HILLS INDUSTRIES

MANUFACTURING

Hills Industries Boosts Citrix Performance and Scalability Using VMware Virtualization

Deployment enables 420 concurrent logons on one server, up from 120 in physical environment

KEY HIGHLIGHTS

INDUSTRY: **MANUFACTURING**

CHALLENGE

Deliver a dynamic, flexible, cost-effective infrastructure that can support critical systems including Citrix application servers.

SOLUTION

VMware virtualization enables Citrix application servers and other systems to operate in accordance with business requirements for performance and availability while enhancing redundancy and manageability.

VMWARE AT WORK

VMware Infrastructure 3 featuring:

- ESX 3.0.1 (migrating to 3.5)
- VMware VMotion
- VMware DRS
- VMware High Availability (HA)

VMware vCenter Server

VMware vCenter Converter

RESULTS

- Improved potential scalability of Citrix by 350%
- Cut time to deploy a new Citrix server from one day to 20 minutes
- Delivered capacity to support growth with host CPU utilization running at around 30% and RAM around 50%

"In 2006, virtualization was an emerging technology and we saw the benefits of installing a virtualized infrastructure. Using VMware, we could reduce our costs while delivering a flexible, dynamic environment that has enabled us to improve the performance of key business applications such as Citrix."

Mike Radosav, Manager, Information Services, Operations and Infrastructure
Hills Industries

Fragmented datacenter infrastructure increases costs

Developer in 1946 of the famous Hills Hoist clothesline, Lance Hill founded a company that has grown into a diversified manufacturer focused on three lines of business: home, hardware, and ecological products; electronic security and entertainment products; and building and industrial products. Headquartered in South Australia, Hills Industries recorded revenues of A$1.185 billion and group profits of A$48.036 million for the financial year ended 30 June 2008, its 16th consecutive year of record profits.

In 2003 to 2004, with its datacenter hosting 80 diverse servers and fragmented storage, Hills Industries was incurring excessive management costs and time. "I wanted to consolidate from a higher number of smaller server platforms to fewer large server platforms," said Mike Radosav, Manager, Information Services, Operations and Infrastructure, Hills Industries. "We discussed our requirements with an outsourcing services business that mentioned virtualization and referred us to the experiences of the Brisbane City Council, a leader in deploying the technology.

"One of the compelling benefits was the ability to move running virtual machines from one server to another without disrupting users," said Radosav. "I then purchased some VMware Server licenses and a hardware platform for testing purposes." Based on the performance and manageability achieved during these tests, Hills Industries implemented a virtualized datacenter infrastructure based on VMware technologies. The organization is now running 60 virtual machines on six HP BL25p and BL685c blade servers.

Technology maturity prompts Citrix virtualization

Despite meeting some initial internal resistance to virtualizing Hills Industries' Citrix application servers, Radosav believed VMware and hardware platforms had matured enough in the last two years to justify the project. "We decided to virtualize Citrix when we did because of the availability of four-way dual-core AMD Opteron blades in the HP c-class blade chassis, and the improved management of performance in ESX version 3.0 and higher," said James Young, Senior Server Support Officer, Hills Industries.

The organization's Citrix environment currently comprises MetaFrame Presentation Server 3.0 running on Windows Server 2000. This environment allows 800 concurrent users and 1,641 users in total to connect securely to applications published from central servers with one vCPU, 4GB RAM, and one vNIC.

"This gives us about 60 user logons with 90 sessions per virtual server, effectively allowing us to run 420 user logons on a single four-way dual-core blade server," said Young. "However, we don't run them that hard, maintaining instead a level of redundancy and headroom.

"When running a physical environment, we would max out at 120 users. Virtualization has delivered to us a potential improvement of 350 percent."

The virtualized environment has also enabled Hills Industries to reduce the time required to deploy a new Citrix application server from one day to 20 minutes. This represents a dramatic increase in the flexibility and responsiveness of the organization's infrastructure.

The performance of the existing environment has prompted Hills Industries to embark on an upgrade to secure even greater benefits.

"We are in the planning and testing phase of upgrading to XenApp 4.5, Windows Server 2003, and ESX 3.5," Young added. "This should deliver even better performance thanks to improvements in context switch handling, which enables multiple processes to share a single CPU resource, in both Windows Server 2003 and ESX 3.5. These improvements are particularly relevant as a typical Citrix server requires hundreds of processes to be run."

Virtualization provides redundancy and disaster recovery

Hills Industries relies on VMware's hardware abstraction to ensure its production environment can be recovered quickly if several servers are lost. These capabilities enable the business to easily restore applications, data, and operating environments from backup into surviving hardware if several physical hosts are lost. If a single host is lost, Hills Industries uses VMware DRS and VMware High Availability to switch the workloads to another host without incurring downtime.

DEPLOYMENT ENVIRONMENT

- HP ProLiant BL25p blade servers with dual core 2.6GHz AMD Opteron processors and 16GB RAM Primary software
- HP ProLiant BL685c blade servers with dual core 2.8GHz AMD Opteron processors and 32GB RAM•
- EMC CLARiiON CX3-40 networked storage system with fiber channel attachments to all physical hosts
- Guest operating systems: Windows Server 2000, Windows Server 2003, SuSE Linux
- Virtualized production applications: Microsoft Active Directory, Citrix MetaFrame Server 3.0, Trend Micro OfficeScan, custom applications, Microsoft Exchange 2003 front-end, Microsoft Internet Information Services, BlackBerry Enterprise Server, Microsoft Project 2007, Squid Web proxy, Microsoft Windows Server Update

"VMware allows us to deliver a significant level of redundancy to our servers," said Young. "Any virtual machine host can run any virtual machine. In addition, each host has three network ports to distribute traffic, two power supplies, and four possible paths to our storage area network."

Consolidating physical server numbers means Hills Industries can invest in priority support from vendors for its virtualization hosts. "In essence, our virtual machines benefit from that level of hardware support and redundancy, but without the cost," Young added.

Datacenter costs reduced

Deploying virtualization has enabled Hills Industries to achieve a server consolidation ratio of 10:1, cutting power and cooling costs, and reducing required rack space to 10 rack units for a blade chassis. (A full rack incorporates 42 rack units.). "To run the same infrastructure with physical servers would require a rack and a half," said Young.

Hills Industries can also now provision a new virtual server in just a few minutes rather than wait the three weeks required for approval, funding, receipt, and installation of a new physical machine. The resources of the physical hosts supporting the virtualized infrastructure are also being used more efficiently, with CPU utilization at around 30 percent and RAM at around 50 percent.

The organization has also reduced the number of expensive network switch ports used from around 150 to 24.

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