



The University of Auckland

The University of Auckland's Cecil Web portal is an essential service for 35,000 students and staff.

To meet rising demand, the University needed to upgrade the server platform hosting the portal's SQL Server back-end. Through an upgrade process planned by the University in association with SQL Services, the University restricted downtime to 12 minutes and allowed sufficient time to test the new environment before it went into production.

Careful planning allowed the University of Auckland to upgrade its Microsoft SQL Server-based student portal with only 12 minutes of downtime. This process was managed by SQL Services Limited.

The University's Cecil enterprise learning management system is a portal through which 35,000 students and staff access course material, lecture transcripts, forums and chat rooms. Students submit assignments, complete exams and check their results online. The 160GB back-end database runs on Microsoft SQL Server 2000.

SQL Services Limited

SQL Services is New Zealand's leading supplier of pro-active Database Administration services and consulting. Formed in 1998, SQL Services supports over 200 Microsoft and Oracle database instances using a unique, in-house developed toolset. This toolset allows SQL Services to monitor and support databases worldwide, 24*7, 365 days of the year.

Today, SQL Services customers have databases in 4 continents, including New Zealand, Australia, Great Britain and the United States. Our customers include some of New Zealand's leading manufacturers, government departments, local authorities and commercial organizations.

24*7 support for these databases is provided by our Operations Team, based in Nelson, that provides monitoring and pro-active database administration. In New Zealand we have Senior Database Administrators in Auckland, Wellington and Christchurch to provide project based onsite support where required.



Specialists in Database Administration



Cecil originated in the Business faculty and was gradually adopted by other faculties. The University 's IT Systems and Services (ITSS) department took control of the system at the end of 2003. The business faculty contracted SQL Services to manage the database, a relationship ITSS was happy to continue.

“ We 're basically an Oracle shop at ITSS, ” said Operations Process Manager John Askew. “ We don 't have much in-house skill in the way of SQL, so that was the reason we continued the contract with SQL Services to support that database environment. ”

To maximise uptime, the database runs on two identical IBM x440 servers operating in an active/passive configuration: one operates as a primary server and the other as a disaster recovery or backup server. These two servers are synchronised using a log shipping process developed, installed and monitored by SQL Services. The, developed by SQL Services log shipping, is a process that automatically transfers the database transactions to a secondary server and continually maintains an up to date copy of the database for Disaster Recovery purposes.

“ SQL Services is very experienced in log shipping and recovering databases using log shipping, so we went for a proven solution that worked for us, ” says Askew.

Urgent upgrade

At the beginning of the 2004 academic year, ITSS found demand had increased by 50 per cent over the previous year because more faculties had started providing material online and the system had become more popular with students.

“ There was a big uptake at the beginning of the year, far greater than we anticipated, ” said Askew. “ We realised we were starting to run out of horsepower on our database servers. ”

To manage this demand and leave room for future growth, the University and SQL Services planned an upgrade process. First, the University upgraded both servers from four to eight Intel Xeon MP processors with 8GB of memory. In order to take advantage of the Hyper-Threading capabilities of the Xeon MP processors, the University then upgraded both servers from Windows 2000 Advanced Server to Windows Server 2003 Enterprise Edition.

“ It was critical to do the upgrade in an environment that allowed the University to keep the system up and running for as long as they could, while making sure that if something went wrong they could roll back to a previous situation, ” explained Michael Duke, Enterprise Sales, SQL Services.

Step by step

The upgrade took place over four consecutive weekends.

- To start, the University took down the backup server, upgraded its operating system and reconfigured SQL Server for the new hardware configuration. The backup server was then allowed to operate in place for a week running Windows 2003.
- On the next weekend, the University swapped server roles, failing over from the primary server to the backup server. The log shipping process was set to run from the backup server running Windows 2003 to the primary server running Windows 2000.
- On the third weekend, the University took down the primary server and upgraded it to Windows 2003. Once the primary server was running again, log shipping resumed from the backup server to the primary server.
- On the final weekend, the University failed over from the backup server to the primary server and recommenced log shipping from the primary server to the backup server.

“ We did it in a very staged process to make sure we didn ’ t impact our services or have any instability in the system, ” said Askew. “ It was well planned and well executed. ”

Throughout the upgrade, the Cecil Learning Management system was unavailable for only 12 minutes during the two failover processes. After being upgraded, each server ran for a week as a backup before going into production and the system ran without a backup server for only three weekends.

“ We have certainly done projects like this before, but not to this scale and not with the requirements for such minimal downtime, ” says Mike Duke.

The University benchmarked system performance under Windows 2003. “ It was about a 20 per cent improvement on exactly the same hardware with exactly the same amount of memory and the same version of SQL Server, ” says Askew.

“ When we brought the Cecil system into ITSS, we replaced some of the supporting contracts and brought some others in-house. SQL Services was the only incumbent where we maintained the relationship because we were happy with their performance and capabilities, ” said Askew.

“ We were very happy with the service we got from SQL Services, ” he said.

SQL Service Offerings

SQL Services is solely focused on providing proactive Database Administration services and consulting for Oracle and Microsoft SQL Server environments.

Our mission is:

“ To provide customers with the peace of mind that their database environment is performing optimally, secure, recoverable and positioned for future business growth. ”

SQL Service offers consulting and Database Administration services as follows:

- Database Environment Health Checks
- Database installation and general support
- Database Environment Version Upgrades
- Disaster Recovery Consulting, Planning, Implementation, and On Going Support
- Proactive Database Administration, with a flexible Service Level Agreement
- Business Continuance Consulting, Planning Implementation and On Going Support
- Clustering Consulting, Planning Implementation and On Going Support
- Replication Consulting, Planning Implementation and On Going Support
- Database Environments Performance Audits
- Server Consolidation Consulting
- Security Audits.

For more information

SQL Services consulting services and our monitoring and support Service Level Agreements can be purchased either directly or through our business partners. Pricing is available from us or through our partners.

For more information about our consulting services and Service Level Agreements please contact us or email us at enquiry@sqlservices.com

You will also find more information on our web site at www.sqlservices.com

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