

Cardinal Newman College uses Tandberg Data's StorageLibrary T40 to achieve reliable and fast, automated backups.

Cardinal Newman College is officially one of the UK's leading further education establishments and has been classified as the highest performing college in Lancashire for the second year running. It is a sixth form college based out of its growing campus in the heart of Preston. The college offers further educational courses ranging from a choice of over 50 'A' Levels, vocational foundation courses and tailor made essential skills courses.



It has gained Academy and Centre of Excellence status for Sports and Modern & Foreign Languages and has over 2000 students and 200 staff across four main buildings. In recent years, the student population has seen an average annual growth rate of 5%.

In terms of IT infrastructure, the staff and students are supported by around 700 PCs. The college has specialist IT facilities for music, languages, graphic design and has a full digital editing suite for multi-media production. The Network Services Department that supports the college infrastructure consists of a team of five.

Within the IT Team, Rick Boyce is the Network Developer in charge of the day-to-day management of the back office, LAN and servers and has ongoing responsibility for improvement and development of the infrastructure.

The Situation

The popularity and expansion of the college has also reflected in the growth of data on the network. At the same time, staff and student expectations for constantly available services and applications continue to intensify. Increasingly irreplaceable coursework is submitted electronically, placing demands on the network and resulting in restrictions on the amount of data that can be stored by students. Overall, data growth is doubling year on year and this is fuelled in part by the masses of data produced in the multimedia and design facilities and courses, which have experienced rapid growth in student popularity in recent years.

Rick is responsible for backup and archiving the growing volumes of data on the network and retrieving it when required. Previously backups were conducted using a LTO-2 Autoloader. Frequency was supposed to be daily, but in practice backups frequently took over 24 hours or would fail mid-job, so the team had to settle for full backups

Solution Overview



- == StorageLibrary T40 with 2 x LTO-4 Fibre Channel drives
- == BakBone NetVault backup software
- == Fibre channel SAN with a HP MSA 1000
- == Nortel network infrastructure
- == 30 Servers running Microsoft Windows 2003 Server
- == 700 Workstations, including Windows XP Professional, Windows Vista and Mac OS





each weekend, supplemented by partial backups throughout the week to secure the critical data held by Exchange, student records and finance departments. The size of a full backup was around 2TB using Symantec's Backup Exec as the backup software. The network supported 30 servers; the majority of which run Microsoft Windows Server 2003. In terms of the storage topology, the college has a fibre channel SAN based on a HP MSA 1000.

The issues

The combination of the backup hardware and software seemed to cause irregularities within Cardinal Newman's environment. Tapes would frequently jam and the speed to write to tape was, at best, a very slow and convoluted process that would frequently exceed a 24 hour time frame – when this happened the IT team had no choice but to abort the backup. And when it came to retrieving data that had been successfully stored, due to the nature of the rotating carousel system within the autoloader, frequently all the tapes on the loop had to be searched to locate and restore the correct backup tape. This process was infuriatingly time and resource consuming and fell way short of the streamlined process that the college would like to have.

So back in Autumn 2007, Cardinal Newman began the process of developing an alternative backup solution that would overcome these problems and allow reliable, unattended backups to occur daily. Initially, being a HP house, the IT team reviewed a HP library, but taking advice from a Tandberg Data accredited partner, Willow Starcom, they also explored the functionality and the attractive price point offered with the Tandberg Data StorageLibrary T40 with two LTO-4 drives offering fibre channel connectivity. It proved a wise decision, endorsed by other StorageLibrary college reference sites. Not only had they unveiled a new and trusted storage advisor in Willow Starcom, but Cardinal Newman was also able to achieve an enhanced, scalable solution buying Tandberg Data equipment at an excellent price point.

The Solution

The decision to go with the Tandberg Data StorageLibrary didn't simply arise through potential cost savings. Its small 4U form factor was attractive in the college server room where space is at a premium (the IT Department will be relocating to a new data centre as part of the College's

estates renewal programme). The performance was attractive too—using the latest LTO-4 technology meant that the college has to change tapes for offsite archiving far less frequently as the capacity is much higher. As the StorageLibrary T40 contains two LTO-4 drives reading and writing data has proved far quicker. It also allows several operations to be conducted simultaneously, for instance a backup and restore from separate sets of tapes. These factors made for an easy decision and Cardinal Newman began the order and installation process.

The installation was simple and fast and was performed in a single day, in March 2008. Much of the StorageLibrary had been pre-configured and tested by Willow Starcom, so the installation of the library and the BakBone NetVault software went really smoothly, with the StorageLibrary talking to file servers on the fibre channel SAN within a few hours.

With the system fully functional, the time savings have quickly become apparent. Previously tape exchange was a long process, entailing around a ½ hour each day to switch tape sets to enable a daily backup given the limited capacity of LTO-2 tapes. With the StorageLibrary, tape exchange is really fast—in fact, Rick reckons a weeks worth of backup tapes can be exchanged within a couple of minutes using the T40's 8 slot Import / Export magazine.

Conclusion

When it comes to capacity and expansion, the team was pleased to note that the StorageLibrary offers one of the greatest capacities in its class to combat the college's data growth. Rick noted, "We wanted to put in place a solution that we would not outgrow and would last the college for at least the next 3 to 5 years. Our previous capacity requirement was close to 2TB, but since the storage restrictions have been eased, we are already close to 4TB on the network, but that really doesn't concern us.



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Management is also easier. Gone are the headaches associated with the previous system. Also gone are the days of speculating if a backup had actually taken place; or indeed if the backup windows had stretched so far into the working day that it would have to be aborted. Rick noted "The changes using the StorageLibrary for management are significant. Its error notification automatically flags if anything is amiss, and we have found the GUI really user-friendly. Our job is now really just one of monitoring."

Complete daily backups are now an established, reliable routine. With the StorageLibrary's performance, daily backups are reliably achieved each and every night, within a 6-hour timeframe (that's a quarter of the previous backup window). In terms of throughput, what used to be achieved in minutes is achieved near instantaneously in seconds with the StorageLibrary.

For archiving, as with the old system, all tapes are stored in a separate on-site location in a secure, fireproof archive; but tapes are now simply located via accurate bar coding supplied by NetVault backup software. So retrieval is reliable and seamless.

Has the system provided faultless recovery in real life conditions? "The combination of the Tandberg StorageLibrary and BakBone's NetVault software has proved for extremely reliable restore operations. Both restores of accidentally deleted documents and even entire drives has proved to be extremely quick and hassle free." Comments Rick. "A recent power failure caused by nearby building work left the data within the StorageLibrary completely intact and backup operations resumed seamlessly once power was restored."

Rick surmises, "In conclusion, what we have experienced with the Tandberg Data StorageLibrary is a powerful, but not overly complex, encompassing system that effectively manages the whole backup process for us."

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**Rick Boyce , Network Developer
Cardinal Newman College**

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About Tandberg Data

Tandberg Data is a leading global supplier of backup and archiving technologies. Tandberg Data offers a complete range of tape libraries, tape autoloaders and tape drives (based on the LTO™, SLR™, VXA® tape technology platforms), storage software, data media and disk-based storage such as the RDX™ QuikStor. These solutions are marketed exclusively through a channel of qualified resellers and distributors. These solutions are underpinned by OEM agreements with major server manufacturers including IBM, Hitachi, Fujitsu, Fujitsu-Siemens, Apple and Dell and supported by all major operating systems and storage software applications to operate in heterogeneous network environments. All solutions are designed to meet the growing storage requirements of small and medium-sized organisations with scalability, reliability and backward compatibility features that ensure cost effective operation and long-term investment protection.

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