



## KEY HIGHLIGHTS

INDUSTRY: SPORTS

## Cleveland Indians Company

## CHALLENGE

Develop a reliable infrastructure to run mission-critical Microsoft applications as cost effectively as possible

## SOLUTION

Use VMware software to run applications like Exchange Server and SQL Server on virtual, not physical, machines

## VMWARE AT WORK

VMware Infrastructure 3 Enterprise, featuring:

- ESX 3
- VMotion
- High Availability
- Distributed Resource Scheduler (DRS)

VMware Workstation

## DEPLOYMENT ENVIRONMENT

- ESX 3.0 running on three HP DL585s (one G1 and two G2s)
- Mission-critical applications running in production on virtual machines: Microsoft Exchange Server 2003 and 2007, Microsoft SQL Server 2000 and 2005, SharePoint 2007, Microsoft Dynamics CRM 3.0
- Guest operating systems: Windows Server 2003 R2 (Enterprise and Standard Editions) and Red Hat Enterprise Linux 3

*"We're predominantly a Microsoft shop, and we run pretty much everything on VMware: Exchange, SQL, SharePoint and Windows Server. Everything runs really well—in some cases, better than on physical boxes. And VMware gives us benefits in terms of manageability, availability and reliability. We depend on VMware software because it's proven technology—proven not only in the marketplace, but at our company."*

Whitney Kuszmaulm, Network Manager

## The Cleveland Indians Company

VMware technology is helping the Cleveland Indians Company's IT team earn MVP status. The group has not only increased the availability and performance of mission-critical Microsoft applications, it has saved the company quite a bit of money on hardware and systems administration.

The Cleveland Indians Company initially chose VMware to increase the utilization of their servers. It began testing VMware Workstation in 2004 and then moved on to VMware Infrastructure 3 to start testing pre-production applications. Encouraged by the results, Kuszmaul and his team decided to expand the company's virtualized portfolio to include production Microsoft applications in 2006.

"Once we determined for sure that things really ran well in a VMware environment, we decided to move our entire enterprise to it," he says. "Over the next year we moved our entire environment over to VMware: SQL, Exchange, SharePoint, CRM, you name it, we have it running in VMware. After we got Exchange and SQL into production on VMware, we continued to monitor performance counters and utilization reports, and we were still pleased."

The company's Microsoft applications seem to run better on VMware virtual machines than they do on physical ones. Kuszmaul gives the example of Exchange Server 2000. "It had a lot of memory leaks in it," he says, "but it didn't seem to have as many leaks when we ran it on a virtual machine. And right out of the gate we were using VMware features like High Availability (HA) and Distributed Resource Scheduler (DRS), as well as all the VMotion capabilities."

Kuszmaul's team performed extensive testing to ensure those VMware features were robust enough for their production environment. "In some of the tests we did with HA, I just walked in the server room and pushed power buttons to kill servers," he reports. "Did the boxes failover? Yes. Every time we tested the technology, it worked like a charm. That makes me pretty confident that we're covered if we have a serious incident in our data center. Today we have 48 servers—and only six of those are physical. And we're continuing to grow our virtualized infrastructure by leaps and bounds."

One reason the Cleveland Indians Company chose VMware over other virtualization vendors was a technical one. "Virtualization solutions like Microsoft's run on top of an OS," Kuszmaul says, "so there are two layers of complexity. With VMware, you are running right on top of the hardware layer, so it's less complex and more stable."

But the main reason he and his team went with VMware was because it was the market leader with the most experience. "Four years ago, when we started looking for a virtualization strategy, VMware was the main player," he says. "It had the most robust solution. And it still does."

## Benefits

Although the ability to run the Cleveland Indians Company's Microsoft applications without adding new hardware was the main driver of the move to a virtualized infrastructure, ease of management is the benefit that Kuszmaul cites first: "When you talk about what our VMware architecture has done for us, things are just easier. It's easier to put servers in production, it's easier to manage those servers, it's easier to upgrade them, and it also allows us to leverage our SAN across all of our servers versus just a few servers."

The specifics at the Cleveland Indians Company are impressive: a new server can be deployed in two to four hours, instead of the day or so it took before virtualization. And when it comes to server upgrades, Kuszmaul appreciates VMware software's snapshot capability. "You can take a snapshot, do the upgrade, and let it sit for a couple days," he explains. "If you don't see any problems with the upgrade, then you delete the snapshot. If you do see a problem, you roll back to the snapshot."

He's also impressed with the network and hardware resource monitoring capabilities of VMware. "If the servers bog down, VMware provides a way to see what they're doing at a glance," he says. "You can look at things like overall performance, memory performance and network performance through the VMware console." All those capabilities expedite application troubleshooting for the team.

Another benefit of the Cleveland Indians Company's VMware installation is easier testing. "Because we're a small company, we would never have the ability—or the funding—to put in a full-blown test environment," Kuszmaul says. "But with VMware, if I want to test a subset of our servers for upgrades or migrations, I can take them down, clone them, and I've got servers I can use for our test." That ability was put to good use recently, when the company decided to upgrade from Exchange Server 2003 to 2007 after a successful test.

The Cleveland Indians Company is also impressed with the stability of VMware Infrastructure 3. The company currently has about 325 Exchange Server mailboxes running on virtual machines. Encouraged by how those mailboxes are running, the IT team plans to add more. "I've only had to reboot Exchange once, five months after we had it up and running in the virtual environment," Kuszmaul reports. "And my SQL box has been up nine months without a reboot. I think that's a testament to the way VMware handles CPU and memory resources. I've never had a physical box running that long without having to reboot."

Kuszmaul says that enterprises large and small could benefit from VMware virtualization. "I think that with VMware software, the more you leverage it, the better it is going to be for you. If you can justify cost savings from both a hardware and a management standpoint with 20 servers, why can't you show the benefit and cost savings for 120?"

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## Results:

- Reliable, economical platform for mission-critical Microsoft applications
- Simplified, more powerful network management
- Considerable hardware savings: without virtualization, the company would have to add physical servers--each of which would cost approximately \$2,500 more than a virtual machine
- Enabled a streamlined disaster-recovery plan, shaving estimated recovery time by about four hours
- Fast recovery from system outages

**VMware, Inc. 3401 Hillview Ave., Palo Alto CA,  
94304 USA Tel 877-486-9273 Fax 650-427-5001**

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