

## University of Canberra



## University of Canberra Upgrades to Hyper-V Server Platform

World's First Partner-led Deployment of Server 2008 with Built-in Hyper-V Virtualisation Delivers Time and Cost Savings to Australian University

### Industry

Education

### Country

Australia

### Challenge

To upgrade server platform for speedier server deployment, better network security and manageable virtualisation capabilities.

### Solution

Windows Server 2008 dramatically reduced the complexity of server installation and security processes and delivered Hyper-V virtualisation efficiencies via a familiar Microsoft management interface.

### Results

- ▲ Increased automation speeds up new server commissioning
- ▲ Role-centric design builds firewalls faster and more securely
- ▲ Easy-to-manage virtualisation platform delivers server optimisation and hardware savings
- ▲ IT department embarks on new projects with time freed up by Server 2008 efficiencies

### Executive Summary

The University of Canberra knew that first-rate technology underpinned its ability to attract high-quality students and staff. The University wanted to deliver new IT services to its campus community but was pre-occupied by routine tasks such as commissioning servers and maintaining network security. From late 2007 into 2008, Dimension Data acted as systems integrator for the world's first partner-led deployment of Microsoft Windows Server 2008 with built-in Hyper-V virtualisation. The server upgrade was complete in three weeks and included the University's production domain and six domain controllers. A raft of user-friendly, automated features built into Server 2008 have resulted in much more time for IT staff to devote to new IT projects. The University is ploughing ahead with a virtualised server environment using Hyper-V and is enjoying the ease with which virtual servers are deployed and managed using a familiar Microsoft Systems Centre interface.

### Client Overview

Located in the Australian Capital Territory and established in 1968, the University of Canberra delivers education to approximately 10,000 students and 1200 staff. The University has produced around 60,000 graduates over 40 years, with students from 80 countries currently attending. The University places great importance on its mission to develop an internationally oriented and respected learning institution around four core focus areas: education, research, enterprise and community service.

### Business Challenge

Like most contemporary education institutions, the University was aware that cutting-edge technology was a crucial factor in attracting new students and retaining high-quality teaching staff. Over the years, it had built a great reputation around student-centred learning and the online delivery of coursework – all of which was supported by a sturdy and secure IT infrastructure.

"We are big believers in technology," says Tom Townsend, Windows Systems Team Leader, ICT Services, University of Canberra. "We wanted to keep building our reputation for innovation, and a modern learning environment was a large part of this."

The University employs around 1200 staff, is attended by approximately 10,000 students and maintains over 2000 desktop computers. In recent years, it has relied on Microsoft Windows Server 2003 to respond to its server needs; however by 2007 it was looking to implement significant upgrades to the platform.

Townsend was seeking systems that allowed his small team of four to make more effective use of its skills and time. Primarily, he wanted to commission new servers faster and deliver more secure network services – without hiring new staff.

“Our network was vulnerable to students and staff bringing unmanaged computers onto campus and plugging them in,” says Townsend. “If a machine was infected with a virus or worm it would be straight onto our network.”

Partly due to these security risks, commissioning servers was an arduous process. Yet new servers



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were a frequent request for Townsend, usually by staff wanting to trial new applications.

“At least once a month we faced the onerous task of getting a server into production and locking it down securely,” Townsend says. “A huge range of ports needed changing to get our firewall template working for each new server. Because there was no easy configuration built in, it was all done manually and was prone to human error.”

Hours spent manually commissioning servers and maintaining network security left little time to investigate new services for staff and students. Jobs not marked ‘urgent’ became part of a backlog of projects waiting for free time. Even the University’s early-stage experiments with virtualisation were at risk of stalling.

“Each University faculty maintained its own IT system and many hosted applications and services,” said Townsend. “We wanted to use virtualisation to centralise the server environments and maximise our hardware budget. But due to our limited resources, we needed a solution the team could manage easily, ideally through an interface we already knew.”

## Relationship History

In late 2007 Microsoft began seeking applications for its Windows Server 2008 Rapid Deployment Program (RDP). The RDP is a sought-after program that supports clients through the deployment of new Microsoft technology well in advance of the product’s official launch.

Following the University of Canberra’s approval, Microsoft Gold Partner Dimension Data was selected to deploy the platform. The University had not previously engaged with Dimension Data and, furthermore, Townsend admits his experience using third-party integrators had been patchy.

“I didn’t really put much stock in the value third-party vendors could bring,” says Townsend. “They generally seemed to be learning on the fly and I always thought my team could complete projects alone just as quickly.”

However, by the end of February 2008, Dimension Data had wrapped up the world’s first partner-led production deployment of Microsoft Server 2008 with Hyper-V and Townsend had revised his opinion of systems integrators.

"I was pleasantly surprised," he says. "It was the best experience I have had with a third-party provider."

### Solution Provided

Under the auspices of the RDP project, Dimension Data deployed the Microsoft Windows Server 2008 Virtualisation component set for the University. This meant that in addition to the new features built into Server 2008, Dimension Data also helped Townsend's team deploy and learn to manage Microsoft's Hyper-V virtualisation technology.

The University's production domain and six domain controllers were migrated to Server 2008 over a three-week period.

"We needed to migrate a large percentage of our server environment to Server 2008 fairly quickly," says Townsend. "Dimension Data helped us get through a massive amount of work in three weeks."

Dimension Data upgraded the University's Microsoft Virtual Server 2005 R2 environment to Windows Server 2008 Virtualisation. A Hyper-V virtualisation pathway was selected to help Townsend draw on his team's existing in-house expertise using Microsoft management systems.

"Our previous forays into virtualisation were very promising," says Townsend. "But since Virtual Machine Manager is now part of the Microsoft Systems Centre suite, we knew it would be more manageable for our small team."

### How We Delivered

Dimension Data met with the University in late 2007 to gather its requirements and scope out the project. A dedicated team, including a specialist consultant, drafted an implementation plan based on the University's existing business requirements and the brand new Server 2008 platform.

Dimension Data understood that due to the numerous users on the University network, user-name authentication and access rights had to be maintained seamlessly throughout the transition. As such, the team leveraged the expertise and support of the wider Microsoft Solutions practice within Dimension Data to create a migration plan that lab-tested network applications, thus ensuring continuity of service for roll-out.

"Normally we would be forced to test in a physical environment which would have taken twice as long," says Townsend.

In early February 2008, Dimension Data began transferring domains from Windows Server 2003 to Windows Server 2008. On successive nights, the University's three Active Directory domains were switched to the Server 2008 platform. Dimension Data also helped Townsend set up a duplicate of the entire

### Solution at a glance

- ▲ Upgrade of Microsoft Virtual Server 2005 R2 to Windows Server 2008 Virtualisation
- ▲ World's First Partner-led Deployment of Server 2008 with built-in Hyper-V Virtualisation
- ▲ Transfer of Active Directory domains from Microsoft Windows Server 2003 to Windows Server 2008

University domain on Hyper-V test and development servers.

"We used this environment to test the upgrade path," says Townsend. "We pushed our entire Active Directory environment over and had six servers running on one piece of hardware. Then we duplicated all our servers for testing and ended up with 13 servers on one box. There were no performance problems."

Three weeks later, under time and under budget, Dimension Data had completed the project and helped the University migrate its server environment without any interruptions to its 11,000 plus staff and students. Dimension Data concluded the project by conducting a knowledge transfer to Townsend's team on the new Server 2008 functionalities, as well as the Hyper-V management interface, Virtual Machine Manager.

Throughout the RDP, which was subject to considerable paperwork and project parameters, Dimension Data consistently drew on its Gold Partner relationship with Microsoft. This ensured the project ran smoothly for the University, which was still answerable to the IT demands of its user community.

"Our Dimension Data consultant went over and above my expectations," says Townsend. "Obviously, it was brand new technology for everyone involved, but he compensated by doing extra hours, extra research and extra testing. This made all the difference between a few bumps in the road and none."

"It went really smoothly."

### Value Derived

Upgrading to Windows Server 2008 has delivered immediate benefits to the University. It is faster and easier to commission servers, the network is inherently more secure, and eleven virtual servers have been successfully deployed using Microsoft Hyper-V.

"We also benefited from the comprehensive planning, testing and documenting that Dimension Data conducted. Had we done it alone, this part would have been missed because our resources are extremely limited," says Townsend.

- Fast and simple deployment

With Windows Server 2008, the time-consuming manual process of configuring servers has been

alleviated by role-centric design. This means administrators simply activate the role that a particular server needs to play and sit back as each role is automatically configured.

“This makes a huge difference to the time it takes us to commission new servers and bring new applications online,” says Townsend. “In fact, we often find we don’t need to leave the server manager console, as most server administration tasks can be carried out from there.”

Townsend’s team has made good use of its extra time by embarking on a range of new – and old – projects.

“Every IT department has old or broken servers it never gets around to dealing with,” says Townsend. “We have been able to tackle a huge number of such projects since deploying Server 2008 because we now spend less time wrangling with our old system.”

- Locked down by default

The roles-based approach of Windows Server 2008 also makes it easier to protect servers from security threats.

“When you fire up a Windows 2008 Server everything is locked down by default,” says Townsend. “It has reversed the process from Server 2003, where everything was open and you had to go in and lock it all down.”

“Now you simply log on, decide you want the server to act as a domain controller, for example, and it automatically opens the necessary ports and protocols to do the job. Not having to configure the firewall manually probably saves us a day’s work per server.”

- Virtual future

Using Hyper-V in Windows Server 2008 has enabled the University to press ahead with virtualising the University’s server environment. Since transitioning the domains, Townsend has put the University’s corporate search engine and the production temporary domain services on Hyper-V. He is also migrating the University’s home page to a media-rich site running on Hyper-V.

“Now we can virtualise more intensive roles which used to be ‘too big’ to virtualise,” says Townsend. “Processing times are much quicker. I estimate the performance jump is about 40 percent.”

Townsend has also achieved the objective of making his server environment easier to manage.

“At a glance, the Virtual Machine Manager gives me a good sense of the entire environment. During a patch cycle, for example, I don’t need to log on to each server. I can see it all from the main console.

“I can also see where I have capacity to place redundancy. Virtual Machine Manager gives all physical servers a star rating according to their

available resources. It will tell me which is the most appropriate place to put a virtual new server without me doing a mini-audit, which I used to have to do about once per month.”

“In fact, maintaining the server environment now takes very little time out of my day. Virtualisation has halved the amount of time spent managing the environment.”

- Real efficiency savings

By enabling the University to reduce its physical server requirement, Hyper-V has helped Townsend centralise the University server environment and generate efficiency savings.

“I’ve just done the analysis for future procurement,” says Townsend. “We have nearly AUD\$1 million dollars worth of hardware currently not virtualised, but appropriate for virtualisation. It would cost about \$400,000 to buy the hardware to replace that if we used Hyper-V. So with virtualisation, we are in a position to replace legacy hardware at 40 percent of the nominal cost.”

“Right now, I am ordering two new Hyper-V servers to replace 13 production servers. And I will still have slack.”

The IT department has also gained supplementary benefits such as reduced power use, especially on cooling, which Townsend describes as significant saving.

“Essentially, Server 2008 sets a solid foundation for us to build on. We are looking forward to being able to innovate and provide the University with new systems and technologies that we did not have time to work on previously.”