



CASE STUDY

DXi Aces Exams at University of Bristol

When the University of Bristol tried to expand its backup system to meet strict recovery SLAs, they hit a dead end. Their legacy deduplication appliances weren't fast enough, didn't scale, and cost too much. So the IT team created a real-world test to pick the right solution—and top grades went to Quantum's DXi® appliances.



FEATURED PRODUCTS



“The fact that the DXi can support all those interfaces at the same time is great. It gives us speed, flexibility, and helps us keep costs low.”

Graeme Cappi
Head of Systems and Operations,
University of Bristol



The DXi appliances offered us good initial pricing, the highest backup and restore performance we saw, and a great system of scalability. It lets us add both performance and capacity in increments by purchasing additional controllers and disk trays when we need them.

Graeme Cappi, Head of Systems and Operations, University of Bristol

SOLUTION OVERVIEW

- DXi4700 deduplication and replication appliances
- EMC NetWorker

KEY BENEFITS

- **Fast performance** gets data backed up during allotted windows and meets SLAs for critical data restore
- **Choice of NAS and VTL interface** provides maximum flexibility while maintaining full compatibility with EMC NetWorker
- **Remote replication** finishes within minutes of initial backup, providing automated off-site protection of critical data
- **Capacity-on-demand scalability** lets users add performance and capacity as needed, protecting budgets and supporting future growth
- **Quantum's service and support** discovers issues proactively and resolves them quickly, ensuring that data is protected and reducing admin overhead

The University of Bristol is one of the leading research and teaching institutions in the world with a history of academic excellence that extends back 140 years. The job of protecting the University's data falls to an IT team in charge of storage, servers, and infrastructure. The IT team backs up data from hundreds of physical and virtual servers, and they are tasked with meeting stringent service level agreements (SLAs) for file restore.

For years, the team has relied on a combination of disk and tape. In the old system, most of the data was written directly to tape by EMC NetWorker. But for what the team termed "critical" data—data with a short SLA for restore—they used a disk target. Until recently, the disk target had been deduplication appliances from Data Domain that relied on a NAS interface for backup and restore. The goal was to keep backup of critical data on disk for 30 days to meet fast restore targets and, periodically, the data on disk was written to a tape library for longer retention.

EXISTING SYSTEM PERFORMANCE CAN'T SUPPORT GROWTH

However, when the IT team needed to increase the size of the system to protect more critical data—increasing from around 10TB to more than 100TB—they hit a wall. The backup and restore performance of the existing appliances was not nearly fast enough to support the expanded dataset. When they talked to the vendor, they discovered that to cover their new needs they would have to make an initial purchase big enough to cover years of future growth because the system had limited scalability.

"Being forced to buy lots of disk capacity now to accommodate future growth is something that doesn't work for us because we are always trying to operate within somewhat unpredictable yearly budgets," explains Graeme Cappi, Head of Systems and Operations at the University of Bristol. "So being forced to buy a big unit at the start—and later having to do a forklift upgrade—was a nonstarter."

The team decided to look at other alternatives, engaging reseller Q Associates to help them direct their search toward trusted technologies and vendors. "We know that the key to making any complex installation work over the long haul is the commitment of vendors and their integrators to make honest recommendations, helping plan configurations and supporting the system once it's up and running," says Cappi.

TESTING AS IMPORTANT AS RESEARCH

The Bristol IT team, having been disappointed by the scalability and performance of their earlier appliances, wanted to make sure that the technology would actually meet the performance requirements in their environment. So they set up proof-of-concept tests for two new suppliers. One was Quantum and its DXi deduplication appliances, which features well-established deduplication and flexible scalability that allows users to add controllers and disk arrays separately. The second solution was proposed by a relatively new competitor to Quantum. It featured a system for scaling to large capacities by adding multiple appliances and linking them together.

"The proof of concept was designed to give us real data about how well the systems actually carried backup and restore in our NetWorker

environment, with a key parameter being restore performance," explains Cappi.

A CLEAR WINNER

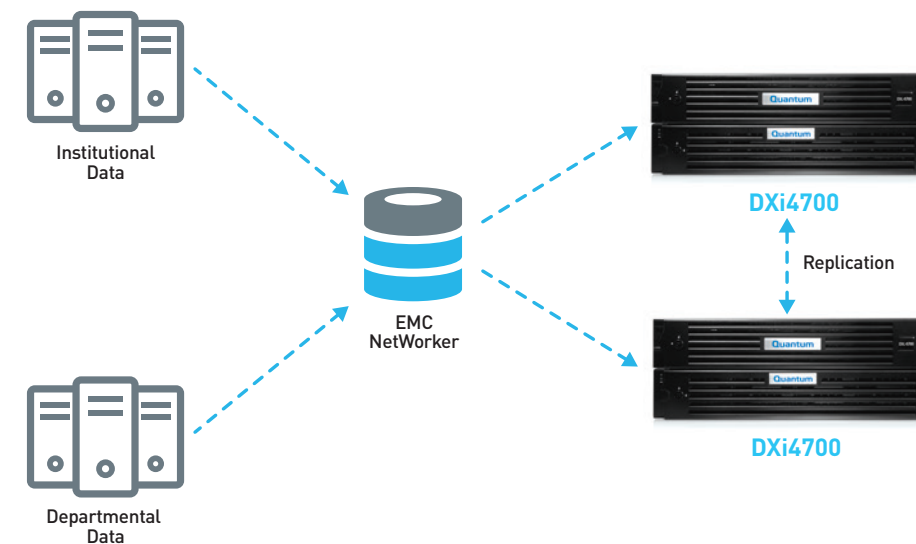
Initially, the team used the same kind of NAS interface they had been using in their old system. Both of the new units were faster than the 120 to 150MB/sec performance of the existing Data Domain systems, but neither was as fast as the team needed. "After tweaking the systems, the DXi gave us about 265MB/second in NAS mode—a competitor's unit topped out at about 180MB/sec," Cappi reports. "Then the Quantum team suggested that we write some of the larger jobs to the device using a virtual tape library interface. The speeds were dramatically faster—we quickly got to 300MB/sec—and NetWorker worked perfectly with the devices both in the VTL and NAS presentations."

So the decision was made. "The DXi appliances offered us good initial pricing, the highest backup and restore performance we saw, and a great system of scalability. It allows us to add both performance and capacity in increments by purchasing additional controllers and disk trays when we need them. We also have complete confidence in Quantum and Q Associates to provide enterprise-level support."

"A few weeks ago, we saw an issue with replication and raised a ticket on a Friday afternoon. When the IT administrator came in on Monday morning expecting to spend time on the phone with the service team, he learned that Quantum had already fixed the problem over the weekend—replication was up and working normally."

Graeme Cappi
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Figure 1. University of Bristol – Use Case Diagram





BUILDING A SYSTEM AROUND DXi

The new system handles nearly 150TB of critical primary data each week, using two pairs of replicating DXi appliances: one pair protects the University's institutional data while the second is dedicated to data housed in individual departments. For each dataset, the backup is first written to the primary DXi by NetWorker, and then replicated immediately to the second site on a different campus for DR protection. Depending on the performance needed, the IT team can send the backups to the DXi using either a VTL or an NFS or CIFS interface.

PERFORMANCE MEETING SLA REQUIREMENTS

The new system has met the University's need both for backup and restore. "The backups all complete within our window, and we replicate the backups every day," Cappi says. "The lag is only about 30 minutes from end of a backup to having a full replica at the second site, so we always have two copies of the files on disk within minutes. And restores from the DXi are very fast. They happen almost

immediately, and we have no trouble at all meeting our same-day recovery SLAs for all the critical data."

PROACTIVE SERVICE AND SUPPORT

The Bristol team have reported smooth operation over the year that the systems have been up and running, which includes growing the appliances by adding both controllers and disk arrays. The team also reports that any potential issues with the system are identified and resolved quickly.

"A few weeks ago, we reported an issue with replication and raised a ticket on a Friday afternoon," says Cappi. "When the IT administrator came in on Monday morning expecting to spend time on the phone with the service team, he learned that Quantum had already fixed the problem over the weekend—replication was up and working normally."

"That's the kind of service that really makes a difference to a team like ours. We are a small group that has a lot of responsibilities—so when Quantum solves issues quickly, it means we have more time to help the end users that rely on us."

UNIVERSITY OF BRISTOL

With a history dating back to 1876, the University of Bristol is one of the world's leading institutions of higher learning, providing graduate and undergraduate education for approximately 20,000 students as well as internationally significant research in a broad range of the arts and sciences. The faculty and research teams associated with the University include 42 Fellows of the Royal Society, 15 Fellows of the British Academy, and 12 Nobel Laureates. In 2015, the QS World University Rankings placed Bristol among the top 40 universities in its global ratings survey.

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