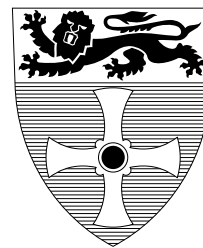




HIGH-AVAILABILITY

UNIVERSITY OF
NEWCASTLE UPON TYNE



Success Story



The world never stops...

The University

One of the UK's longest established universities with its 19th century origins grounded in medicine and the physical sciences, Newcastle is now a leading multi-disciplinary institution with over sixteen thousand students, four thousand staff and an annual income of more than £210 million. Last year, research income from grants and contracts totalled more than £50 million.

More than two thousand overseas students from over a hundred countries elect to study at the university which is recognised as a centre of excellence. For example, a recent Research Assessment Exercise rated 40 out of the university's 45 Units of Assessment as nationally or internationally leading, and no subject taught has been awarded fewer than 20 out of a maximum of 24 points by the Quality Assurance Agency.

The university has also been given a glowing report in the Sunday Times University Guide – www.timesonline.co.uk. The guide says "Newcastle applications are up by about 40% over the past four years as news of the high-quality education available has spread. Teaching excellence straddles all disciplines, but is most evident in the university's medical provision. Perfect scores were recorded for medicine (one of just four UK schools to achieve this), anatomy and physiology, molecular bio-sciences, pharmacology and pharmacy, psychology and speech".

The Need

Like all educational institutions, the university has had to face the challenge of adapting to the new, more business-oriented climate of education, and recently embarked on a major reorganisation of its IT infrastructure as well as other core elements of its operations. These have proved successful and in its last annual financial statement, the university reported a surplus of £2.65 million – achieved in the first year of the new academic management structure and after charging voluntary severance costs of £4.4 million. Key indicators of success include an eight per cent increase in total income and a growth in student fee income of 24%.

Maintaining availability of IT resources is an essential which is recognised by all organisations that rely on computers. Consequences of unexpected, unplanned downtime can be disastrous for private sector businesses, but there is often a feeling that such threat is not so serious for less commercial or 'not for profit' organisations.

However, in today's economic climate being 'not for profit' doesn't mean an organisation can afford to survive for long with losses – this is especially true in the higher education sector where fee charging and a generally more financially stringent, commercial and competitive regime has been introduced. Universities and colleges of further education have all had to learn to deal with the kind of business equations that companies have always faced.

One university that has met the challenge is Newcastle – www.ncl.ac.uk – who recently upgraded its IT infrastructure and sought to reduce the cost of maintaining high availability on new hardware following an IT infrastructure re-organisation. A seasoned and mature user of IT, Newcastle's computer usage goes back to the days of DEC VAX and beyond.

"More recently, the hardware base was Sun Microsystems servers running SAP over Oracle. The network is based on Cisco switches with a typical maximum three hundred concurrent usage. Total network population is around two thousand."



“RSF-1 was implemented literally in less than a day...
...supports SAP and Oracle, literally, out-of-the-box.
The system is extremely stable ...”

Graham Parker



The Solution

“When looking to upgrade the high availability, the then current solution provider’s latest version was well into six figures and so the university looked for a cheaper though equally effective solution. Their choice was RSF-1 from High-Availability.Com – www.high-availability.com - purchased from HAC’s partner Esteem - www.esteem.co.uk. The cost was cheaper by a factor of four – around £30,000, with no loss of functionality.

RSF-1 was originally released in 1995 and is designed to make services ‘highly available’ by switching between servers if a server or service fails. It provides multi-directional redundant ability that allows servers to constantly monitor and shadow each other. Rather than maintain a standby option idle as a failover server, RSF-1 allows operational systems to act as standby servers, ensuring that hardware investment is optimized.

In the event of server failure, RSF-1 includes both Java and Windows based system admin modules that allow the cluster to be monitored and administered in real time – showing the status of any RSF-1 instances available on the network and provide manual switchover functions.

High-Availability.Com designed and developed the first high availability solution for Sun Unix servers and has been leading the mission-critical market ever since with innovative products to help customers maximize their business IT and Internet functions. The company sells and supports products to customers throughout the world, ensuring critical applications and services keep running in the event of system failures.

“We’ve had a high availability solution for our systems for many years,” says Newcastle University’s SAP Basis Team Manager Graham Parker. “When we had a DEC VAX the solution was simply a standby machine. In the early days if a system crashed you just had to wait for an engineer to bring another hard disk and work all night to get the system running again. Now, even disk replacement can be done online and everything is mirrored. If one server fails a second server takes over in a matter of minutes”.

“The previous solution had worked – it had done its job, but there had been problems. For example, maintenance caused more downtime than it saved. It was difficult to configure but once in it was solid and reliable. But as a product it was complicated, we couldn’t do upgrades ourselves and it necessitated a complex network structure,” says Parker.

“When we looked at the latest version solution proposed by our then current supplier we discovered that the cost was well into six figures – and cost was a major issue. It is sometimes forgotten that a university is very much a business, facing the same serious consequences of downtime that every company is confronted with. If our system goes down unsupported we lose payroll; ability to place orders and pay invoices. We also lose our ability to attract and admit potential students and to support current students. Just like any other business we’d grind to a halt”.

“So we took a hard-nosed, business approach to our search for a replacement solution. We didn’t want to lose any functionality, but we believed there were equally effective solutions available at much lower cost. After detailed research we eventually identified RSF-1 as a likely contender. It appeared to be an elegant product and had an impressive track record and user list – with a considerable number of other users in the university sector”.

“We went to High-Availability.Com’s reseller partner Esteem and had good demonstrations of the product at their open days. We also liked the price. It was cheaper by a factor of four – but with no reduction in functionality or features. It also offered simplicity”.





ORACLE®



The Benefits

"Because of our previous experience, we knew we could design the new network and configure the hardware ourselves so that was not an issue. In the event, RSF-1 was implemented literally in less than a day. Users went home on a Friday and the new solution was up and running when they came back on Monday morning," says Parker.

"For example, if one of the application servers were to fail, the users on that server would lose their connections but the load balancing would recognise the failure and users would be directed to one of the other servers when they logged back in."

The university's machines are in two separate locations half a mile apart, which itself provides an additional level of resilience against fire, flood or malicious damage. "Essentially, if we lost one location completely – even if it just disappeared - we would function one hundred percent. RSF-1 would just shuffle applications," says Parker. "Even if the application server in the surviving location went down, we'd still be up and running".

The HAC system was implemented in July. "We've had no problems since then," says Parker. "RSF-1 is highly cost-effective and dramatically lower cost than alternative, competitive solutions. It was easy to install. It's flexible and doesn't seem to need much maintenance. It supports SAP and Oracle, literally, out-of-the-box. The system is extremely stable".