



Ohio State Gets an Education about IT from VMware

VMware Earns High Marks with Its Virtual Infrastructure



KEY HIGHLIGHTS

INDUSTRY: EDUCATION

CHALLENGE

Outdated IT systems in need of upgrades, but no room for expansion

SOLUTION

VMware virtual infrastructure enables IT upgrades at reduced costs and improved CPU usage

RESULTS

- €250,000 cost savings versus comparable scenario (for new investment)
- 60% hardware savings and optimized hardware utilization
- Cost savings through standardization of existing business
- Flexible and fast system readiness

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Tim Smith, Director of Humanities Information Systems
The Ohio State University

World Class Institution's IT Needs Room to Grow

The Ohio State University is a world-class public research university and the leading comprehensive teaching and research institution in the state. Ohio State has its main campus in Columbus; regional campuses in Lima, Mansfield, Marion and Newark; the Agricultural Technical Institute (ATI) and Ohio Agricultural Research and Development Center (OARDC) in Wooster; and extension offices in every county around the state. With more than 57,000 students, 17 colleges, and 170 majors, the university offers its students tremendous opportunity in the liberal arts and the sciences, and one of the university's core values is to "ignite a lifelong love of learning" in students.

Humanities Information Systems includes two sites: a main data center for all of the system and programs and a disaster recovery site—connected by dedicated fiber. A staff of 15 administrators oversees central IT services for 4,000 of the students, faculty and staff.

IT Department Crammed

In March 2003, the College of Humanities IT systems were outdated and needed upgrading—and there was not enough room for a much-needed expansion.

"We lacked the physical space, cooling and power needed," explains Tim Smith, director of information systems for the College of Humanities. "We had some PC class hardware with no failover disks, no secondary power and no SAN connectivity. We wanted to grow, but didn't have the resources." The College of Humanities at Ohio State Studies Virtualization—VMware Technology Passes Test with Flying Colors

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Humanities Information Systems was introduced to VMware software by a hardware vendor representative. The vendor provided a 2-CPU test server with VMware ESX Server. They loaded it with Windows and Linux virtual machines, and a variety of programs, and then used it within the department for two months.

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What management especially liked was the fact that the virtual systems pulled more value out of the existing processors.

The Next Assignment—Virtually Everything

“We used P2V Assistant to move some servers from PC class boxes and to migrate NT4 off the old boxes,” explains Smith. “After that, anything new and any rebuilds were done on virtual machines.”

Now, almost all new builds at the College of Humanities are on VMware virtual machines, and nearly 4,000 students, faculty and staff access systems and programs on VMware virtual infrastructure. With four physical VMware servers, Humanities Information Systems is now running Netware 6.5, Window NT4, Windows 2000, Windows 2003, Windows 2003 R2, RedHat AS 2, SuSE9, FreeBSD, OpenBSD and Linux guest operating systems for production, test and management applications.

A Major Degree of Improvements with VMware Technology

VMware virtual infrastructure scored high with the College of Humanities, with benefits including:

- Graduate level IT systems on an undergrad budget. The College of Humanities saved \$160,000 in hardware costs by using virtual machines instead of physical servers. “We would’ve spent around \$4,000 per server for 40 new servers,” states Smith. “Now we have 54 virtual machines for just the cost of licensing. And we save on power and cooling costs as well.”
- Faster provisioning and deployment. VirtualCenter allows the IT staff to manage all the servers right from a single console. It also allows the test and development staff to get much more creative in a virtual world before actual deployment.

In addition, procurement time becomes less of a factor in deployment. “Being a school, it can take a long time to process the paperwork for new purchase. Now it’s ‘click, click, click’ and I’ve got a new server up and running,” says Smith.

- Improved yield. Before virtualization, the physical servers were hardly utilized. Today, these CPUs are running around 40 percent of capacity. In addition, the College of Humanities has 54 virtual machines running on three host servers.

VMWARE VIRTUAL INFRASTRUCTURE AT WORK

- VMware VirtualCenter on 2-CPU Dell PowerEdge 2850
- VMware ESX Server on 2-CPU Dell PowerEdge 2850
- VMware Workstation on Dell Optiplex 270, 280 and 620
- IBM DS4500 SAN
- Host operating system for Workstation: Windows XP Pro
- Guest operating systems: Windows NT4, 2000, 2003, 2003 R2, RedHat AS 2, SuSE9, Netware 6.5, FreeBSD, OpenBSD
- Production applications running in virtual machines include: Oracle Calendar, Apache Web Server, Netware File/Print Services, ColdFusion, Urchin Web Statistics and Astaro Report Manager
- Test applications running in virtual machines include: Apache Web Server, Coldfusion, RSA Security manager, SQL Server and Netware File/Print Services

- Improved disaster recovery. Humanities Information Systems still uses tapes for the backup and disaster recovery process and has to have them taken off site. “Now, we plan to use snapshots of virtual machines and send them directly to a secondary data center,” says Smith. “It will help with downtime.”
- Reduced procurement hassles. Before virtualization, Humanities Information Systems would go back and forth four or five times with a vendor to get various quotes, approvals and process the paperwork. Then, the department would wait an additional two or three weeks for the server to arrive. Now it takes them only five minutes to get a new server in place.

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Post-Graduation Plans

Humanities Information Systems will continue with even more virtualization, including an upgrade to VMware Infrastructure 3 (VI3). “We want to be at the point where everything is virtual—including disaster recovery—and hardware brand becomes less important,” states Smith. “We also want to be able to automatically move servers or applications with distributed resource planning with VMware Infrastructure 3. The new product will enable us to schedule and automate moving virtual machines around for load balancing when they hit specific utilization points.”

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