VMware Aids New Zealand Education Institute in Reduction of Server Hardware, and Better Resource Management

Manukau Institute of Technology Deploys VMware to Eradicate Server Sprawl

KEY HIGHLIGHTS

INDUSTRY: **EDUCATION**

RESULTS

- CPU utilization in servers has typically increased from 10% to near 80%
- Manukau Institute of Technology has seen a dramatic reduction in the time it takes to deploy a server
- Improved application availability - having eliminated the need to reboot servers for hardware issues
- Increase in server uptime
- Reduced capital expenditures on new hardware
- Reduction in powering and cooling costs as well as in datacenter space consumed by servers
- Labour costs reduced with less time spent chasing drivers and configuring RAIDs and physical commissioning of servers

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Chris Stott
Technical Manager, Manukau Institute of Technology

New Zealand Educational Institute Places VMware at Centre of IT Network Management

Manukau Institute of Technology (MIT) is one of the premier education and training institutions in New Zealand, established in 1970. A national educational institution, it has a strong regional base and an increasing international profile. MIT runs over 1500 full and part time degree level, diploma and certificate courses, including an extensive portfolio in business, human science, arts and technology.

Flexible learning options are available to students who can choose to study on campus or via the institute's online curriculum service. Approximately 25000 staff and students rely on the IT network and infrastructure, which also supports access for institute alumni. The IT network includes data centres on both the north and south campuses of Manukau IT and is also accessed by the city campus data centre.

Chris Stott, Technical Manager, and Daniel Kenna, System Specialist, were facing increased problems in the institute's data centre and the service they were required to deliver to staff and students. Stott said that increasing demands on its network from Windows applications were stifling efficiencies on the institute's IT infrastructure. The institute was tied to a situation where servers were being assigned to single applications, and they risked increasing server sprawl across the network. An initial test with VMware GSX server in an isolated environment quickly led to VMware's virtual machines being spread across the entire IT infrastructure after initial testing.

Server Containment Play Quickly Leads to Total Virtual Infrastructure

The institute quickly upgraded its VMware server containment deployment into a total infrastructure initiative. The advantage of running virtual machines across the network lay in the ability to manage its applications as a pool of resources that could be shifted around the network in a dynamic fashion. "We used to associate a service with a server, now we have a pool of resources," explains Stott, "You get a very, very efficient use of the hardware resource." In that

sense, the consequence of the VMware implementation hasn't been to remove IT resources, but to expand services. This has enabled redeploying hardware more strategically, including for disaster recovery and even to the teaching staff who can now use real servers in education.

Taking virtual machines from the original GSX Server testing environment into a wider scale ESX server environment delivered significant performance improvements. Further benefits were gained through load balancing and capacity planning. Kenna says the outcome was that "for the first time we had a real and accurate understanding of the demands placed on IT needs." Further performance improvement was experience after connecting the applications to a storage area network.

A pool of resources connected to a SAN enables MIT to take advantage of VMware's VMotion technology. This technology builds in fault tolerance to the data centre, guaranteeing maximum uptime, high availability and reducing labour maintenance costs by 40%. "If a server fails, the service isn't compromised," says Stott. This represents a dynamic change in the ongoing user experience where they are no longer subjected to downtime.

VMware to be ubiquitous across the IT infrastructure

From the desktop to the datacenter – With licenses for VMware Workstation, GSX Server and ESX server, Manukau's infrastructure is entirely virtualized. From testing and development to disaster recovery and legacy hosting all the way to critical infrastructure and production every type of environment is virtualized.

Consistency across the infrastructure – Consistency across the VMware instances enables standardized maintenance. This relieves the team from the burden of different maintenance schedules and tasks across inconsistent hardware. Replicating production environments and workloads for development and testing as well as diagnosis of server failure becomes a possibility

Confident in the technology – Manukau's crucial Citrix servers were first to go onto production virtual machines. It made sense to have the critical applications running in an environment of zero planned downtime and where failed servers would reboot in a matter of minutes.

Massive savings in rack space and reduction in server room power consumption have been experienced. This has further increased the value of the VMware implementation. Original GSX licenses have been reutilized as part of the new DR solution, containing the amount of servers needed for replication.

Such has been the success of the VMware implementation at Manukau that they have followed the lead of others in instituting a 'VMware First' policy in the data centre. Under this policy VMware ESX Server will be the default environment on which all new Windows servers will be deployed. The current number of 50 virtual servers is expected grow significantly.

VMWARE ESX AT WORK

- Windows 2000 Server, Windows 2003 Server and Windows XP Pro hosted on ESX and GSX server environments
- Windows 2003 Server hosts GSX server, and Workstation runs on Windows 2000, Windows XP, Windows XP 64bit, Windows 2003 Server, Linux
- Leveraged their existing SAN to enable VMotion technology
- An average 15:1 consolidation of Virtual Machines on physical servers.
- Up to a 20:1 consolidation ratio during times of hardware upgrade

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