



CASE STUDY

21st Century Storage turns knowledge into power at Brunel

Background

Established in 1966, Brunel is one of the world's leading universities with a mission to combine academic rigour with the practical, entrepreneurial and imaginative approach pioneered by its namesake Isambard Kingdom Brunel. Based in Uxbridge, West London, the University is famous for pioneering research in engineering and design – from life-saving areas such as genetics to prevent cancer, to work on the Large Hadron Collider space project by CERN in Switzerland. “Reflecting the University’s success and investment in IT, it achieved a 54.5% increase in research funding in 2009 compared to an average increase of 7.8% across England.”

The University has over 14,000 students from 114 different nationalities on its 200 acre campus in Uxbridge: it forms a community of about the same population as Marlow or Chertsey. The Campus is fully networked with over 10,000 devices used by students and staff to access and use information, making IT the lifeblood of the organisation. As you can imagine, this makes for a very intensive IT environment which is the responsibility of the University’s Computer Centre, whose policy development manager is Iain Liddell.



“New ‘green datacentre’ provides savings: 50% reduction in energy costs over a similar data centre using our existing technology, saving thousands of pounds each year that can be devoted to further research.”

21st Century Storage turns knowledge

Background



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Said Iain Liddell, policy development manager at Brunel University.

Business Challenge

- Brunel University needed a new strategy for IT, storage & business continuity in support of its mission to lead global research in its chosen fields and also, to prevent the existing system from grinding to a halt
- Outdated tape back up system was taking over 24 hours to capture daily backups, jeopardising integrity of information. This lapse from a leading, education establishment’s business continuity strategy exposed the organisation to unacceptable risk.
- In the context of expected search requests under the Freedom of Information Act and internally in an increasingly consumerist environment, greater strain upon the system was expected.

Solution

- Fast retrieval of information through new, integrated storage archiving platform
- Enhanced business continuity strategy with second data centre for rapid system recovery in the event of any disaster
- Prolinx worked with Brunel University to: assess, plan, design and implement these aspects of the new IT strategy – as well as provide on-going services

Benefits

- Rapid search & retrieval of information in less than 1% of time previously taken
- Flexible information storage repository (equivalent in size to about 10% of the British Library’s electronic information holding) aids research & exceeds legal compliance requirements
- New storage system gives responsibility for email storage management to individual users – from students and lecturers to researchers, administrators and technicians - without loading complexity upon them. This has improved the IT service and frees up time in the IT department to help users with more complex requests
- Development of the University’s business continuity strategy to support better information sharing



into power at Brunel University

The Business Challenge

- >> In 2000, Liddell was faced with the dilemma of creating IT systems which kept him awake at night. With increasingly larger volumes of emails and bandwidth-hungry file attachments, storage was multiplying by over 2 terabytes each year to support the 15% increase in the number of students. In addition, an antiquated tape 400 gigabyte backup system, installed in 2000, was taking too long — sometimes more than 24 hours — to retrieve basic information. “With the onset of the Freedom of Information Act, where anyone would have the right to request information from publicly-funded bodies such as Brunel, we had to take a new approach to IT storage.

Prolinx has been a key player in our team, helping to translate the strategy into action – from championing our corner with suppliers to get the best systems

In addition, it would only be a matter of time before the systems would break down and threaten the University’s reputation, with the knock on effect of deterring students from choosing Brunel,” said Liddell.

Compounding the situation was the fact that should there be a disaster -whether someone accidentally drilling through IT wiring or worse still, a natural disaster, the University did not have a sufficiently effective business continuity strategy and means of quickly recovering the IT systems.

The Solution

- >> The University had undertaken a successful email systems management project with Prolinx, a specialist IT systems integrator with an extensive track record in the education sector. Having proved its value, Prolinx went on to be selected as the University’s IT consultancy and implementation partner on the new project.

By 2006, Prolinx set about working with Brunel on delivering the new IT strategy. Andre Fouche, Prolinx’s Brunel University account manager, commented, “The University’s whole rationale centres around turning information into knowledge, whether it be for research through to interactive study materials and supporting administration such as student ID cards. We knew we had to get the IT strategy right in order to support this flow of information and knowledge.”

Liddell added, “Prolinx has been a key player in our team, helping to translate the strategy into action – from championing our corner with suppliers to get the best systems – through to military-style planning to ensure smooth implementation so that there is no disruption to the day to day working of the University.”

Liddell and Prolinx advocated a three-pronged IT strategy. It comprised: a centralised storage platform with an integrated archiving system to eliminate reliance on inflexible tape backup; server virtualisation to take control of spiralling IT infrastructure demands; and an effective approach to business continuity.

Centralising storage for better flow of information

Retrieving information needed from a variety of sources, including over 20,000 email accounts for students and staff, had become a nightmare with the existing tape back up system. “We were a hostage to the tape backup system where we couldn’t guarantee being able to access the information we needed in a timely manner. Most of the time it took 24 hours if we were lucky, which was an untenable position to be in,” said Liddell.

The first step was to centralise the storage system to provide rapid search and retrieval of information. Next, Prolinx implemented a new storage area network during a fortnight in the University holiday period, before overlaying an HP integrated archiving platform. This avoided disruption to the day to day IT service to the University’s users.

With the new system, Brunel has a centralised, flexible information storage repository where all incoming and outgoing email is captured automatically and archived after it is scanned by the University’s spam filters. Even though this storage repository is about a tenth of the size of the British Library’s electronic information holding, the power of the integrated archiving platform and the way it has been integrated with existing systems, has enabled the search time for information to be slashed from 24 hours to under 10 seconds.

Also, the quality of search has improved dramatically. Previously with the Microsoft Exchange archive (.PST), users had a restricted search facility on one key word. Furthermore, they had to repeat the same search parameters in different locations in the archive. This could take hours with little or no results. Now, the integrated archiving platform has opened up access to a wealth of new information via multiple search parameters – from searching on the sender or recipient to a specific timeframe or a logical combination of search terms. For example, an English professor can search through 10 years’ work for information on, say, Shakespeare’s or Marlowe’s works to support research on a literary theory. Alternatively,

Brunel University’s IAP storage platform has been recognised by HP giving its Software Award of Excellence for Information Management for the most outstanding implementation across Europe, the Middle East and Africa.





The Solution

a student welfare officer might assemble and compare messages from students to identify common concerns and suggest solutions that will benefit the general student experience.

Liddell commented, “This is pushing the frontier of how technology can aid research by allowing the Brunel community to access, search and assemble huge volumes of data, which may then be distilled into valuable knowledge.” He added, “Particularly at an educational establishment, knowledge is power – the new storage system allows not only rapid search of information, it is also far more flexible – allowing us to put in wider search parameters with which to tease out the information. This makes the difference between good and excellent research, helping Brunel to get ahead and stand out in a crowd of increasingly international and competitive, higher education players.”

A revolution in email storage management

Before the new storage system was in place, the IT department was inundated with dozens of requests from users to manage their email boxes usually by increasing their quota. However the new system allows self-service and gives the user control. For example, in the past, a lecturer’s e mail box might have run out space at a critical time, such as out of hours, preventing them from preparing lectures or receiving students’ work for assessment. Now though, the system allows them to manage their own e mail holdings to increase inbox capacity at these crucial times.

“This has freed up time for the IT department to move away from such routine tasks, allowing help for users on more complex ones where they can really add value,” said Liddell.

Rising to the challenge of the Freedom of Information Act

The new system has enabled the University to meet requests made under the Freedom of Information Act. The Act places a legal responsibility on the University to govern student and staff information such as email. If Brunel still had to rely on the old tape back up system it would not have been able to comply with requests for information within forty days, which would have incurred financial penalties of up to £10,000 from the Government’s Information Commission. Such a failure could have damaged the University’s reputation and ability to attract students and funding.

It is vital to prevent loss of time in dealing with requests during that critical 40 day period in order to satisfy them. Consequently, Prolinx worked on the implementation of the University’s IT policy to meet the requests with a ‘twin heart system’. This involved creating access to the University’s entire email system through third parties: two information access officers (or twins), each possessing one half of a password so as to provide enhanced security and a higher level of email privacy. “It has allowed Brunel to lead the way with the highest levels of compliance and email privacy, to meet and exceed the requirements of the Freedom of Information Act.”

Business continuity gives reassurance

The final area of support from Prolinx relates to disaster recovery and business continuity. Previously, the University had no effective means of quickly restoring IT systems in the event of a disaster. The only option available would be to go through the laborious task of extracting information from an array of physical back up tapes. During the last two years, Prolinx has supported the University’s implementation of a second data centre to enable rapid recovery of IT systems in the event of a disaster.

Liddell commented, “We are extending the application of our data centres for business continuity. For example, to help new lecturers, we can access business email from a previous lecturer while withholding their personal email. This enables us to provide them with useful information and drastically reduce their learning curve.”

In addition, the two data centres support the University’s green policies. They are equipped with the HP DL580, 360 and 380 Proliant servers servers to reduce energy consumption by over 10% per annum. This will bring energy savings amounting to thousands of pounds each year, money that can be ploughed back into research excellence as well as the IT infrastructure.

The Future

Unusually, over 75% of the University’s students live at home across a 20 mile radius. Therefore, they are demanding electronic access to information away from the campus. In the future, the integrated storage archiving platform and IT systems will be a key foundation to support the University’s vision for students to be able to work and search for information anywhere.

Finally, the University is exploring new ways of using IT with Prolinx. One example is investigating the validity and benefits of cloud computing as a means of providing efficient IT services to students and lecturers while reducing cost.

Solution Overview

Consultancy, design, build and systems integration to provide a storage and virtualisation strategy for the University to better manage information to keep Brunel at the forefront of research.

Major components:

HP Integrated Archiving Platform (IAP)

HP EVA 8100 Storage Area Networks (SANs)

HP C-series 9509 Director Switches

HP Command View EVA Management Software

HP Continuous Access EVA Replication Software

1x Overland Neo 4100 Series Tape Library

HP MSL 6060 Tape Library

HP DL360, DL380, DL580 Proliant Servers

VMware V13.5 Virtual Infrastructure Platform ESX3