinely accessed by all its staff. Content needs to be pulled from the archive quickly, to be used in programs at a moment's notice. This is not a traditional archive, but a vital part of everyday production and critical to leveraging their history and brand.

BRINGING IT TOGETHER

When BBC Sport decided to move to a new digital-based archive in Salford in the north-west of England in 2014, a competitive tendering process followed, which was won by

Quantum partner Trams in collaboration with Media Manor, a specialist in broadcast and production workflows.

"We offered a winning combination of price and performance," says Warren Peel, Managing Director of Trams. "But more importantly, we showed that we really understood the requirements of a broadcast architecture, in particular the very special blend of production and archive that this project required.

"They had set some target performance metrics, and we comfortably met them," Peel adds. "Our proposed architecture dug deep into their workflow requirements so that we could meet their real needs as a true production library, not a simple archive."

ARCHITECTURE

During the design phase, it became clear that a four-tier solution was most appropriate. Given the complexity, the benefits of the latest StorNext 5 managed appliances were clear.

StorNext 5 provides content production, distribution, and archiving with the performance necessary for live production use. It is a complete end-to-end solution, designed for rapid, efficient access to content in digital libraries.

In this solution, the online or tier 1 storage provides high-performance active storage, with users accessing content primarily through the asset management system. A StorNext QD6000 disk storage—which offers high-performance storage for StorNext environments—manages 240 high-speed drives, each with 900GB of storage, delivering a total 173TB of usable capacity.

Because the archive covers a wide range of formats, transcoding is critical to the workflow in order to deliver content to productions. Transfer between transcoding engines adds to the overall needed bandwidth, so the tier 1 architecture was implemented with a bandwidth of 2.4GB/s.

As with all modern asset management systems, research and general access is via a browse resolution proxy. All of the proxy storage is maintained on the tier 1 storage for instant access to the whole of the archive.

The second-level tier 2 storage provides a staging area behind tier 1. As with tier 1, the StorNext QD6000 disk storage provides the management, yet with larger capacity and lower speed drives (7200rpm, as opposed to tier 1's 10,000rpm). The result is a buffer store of 336TB of usable capacity.

To ensure that there are no bottlenecks in content flows between tiers and between StorNext and users, the entire system has a data transfer capacity of 6.4GB/s.

Tier 3 archive storage is provided by Quantum's StorNext AEL6000 Archive, an intelligent LTO-based tape library. This system has dual robotics and 18 dual-pathed LTO-6 drives, plus two EDLM drives to continuously inspect tape media and content integrity to ensure the data is self-healing over time.

All essence is stored on two separate tapes for resilience. The capacity of the LTO-6 archive supports the quickly growing requirements because of today's production standards generating a large amount of content at every sporting event. The StorNext AEL6000 Archive is also ready to support the much larger and faster LTO-7 tape drives when the need arises, which will expand the effective capacity to over 10 petabytes including full redundancy.

Migration from LTO-6 to LTO-7 is a Quantum background task. It can take place without disrupting the primary functionality of the system.

Whenever content is written into the tape archive, a third copy is made on tape, which is ejected from the device. This forms the tier 4 storage, an off-site vault of all the data, which can be used to rebuild the library in case of disaster.

PERFORMANCE

Declan Wood, Managing Director of Media Manor, a Media and Broadcast workflow consultancy, also felt it was a satisfying project.

"The engineering project team very quickly grasped the capabilities and the potential of the Quantum solution, and could lead the project towards an extremely powerful solution.

"The result is a system with a lot of horsepower," he explains. "Content on disk is delivered really very quickly indeed, and internally we can build and unbuild the disks swiftly and securely because everything is secured and duplicated on tape."

The system went live in January 2015, and is in constant use.

"BBC Sport went from its mix of systems to a unified environment with a guaranteed performance and a single point of administration," Wood says.

"The system works well, and requires zero touch for support," he concludes. "From the reseller point of view, and I am sure from an end-user point of view, too, that is a very good thing. We demonstrated through our system design that the Quantum solution was the most appropriate technical solution, and so it has been proved in practice."

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