Defense Contract Management Agency Simplifies Server Infrastructure with VMware Virtual Infrastructure

Eliminates 400 Servers Improves Performance with VMware Virtual Infrastructure

KEY HIGHLIGHTS

INDUSTRY: **PUBLIC SECTOR**

RESULTS

- Estimated annual cost avoidance of $1.5 million per year
- Achieved 12:1 server-consolidation ratio
- Eliminated 400 physical servers (from 560 to 160)
- Enabled plans to reduce 18 data centers to five in U.S.
- Enabled remote server provisioning and reduced server deployment time by a factor of 20
- Increased ROI by routing cost savings back into higher-availability systems and increasing bandwidth for users
- Leveraging VMware virtual infrastructure deployment and best practices through use of the VMware TAM program

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Peter Amstutz
Chief of Technical Requirements and Design, DCMA Information Technology

Government Agency Seeks Freedom from Procurement Challenges

The Defense Contract Management Agency (DCMA), a component of the Department of Defense (DoD), works directly with defense suppliers to help ensure the timely delivery of combat-support supplies and services to the United States' federal and allied governments. By contributing to military readiness, the agency plays a valuable role in preserving the nation's freedom.

As chief of technical requirements and design for DCMA Information Technology, Peter Amstutz, oversees the review of new technologies for potential adoption into the infrastructure. Moreover, he's responsible for researching these new technologies to determine their practical application within the agency and assess potential return on investment (ROI).

"My team consists of infrastructure, enterprise application, and cutting edge web technology and application development architects. We have our fingers in a lot of technologies," says Amstutz. "We're constantly looking out with an 18-month eye toward the future, trying to think about how we should move forward, what we should buy, how much we should spend, etc."

Working for the government, however, means learning to contend with a myriad of regulations and procedures. Amstutz adds, "Purchasing anything is a process."

Server procurement, in particular, had become a huge challenge. With nearly 600 servers, it was a near-full-time job for someone just to figure out what warranties were expiring and when. Then, when new servers were ordered and received, there came the issue of continual re-racking of boxes and installing of operating systems.

VMware Demonstrates the Strength of Its Solutions

DMCA began looking at VMware software in 2004 for a faster server-provisioning solution. "With virtualization technology, we knew administrators would have more time for mission-critical items such as security, disaster recovery, and backup," says Amstutz.

VMware software first interested DCMA as a way to provision development and test environments, and though the agency wasn't necessarily looking for an enterprise-wide infrastructure solution at the time, as VMware's installation base grew it started to reconsider the impact virtualization could have on the organization.

As part of its design review process, Amstutz and his team also researched Microsoft Virtual Server, but weren't impressed. "In production, Microsoft Virtual Server could only do one-fifth of what VMware ESX Server could," says Amstutz. "Microsoft Virtual Server also had serious performance and resource contention issues that required us to continually reboot or to limit the number of virtual machines running on a given hardware platform. It was very clear that one product was datacenter ready, and the other was not. With the Microsoft software, we couldn't justify the costs—even when they were giving it away for free at the time. The ROI just didn't compare to what we would get with VMware's solution."

VMware Virtual Infrastructure Secures Substantial Cost, Time, and Space Savings

At DCMA, approximately 600 active-duty and reserve-military personnel and 11,000 civilian employees daily access applications running on virtual machines. Nearly everything in the x86 realm runs in virtual machines: Windows back-office systems, ancillary-Exchange applications, public-access folders, our contract management system, the network-management suite, backup software, terminal servers, databases, and directory services.

"Moving to a virtualized platform works. The ROI is there. The benefits are there. I'd tell anyone to do it," Amstutz says. DCMA has been able to quantify benefits in terms of:

- Costs avoided in yearly server expenditures. DCMA environment is nearly 100-percent virtualized. The agency eliminated 400 of 560 servers, cutting its physical server infrastructure by two-thirds and reducing annual operating costs significantly, and using that savings to increase availability are reliability.
- Improved server-to-administrator ratio. Before using VMware software, in its primary data centers, the defense agency had three server administrators managing 150 physical servers in two locations. Now, the three administrators manage 22 servers performing the same functions. "Thanks to virtual machines, we're lightening our administrators' workloads and improving operational performance," states Amstutz.
- Faster provisioning. "Provisioning is super easy now," says Amstutz. "What used to take about four hours now takes 15 minutes." In addition to making the provisioning process 20 times faster, VMware software enables remote provisioning, thus eliminating overseas shipping and customs holdups.

VMWARE VIRTUAL INFRASTRUCTURE AT WORK

- VMware ESX Server hosts running on HP DL585s with 64 GB RAM in the United States, and HP DL385s with 16 GB RAM overseas
- VMware VirtualCenter running on HP DL360
- VMware VMotion
- Guest operating systems include: Microsoft® Windows® NT, Windows® 2000 Server, Windows® 2000 Workstation, Windows 2003 Server, Windows 2003 Server Enterprise Edition, Windows XP, Windows Vista BETA, Novell NetWare
- Applications running in virtual machines include: Windows back-office systems, ancillary Exchange applications, public folders, web servers, contract management system, network-management suite, backup software, terminal servers, databases, and directory services

- Increased disaster recovery protection. Using VMware VMotion and VMware VirtualCenter, DMCA has increased uptime. "The virtual environment helps with robust storage and faster recovery," states Amstutz. "Subsequent to a power failure in one of our data centers, the virtual machines came up smoothly and without issue. We can just highlight the machines in VirtualCenter and we're back online."
- Hardware repurposing. "Within the DoD, we use the Defense Reutilization and Marketing Service to register recyclable assets," states Amstutz. "First-claim rights go to other governmental departments. For example, the Air National Guard came in to one of our sites with a U-Haul, took a load of servers to an air base, packed them into a C130 Hercules transport plane, and flew them to a military base in Texas. Additionally, we donate hardware to schools and other non-profit organizations."

Virtualization Brings Peace of Mind

In the near future, DMCA plans to become near 100-percent virtualized on its x86 platforms.

"Already, VMware technology has opened the door to doing things we'd never considered possible," says Amstutz. "Fortunately, our CIO, Michael Williams, is very forward-thinking and helped to push us in this direction. From early on, he'd not only been looking at how VMware could help us today—but also years down the road. We anticipate more good things to come."

VMware TAM Program a Valuable Asset

A VMware TAM is a virtualization expert who provides strategic guidance across all VMware-related issues. The TAM is the customer's dedicated VMware contact and internal advocate, facilitating priority VMware support services, consulting on project plans and providing the insider's perspective on virtualization best practices.

VMware encourages all customers who are planning a critical deployment to engage a TAM to ensure success. Although Amstutz had carefully planned the project, an unforeseen hardware compatibility issue arose. The TAM was instrumental in collaborating with VMware internal organizations, as well as third-party vendors like Hewlett-Packard and Intel to revise the hardware deployment plans and enable a successful rollout.

Routinely, Amstutz continues to realize the many benefits of working with a TAM, citing the TAM as a key contributor to his organization's smooth transition to VMware virtual infrastructure.

"Our TAM is totally dedicated to our success," he says. "All projects have bumps in the road, especially when they're moving this fast and with so many variables. Our TAM helped us quickly correct issues, and worked with our other vendors to make sure we had the right platform to meet our needs. Even more importantly, our TAM provides DCMA with strategic guidance on new uses of VMware technology to support our business."

Now that DCMA has completed the initial phases of its physical to virtual migration, the TAM is helping the agency explore new cutting-edge VMware solutions. Adds Amstutz, "Our TAM is now working with us to move forward with our VI3 migration roadmap, as well as on how to leverage other VMware-based solutions for disaster recovery and business continuity."

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