



Reduce Complexity

Improve Flexibility

Service Catalogue

Enable Automation

## University of East Anglia virtualises its storage with Tectrade

### Challenge

Match storage capacity to organisational growth; support all operations with reliable, high-performance data storage; centralise storage resources and implement standardised management procedures

### Solution

Worked with Tectrade to implement a storage area network (SAN) based around IBM TotalStorage DS4500 (Fibre Channel) and DS4100 (SATA) disk arrays, with IBM TotalStorage SAN Volume Controller virtualisation technology, IBM LTO2 tape libraries and Tivoli Storage Manager.

### Benefits

Fast, non-disruptive scalability; enhanced storage reliability and performance; improved service to users; ability to perform administration on disks without downtime for users; centralised control and reduced administrative costs.

**The University of East Anglia selected Tectrade to design and implement its new storage area network, based on IBM TotalStorage disk, tape and software technologies. The Tectrade solution provides a robust, centralised storage environment offering excellent performance, non-disruptive scalability and significant reductions in administrative effort.**

The University of East Anglia (UEA, [www.uea.ac.uk](http://www.uea.ac.uk)) has around 9,900 undergraduate and 3,300 postgraduate students enrolled in a total of more than 300 courses. Located in 320 acres of parkland two miles outside Norwich city centre, UEA was named one of the UK's top three universities for student satisfaction in 2005.

Historically, UEA had two Alpha file servers with RAID disk arrays to serve staff and students. As the use of computing resources grew, performance began to deteriorate, and the requirement to store more content put pressure on the available capacity. As a consequence, individual departments within the University had begun to add their own file servers and storage solutions.

Iain Reeman, IT Systems Director at UEA, comments, "Our existing centralised storage environment could not handle the increasing requirements, leading to a proliferation of locally owned and managed storage devices, creating islands of storage dotted around the University. These local devices were providing, at best, moderate performance due to their location at the edge of the University's network infrastructure. Furthermore, they generally lacked resilience and an enterprise-level backup solution. Our aim was to implement a flexible and scalable storage area network, thus creating a robust, centralised platform for the whole University."

#### Infrastructure Objectives

##### Storage Consolidation

- Centralised Storage
- Mid-Range Disk
- Replication
- Storage Virtualisation

##### Data Protection

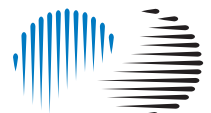
- Enterprise Backup & Recovery

#### Key Deliverables

- Simplified & flexible storage infrastructure
- Improved scalability with nondisruptive upgrades
- Centralised management of disk resources
- Centralised backup & recovery

**"The Tectrade SAN has given UEA a more robust and flexible storage infrastructure that also requires less management."**

*Iain Reeman, IT Systems Director at UEA*



**TECTRADE**

## The Tectrade advantage

The UEA Systems Team investigated the storage area network (SAN) concept, and decided that it offered an ideal fit with the University's requirements.

UEA initiated a public procurement exercise to find its implementation partner for the new SAN, and selected Tectrade as the best vendor. Iain Reeman comments, "It was clear that Tectrade had a genuine understanding of the technology, and excellent ideas on how UEA could use it to drive maximum value from our investment."

"We have an excellent and open working relationship with Tectrade, and we trust them to work with us in identifying the best solutions for our needs. Support is also a strong factor, and Tectrade clearly has good links to the right technical experts inside IBM."

## Better performance and control

The new solution, implemented by a joint Tectrade-UEA team, is built around an IBM TotalStorage DS4500 Fibre Channel disk array with six EXP700 enclosures, providing 8.5TB of high-performance disk capacity suitable for database serving and other I/O-intensive functions. For less demanding applications, UEA implemented three IBM TotalStorage DS4100 SATA disk arrays with 9 EXP100 enclosures, offering almost 30TB of cost-effective disk storage.

The majority of the disk space is managed by IBM TotalStorage SAN Volume Controller (SVC) software, which virtualises the capacity and presents it as more than 100 virtual disks to the central and departmental servers. Three ONStor NAS Gateways use much of the virtualised disk space for 13 virtualised servers, and IBM Tivoli Storage Manager backs up the entire SAN to LTO2 tapes in an IBM Ultrascapable Tape Library.

"The headline benefits of the Tectrade and IBM solution are better performance, increased capacity, easier management and greater scalability," says Iain Reeman. "We can now provide all the data storage resources that the University needs from a centralised point of control, and we can increase capacity flexibly and cost-effectively. From the compliance point of view, centralisation provides better assurance that we are managing and protecting data in line with regulations and guidelines."

## An end to growing pains

With SVC virtualisation technology, UEA now has a far more flexible and resilient storage infrastructure. The complexity of the underlying physical disk environment is hidden by the SVC, which makes it easy for administrators to move data from one storage pool to another, with no disruption to users.

Scalability has also significantly improved, as Matt Livermore, Storage and HPC Systems Specialist at UEA, explains: "If we need more storage capacity, we can plug in another DS4100, point it at the SVC, and have it up and running without any additional configuration and without taking down the SAN. This flexibility is a real benefit when you consider that we have already added 30TB of SATA disk to the SAN in the last 18 months."

## Simple value

The Tectrade solution has simplified the storage infrastructure at UEA, creating a flexible central resource that can be used to support the University's growing requirements. One option under consideration is the introduction of tiered storage for users' mail files, where old mail could be archived to tape and moved offline, enabling the University to offer virtually unlimited personal storage to users.

The single IBM tape library in the new infrastructure effectively replaces more than 100 separate backup solutions, dramatically simplifying the management of backups. Previously, each tape needed to be loaded and unloaded by an administrator; now, the tape library automatically performs a centralised backup, generating both on-site and off-site copies.

## Vendor Alliances on this project

Brocade  
IBM  
NetApp  
Tivoli

© 2008 Tectrade



### Head Office & Customer Centre

No.1&2 Godalming Business Centre  
Woolsack Way  
Godalming, Surrey  
GU7 1XW  
Tel. +44 (0)1483 861448  
Fax. +44 (0)1483 861449  
Email. info@tectrade.co.uk

[www.tectrade.co.uk](http://www.tectrade.co.uk)

### Northern Sales Office

Harrogate, Yorkshire  
Tel. + 44 (0)1423 340942  
Fax. + 44 (0)1423 340945  
Email. info@tectrade.co.uk

### Scottish Sales Office

Edinburgh, Scotland  
Tel: +44 (0)131 718 6077  
Fax: +44 (0)131 718 6100  
Email. info@tectrade.co.uk

### Netherlands Office

Tectrade BV  
Brenkmanweg 8  
4105 DH Culemborg  
Nederland  
Tel. +31 (0)345 547040  
Fax. +31 (0)345 520422  
Email. sales@tectrade.nl

[www.tectrade.nl](http://www.tectrade.nl)