

On the Right Track with HP Virtualization Portfolio

TTX reduces data center space and power requirements, thanks to a switch from IBM hardware to VMware powered by HP ProLiant servers and Insight Control management software.



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HP customer case study: server virtualization

Industry: transportation

Objective

Reduce data center space, power, and IT overhead while enhancing scalability, speed of response, and reliability

Approach

Cut costs and modernize infrastructure with a move from an all-IBM shop to a solution using HP ProLiant servers, Insight Control management software, and VMware

IT improvements

- Projected 96% reduction in recovery time objective (1 hour vs. 24 hours)
- 12-fold increase in server deployment speed (20 minutes vs. 4 hours)
- Fivefold reduction in server “touches” (twice a month vs. several times weekly)

Business benefits

- 10% lower hardware costs
- Projected reduction in maintenance costs
- 44% projected power cost savings for servers
- 69% projected reduction in server rack footprint
- 50% lower total cost of ownership (TCO) compared with mainframe



Thinking ahead

TTX Company owns and operates about 210,000 rail cars used by the leading railroads in the United States and Canada. The TTX motto is “Forward thinking,” and the motto applies as much to TTX’s approach to technology as its cars. To increase cost-efficiency, the company is in the process of migrating from an IBM mainframe to a Windows®-based open system environment. To further increase efficiency, the IT team is turning to virtualization.

Initially, TTX simply replaced its IBM eServer zSeries 890 mainframe with physical servers, but the company soon discovered that meant having an awful lot of them. “When I arrived a year ago, we had more than 100 physical boxes in the data center, and another 100 in the disaster recovery facility,” reports

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Server virtualization seemed like a promising solution to most of these problems. But TTX management was concerned that virtualization would add complexity, and it seemed at the time to be a fairly new, untested solution. “Then Intel® did a study and showed that CPU utilization of unvirtualized servers was very, very low—below 5%,” Zelinka says. That study helped TTX management finally decide to move to a virtualized system.

Virtualization with HP servers reduces TCO by 50%

Until then, TTX had been an all-IBM shop, but Zelinka decided to change that right from the start. “The most compelling aspect of the project was selecting the right hardware platform, and for me that was HP, as opposed to IBM,” he explains. “There were several reasons why. First, the overall cost of the servers is less from a capital investment perspective. But it’s also lower from an operational perspective, because HP servers are better performing and offer more capabilities and more capacity. Also, HP Insight Control management tools are far superior to the competition. They provide comprehensive proactive health status, are easy to use, and very intuitive. Compared to IBM’s tools, there is a night-and-day difference, and Dell isn’t even on the radar.”

Today, TTX has 143 virtual machines in use for testing and development purposes, and another 127 virtual machines in its production environment. That’s a total of 270 virtual machines hosted on 19 HP ProLiant DL360 and DL580 Servers. Future plans include adding HP ProLiant server blades along with HP Virtual Connect technology. HP Virtual Connect enables the server team to add, remove, or change servers with minimal involvement from the LAN or SAN teams, reducing complexity and the total cost of ownership, and speeding the ability to respond to business needs.

Already, the company is seeing many of the benefits Zelinka knew virtualizing on HP could bring.

“It was roughly 10% less expensive to bring in HP servers than IBM servers from a capital expense perspective,” he says. He expects savings on operating expenses too, because of operational efficiencies. Based on past experience at other companies, he believes TTX should save about 20% on operating costs. Total cost of ownership (TCO) will be about 50% less than the cost of a mainframe, he adds.

Reducing physical and power footprint

Virtualization on HP servers is bringing additional benefits. It’s helping TTX fit better into its data center. “We had 32 racks that will be consolidated down to 10 racks by the end of this year,” Zelinka says. “That means the HP servers and VMware have eliminated 22 racks of hardware, and reduced our server rack footprint by 69%.”

That smaller footprint will let TTX divide its data center—currently one huge room—into several rooms devoted to different types of hardware—one for networking, one for servers, one for desktops, and one that will be a more appropriate environment for help desk employees, who currently work amid the noise and distractions of the one-room data center.

Virtualization is also reducing power costs. “We expect the power footprint for our server racks to decrease by 69%; power needs have decreased by 44%,” Zelinka adds.

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Rob Zelinka, director of infrastructure, TTX Company



About TTX Company

TTX Company (www.ttx.com) has the motto “Forward thinking.” Nothing could be more fitting for a company whose products transport things Americans need—lumber, automobiles, machinery—across the United States, as well as Canada and Mexico. TTX owns and operates a fleet of about 210,000 rail cars used by the leading railroads such as Union Pacific Railroad and Pan Am Railways.

Supporting mission-critical functions

Another advantage of virtualization will be a shorter recovery time objective (RTO), Zelinka says. Currently, TTX’s server structure is replicated exactly at a data recovery center 30 miles away, and once a year, the company conducts a failover test from the main data center to the disaster recovery site. The objective is to fail over in 24 hours or less, but virtualization is part of a project to cut that recovery time objective dramatically.

“Failover will be faster, and our capabilities will be more robust when we have all the VMware software implemented, a process that is about 80% complete right now,” Zelinka explains. “Once that is done, we

will refresh the network, which is about 70% complete, and then update our storage. That will allow us to do continuous data protection where we need it. Once we do that, our ability to fail over, replicate, and recover will be much improved.”

With the new hardware in place, RTO for the company’s most vital, “mission-critical” functions will be one hour or less, Zelinka notes—an improvement of 96% compared with 24 hours. With continuous data protection, he adds, the recovery point objective (RPO) should be 15 minutes or less. For the next-tier data, which TTX calls “business-critical,” the RTO will be four hours, he adds.

Deploy faster, boost value with ProLiant training

Now you can speed deployment and boost productivity, while learning best practices that enhance the performance, reliability, security, and uptime of your HP new servers. These are some of the benefits that attract more than 200,000 people a year—including the TTX team—to ProLiant training from HP Education Services.

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Deploying servers in 20 minutes

The move to virtualization on HP has also dramatically reduced the time it takes TTX IT staff to deploy a server or restore a server after a malfunction. Using server deployment tools with HP Insight Control and VMware vCenter Server, they can now provision a server in 20 minutes, Zelinka reports, easily meeting their objective of one hour or less. That means server deployments are 12 times faster than they used to be. Before virtualization, he adds, "It could take four hours to get the operating system loaded. And getting the applications ready to roll could take days. And now I can have a consistent build across my server farm."

Fewer server "touches"

Zelinka particularly appreciates the HP Insight Control Environment (ICE) suite that provides him and his staff with a greater amount of control and information about the servers. "It's easy to use, with one very intuitive interface for all the system management agents," he says. "It displays each server's contract and warranty information—that's very useful. And the Web interface provides a quick summary of overall health issues of our complete infrastructure at a glance, with pre-failure alerts."

There's another time-saving feature, Zelinka adds. "The remote management component of ICE provides a console video record feature which is a real productivity tool for us when troubleshooting because we can play back the video of the last reboot or most recent failure on demand. We can see in minutes what might otherwise take an hour or two to learn through additional testing."

The team uses the server vulnerability scanning and patch update feature of HP Insight Control to perform server updates. "With HP Insight Control, the benefit is 'set and go' automation," Zelinka comments. "Our other administration tools required intervention along the way."



Customer solution at a glance

Hardware

- 19 HP ProLiant DL360 and DL580 Servers

Software

- HP Insight Control Suite
- VMware Infrastructure 3.5

Operating system

- Microsoft® Windows Server 2000, 2003, 2008

Network protocol

- 10 megabyte shared, transitioning to 10 Gigabit Ethernet

Services from HP

- HP Care Pack 6-Hour Call-to-Repair

And, he says, he's especially impressed with Insight Control because it allows administrators to perform many tasks that would otherwise require physically touching the server. "With the competitor's product, I need a different set of tools, or a KVM switch that is accessible by IP; with ICE, I don't." Thanks to ICE, he adds, he and his staff have been able to cut actual visits to the server from several times a week before HP to twice a month today.

"My staff is more productive."

Overall, Zelinka adds, he's impressed with the ongoing innovation of HP products. "HP is eager, it is innovative, and the company is always looking for ways to improve the products," he says. "HP is always listening to customers' needs and delivering solutions that fit those needs."

If he had to explain the benefit of HP to a CFO, he adds, "I'd say that it makes my staff much more productive through its remote management tools, and the cost of maintaining the gear is less than it was before. And it's more reliable, which means less downtime for end users."

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