

Sheffield Hallam University Selects Dell Compellent Fluid Data Storage

As one of the largest universities in the United Kingdom, Sheffield Hallam University places student experience at the heart of its organisation and needs to provide reliable, efficient IT services that perform at the highest level possible.



Managing technology, enabling business

Results Reported by Sheffield Hallam University

- ▶ Easily deployed automated data tiering after poor results classifying and migrating data with existing systems
- ▶ Reduced consumed capacity from 23TB to 17TB with Thin Provisioning and Thin Import technology
- ▶ Increased storage capacity from 23TB to 50TB without increasing power consumption
- ▶ Doubled IOPS performance
- ▶ Improved user satisfaction

“Getting things done with Dell Compellent Fluid Data storage is an absolute breeze; it’s very, very simple to use.”

Dave Thornley, Head of Network Infrastructures, Sheffield Hallam University

Each year the intake of students further reinforces the culture of new media. From their first day on campus through to graduation, university students work less with traditional written information in favour of data-intensive multimedia. Students are likely to learn and deliver assignments in video, audio files and other types of electronic media. Learning isn't just about documents or books anymore; it's far more about rich media content.

Just as accommodating the growing data storage requirements of rich media is important to the student experience, so is managing the university's classroom scheduling and timetable. With more than 30,000 students, 4,000 staff members and well over 1,000 classrooms, coordinating the timing of classes, teachers and the facilities is an extreme challenge – and one that has an impact outside of the Sheffield Hallam campus.

Each year in the United Kingdom, a survey of all final year students in higher education is conducted to collect opinions about the attributes and amenities of the various universities throughout the country, as well as to capture the strong and weak points of each. The university timetable is an important factor in the final rankings. According to Dave Thornley, head of Sheffield Hallam University's networks infrastructure, “If you can't timetable properly, you can't teach properly. And if you can't teach properly, the student experience is going to suffer.”

Measuring the changing storage demands

Sheffield Hallam University strongly supports the use of rich media in its curriculum, and the university maintains a large stock of video cameras that it lends to students. The students capture video, upload it to the university's computers for analysis and editing, and submit the final results as partial fulfilment of their coursework requirements. In addition, the university maintains 3,000 open access PCs, each of which has its own data storage requirements.

Today, the biggest problem the university faces is the classification of data, because there is no central policy on classification requirements. After the students create their material, it gets left where it was uploaded and ties up huge amounts of storage. “We have very little standardisation of where to put things when they are finished,” says Thornley. “When a student saves a document, there will often be a copy of it on their home directory and likely a copy of it in the virtual learning environment. There also may be multiple copies of it in email, where it's been mailed around for comments or clarification, and it all just sits in storage.”



“After we swapped two existing SANs for two Dell Compellent Storage Center SANs, we more than doubled the capacity that we’ve got in the SAN and we increased the amount of available performance.”

Dave Thornley, Head of Network Infrastructures, Sheffield Hallam University

Operating Systems

- Microsoft Windows Server
- Novell NetWare
- Oracle Solaris

Applications

- Oracle Database 11g
- SQL Server
- FileStore
- VMware ESX

Planning for Fluid Data storage

With so much data flying around two campuses, a primary goal of the university is to automatically sort and classify data by its relevance and place it on the right storage tier. The university has deployed SANs since 2001, one in each of its two data centres. Each storage array held 23TB of capacity on Fibre Channel drives, which hold all of the university’s operational information. Synchronous mirroring kept the data in each array up to date.

In response to the growing usage and storage requirements of multimedia production, the university attempted to introduce tiering procedures without much success. As a result, Sheffield Hallam turned to IT managed services provider, Esteem Systems to begin a search to replace its aging storage and subsequently chose the Compellent Storage Center SAN. According to Thornley, the ease of Compellent automated tiering made all the difference. “We chose the Compellent solution because it could deliver the performance and capacity we needed and had a very easy migration path.”

More storage with less power

Today, each of Sheffield Hallam’s two data centres accommodates Storage Centers holding three solid state drives, 107 Fibre Channel drives and 22 SATA drives – for a total of 50TB of usable storage. Over the entire campus, the Compellent SAN provides the storage foundation for 50 physical servers and 300 virtual servers. With the Compellent systems, the university has more than doubled its SAN capacity and increased the amount of available storage. In addition, thanks to Thin Import technology, after data migration the university’s 23TB of allocated storage was reduced to less than 17TB of actual storage, creating 6TB of reclaimed space.

Activating automated tiering further increased efficiency. “One of my favourite features is Compellent Data Progression – being able to maximise the performance of the device by having the right data in the right tier,” says Thornley. “The security of knowing that the data is always on the right tier of storage helps me to sleep better at night.”

Another key advantage of Compellent Fluid Data storage is the ability to retrieve a snapshot from any point in time and use it immediately to easily recover lost data in seconds. “The amount of flexibility we get from a dynamic block architecture in terms of administration and management is phenomenal,” says Thornley. “The ability to move, clone and copy volumes on the fly and mount them directly to servers is a tremendous benefit. Our experience tells us that these systems are all about having better access to our critical data.”

In addition, Compellent remote replication software, called Remote Instant Replay, is simple to use and far easier to set up than the replication functionality available with the university’s older systems. In fact, the IT team was able to set up replications in about six clicks of the mouse. More important, Thin Replication enables the organisation to replicate all data between the two data centres without using full-volume clones, as only incremental changes in data need to be replicated following initial site synchronisation. This significantly reduces the bandwidth required and expedites recovery in the event of disaster.

Also, in support of the university’s efforts to reduce energy use and carbon footprint, the Compellent systems offer Sheffield Hallam twice the capacity and performance for the same amount of power consumed: from 23TB and 10,000 IOPS with their previous solution to 50TB and 20,000 IOPS. Because the Compellent systems use fewer drives, the university knows that as their data storage needs grow in the future, they’ll be minimising additional power, cooling and footprint requirements.

An advanced degree in support from Compellent

Support from Compellent has been excellent, says Thornley. “The fact that you phone up and speak straight to an engineer rather than going through a script or a call centre first is absolutely fantastic. Direct calls to us reporting possible problems have already alerted us to a fault on the machine that we hadn’t even seen yet.”