



The University of Manchester



Some of the key technological developments of the century have taken place at The University of Manchester. Rutherford conducted the research which led to the splitting of the atom in Manchester, and it is nearly 50 years since the first modern computer was built at the University. Today, that innovative spirit continues. The University is replacing more than 60 fragmented servers and a low-resilience direct attached storage (DAS) system with a showcase EMC Automated Networked environment. Comprising a state-of-the-art EMC Symmetrix DMX800, EMC Celerra file server, and EMC Connectrix, this blueprint for mission-critical computing will provide the University with unparalleled information availability, performance, and low total cost of ownership.

The University of Manchester grew from its humble beginnings as Owens College in 1851 to become the first of the UK's great civic universities. As a full-range university, it now has courses covering almost every subject, and has more than 18,000 full-time students, including 2,500 international students, from over 120 countries. The University's size gives students a wide and flexible choice in courses and in lifestyle, with outstanding facilities for learning and leisure. The University has more than 70 departments involved in teaching and research, with more than 2,000 academic staff. It also possesses more undergraduate degrees than almost any other university in the UK.

Today, 33,000 undergraduate and postgraduate students and staff rely on the University's computing infrastructure for almost every aspect of their education and University management. In 2004, when the University merges with UMIST (the University of Manchester Institute of Science and Technology) this will rise to more than 43,000 users. Students need continuous, fast access to their curricula files for effective learning, they need to communicate almost continuously via email with their tutors, and distance learning students need round-the-clock access to the University website. Email is also a mission-critical application for the successful running of the University: it assists with grant applications, conference organisation, and international collaboration on research, among many tasks. Until now though, the technology infrastructure has not kept pace with the mission critical nature of the applications, and it was struggling to efficiently manage information growth of approximately 100 percent each year.

"The University's IT infrastructure was creaking, and we knew that if a server went down, we'd be dead in the water," says Tony Arnold, Deputy Head, Communications, Operations, and Systems. "It was based around 60 Intel servers, running a Novell NetWare operating system. The direct attached storage model lacked resilience. A single server may contain several hundred users with their email and P: drive space. If the server failed—either because of a hardware failure or for maintenance—then all of those users were immediately offline. We had experienced some hardware failures, and these had caused major disruption to the service. The other drawback was that the system was only available on-campus. Demand was increasing for email access, based on more staff and students travelling, Broadband, and an increase in distance learning. Our goal was to achieve 'five nines' availability, and thereby transform user satisfaction and efficiency."

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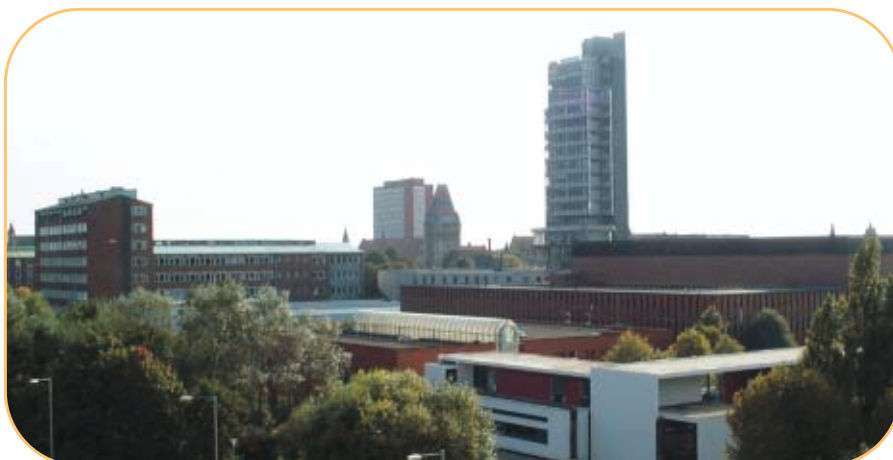
Consolidated, Fast, Resilient Storage Area Network

As part of Project INFRA, the University decided to replace its distributed servers and services provided by Novell. INFRA would centralise P: drive storage, application provision, and email into a consolidated, fast, reliable, and resilient storage area network. As a public institution, the University needed to commit to an EU procurement process, publicising the brief as widely as possible. EMC was listed in three out of the four bids shortlisted for the comprehensive storage, servers, backup, and email solution. Not surprisingly, EMC won the bid, as part of a proposal led by Fujitsu Siemens Computers.

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The EMC Symmetrix DMX800 eclipses the performance of its competitors by a considerable margin—offering up to four times the bandwidth, five times the processing power, and ten times the cache throughput. It possesses unbeatable redundancy, class-leading functionality, excellent modular scalability, and fast, straightforward commissioning.

At the heart of the University’s fast, flexible storage area network (SAN) lies the EMC Symmetrix DMX800 Series array, with 8 terabytes of disk storage. It provides 4 terabytes of storage for the critical P: drive space, 3 terabytes of storage for the Oracle Collaboration Suite email and calendaring system, and 1 terabyte for data protection. Up to 6 Fujitsu Siemens Computers Solaris/Sparc-based PRIMEMOVER servers and Intel-based PRIMERGY servers are connected to this. An EMC Connectrix switch has been introduced to provide seamless, automated, end-to-end interoperability across the University’s entire SAN. Backup is provided by Legato NetWorker and a StorageTek 5500 tape library, with 2,500 tapes capacity. This SAN is complemented by a network attached storage (NAS) system powered by an EMC Celerra system, which delivers resilient, high performance file serving capabilities for the P: drives.





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Anytime, Anywhere Computing

This complementary SAN and NAS—which blend to form a powerful EMC Automated Networked Storage infrastructure—ensures the University’s students and staff will benefit from anytime, anywhere computing. They will have 24x7 access to email and calendaring from anywhere in the world, either with Microsoft Outlook or via the WebPortal. It adds email folders which can be shared with other people, vacation messages, and filters which run on the server. The key benefits of the enhanced calendaring system are the ability to schedule meetings between groups, manage resources such as rooms and projects, share address books, tasks, and global events—such as art and medicine events. In due course, the University’s SAN—powered by EMC DMX800—will store all critical information—ranging from student records, to HR and financial systems. It is anticipated that other University research groups, who would otherwise have adopted their own storage platform, will also migrate their information across to the DMX800 system.

“By implementing the EMC Automated Networked Storage infrastructure, we are able to maximise the reliability of our services, achieve near-continuous availability, and position the University of Manchester as a globally competitive institution offering world-class services,” concludes Arnold. “The EMC DMX800 storage array is a key component of the overall solution that enables us to achieve such high degrees of availability, scalability, ease of deployment and cost-effectiveness.”

Take the Next Step.

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