



CDW Combats Server Sprawl and Saves \$25,000 a Month with VMware Virtual Infrastructure

Industry Experts Look to VMware Virtual Technology for Server Solutions

Results

- \$25,000 a month savings from deploying virtual machines
- CPU utilization increased from 5-15 percent to an average of 50 percent
- Reduced server deployment time from a day to a half hour
- Delayed need for major expansion of data center

Leading by Example When Solving Technology Problems

CDW is one of the largest direct providers of technology solutions for business, government and education. CDW sells a wide range of products and services including storage networking, IT security, bandwidth and power.

CDW utilizes cutting edge technology to be better able to anticipate and respond to customers' needs. Manager of IT Infrastructure Doug Zelinka and his 27-member IT team ensure that the company's servers, network and datacenters all function smoothly. His team deployed more than 100 servers in 2004, and physical space limitations had begun to impact the pace of server growth.

Virtual Infrastructure Eases Growing Pains and Adds Functionality

Server sprawl was a severe drain on the company's resources, including power, cooling, space and

finances. "We were going to outgrow our datacenter this year," says Zelinka. A CDW network engineer took the initiative to obtain an evaluation copy of VMware ESX Server and give it a test run.

After the successful trial, CDW deployed its virtual infrastructure and contacted VMware Authorized Consulting Partner RapidApp to assess the robustness of the implementation. RapidApp is an IT infrastructure consulting firm with significant experience designing, planning, deploying and managing IT network and systems infrastructures, including cutting-edge virtual infrastructure solutions.

"CDW needed a scalable IT infrastructure to give it the agility to respond to growing business needs," says Mitch Northcutt, CEO for RapidApp. "We knew that the benefits of VMware virtual infrastructure, including rapid server deployment and the ability to manage server resources, would increase IT responsiveness to accommodate CDW's rapid growth."

With a virtual infrastructure in place, the company's server numbers have continued to increase, but now most of the servers deployed are virtual rather than physical. "We calculate that it's about \$2,000-2,500 cheaper to deploy a virtual machine than a physical one," Zelinka says. "Based on our server growth rate, that's a savings of about \$25,000 a month."

In addition, CDW has been able to avoid outgrowing its datacenter. Zelinka explains, "Now we have another year to grow out of it. We're still expanding, but now we're more likely to run out of room for storage frames than we are to run out of

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VMWARE VIRTUAL INFRASTRUCTURE AT WORK

- VMware ESX Server on 8 4-CPU HP ProLiant DL585s, 2 2-CPU HP ProLiant DL385, and 2 2-CPU HP ProLiant DL380 G4
- ESX Server connected to EMC Clarion CX700
- VirtualCenter on 4-CPU HP ProLiant ML570
- Guest operating systems: Microsoft® Windows® XP Pro, Windows 2000 Advanced Server, Windows Server 2003 EE, Red Hat Enterprise Linux 4
- Production applications include: Windows domain controllers, IIS, FTP Endeca, ISA Server 2004, File & Print, SQL Server, Exchange, Blackberry Enterprise Server
- Test and staging applications include: BizTalk Server, Cognos, PeopleSoft
- Management applications include: Norton Antivirus Corp. Edition, ipMonitor

room for servers." Zelinka estimates that CDW is currently running 25-26 virtual machines on the two-node cluster, which will be increased to 38 virtual machines per host in the near future. The company has been able to decommission and dispose of many fully-depreciated physical servers and repurpose others for test labs or other functions.

CDW saw many other issues resolved with the VMware software implementation, including:

- **Wowing the software developers.** CDW develops most of its applications in-house. "There's a constant pressure from the business side to add features and functionality to CDW.com and to the environments that run the warehouse and inventory control," says Zelinka. With VMware virtual infrastructure, IT can be more responsive to developers' needs because it can easily provision development and test environments without having to build physical servers. Zelinka explains, "The environment is already there. We just provision a new virtual machine from a template. We're done." The VMware virtual infrastructure has helped the IT team become more responsive in meeting the needs of developers. "When the developers see that we can give them an environment that works just like a physical environment in a fraction of the time, they say 'wow,'" says Zelinka.
- **Increased application availability.** With VMware VMotion™ technology, even if there is a hardware failure, virtual machines experience zero downtime. "We've had hardware failure that didn't necessarily bring a host machine down," says Zelinka. "We used VMotion to move the virtual machines to another host so we could do

maintenance without bringing the applications down. If those had been physical machines, the applications would have gone down for up to a day, because we couldn't have used VMotion to move them to another host."

- **Ease of implementing operating systems.** CDW now uses templates of its operating systems when setting up new virtual machines. In addition to being quicker and easier to set up, deploying an operating system on a virtual machine gives the IT department greater peace of mind. "We are less apprehensive of deploying different operating systems because we have a protected way to do it," Zelinka explains.

Already Fast Deployment Rate Made Lightning Quick

VMware software offers the company substantial time and cost savings. "It could take us four hours to one day to unbox, assemble, rack, configure networks and do OS patching on a new physical server



— all depending on parts availability,” Zelinka says. “Now, with VMware virtual infrastructure, we already have a template and hosts with a large capacity, so we can deploy servers in just 30 minutes.” Given the time and money savings, it’s no wonder that almost all the servers CDW now deploys are virtual machines.

Not only has VMware software increased CDW’s efficiency when deploying servers for new projects, it has completely eliminated any uncertainty in server deployment. Zelinka explains, “With VMware software, we can deploy a server in a fraction of the time with complete predictability. We couldn’t do that before.”

Standardizing on Virtual Infrastructure Platform

CDW has already made VMware virtual infrastructure its default Intel platform and plans to continue expanding its use of VMware software to reap its full benefits; Zelinka says that he plans to use it for high availability environments and disaster recovery in the future.

The company has also upgraded all of its VMware Workstation licenses to VMware VMTN™ licenses. VMware Workstation enables users to run multiple operating systems and applications on one machine,

but VMTN licenses allow them to use GSX Server and ESX Server — and their more sophisticated features — for test and development. “We all have machines at our desks capable of running ESX Server, and a lot of people already use Workstation,” Zelinka says. “With VMTN licenses, some people are running GSX Server or ESX Server instead. To us it’s a no-brainer.”

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