



VMware Virtual Infrastructure Avoids \$1.1 Million In Cost for International Truck and Engine Corporation

International Truck Creates Aerodynamic IT Infrastructure Optimizing Performance and Reducing Bulky Hardware

RESULTS

- Avoided spending \$1.1 million in hardware and maintenance costs
- Server deployment takes minutes instead of weeks
- Optimized server management with VirtualCenter
- Cost avoidance: did not have to add staff to manage 150-300 servers
- Faster response to business needs

Need For Hardware Stalls International Truck

International Truck and Engine Corporation is the operating company of Navistar International Corporation, manufacturing International™ brand commercial trucks, mid-range diesel engines and IC brand school buses. International Truck is also a private label designer and manufacturer of diesel engines for the pickup truck, van and SUV markets and looking to expand into the military market. With the broadest distribution network in North America, the company also provides financing for customers and dealers. Additionally, through a joint venture with Ford Motor Company, the company builds medium commercial trucks and sells truck and diesel engine service parts.

The IT infrastructure supports a robust, growing enterprise of 10,000 employees, including those in manufacturing and distribution, developers, office workers and database users, with hundreds of servers. In 2002, accelerating demand for new servers drove IT Manager Barry Naber to evaluate ways to cut costs, reduce the need for more servers and centralize their management.

"We wanted to stop buying new servers," Naber says. "We looked at other options available at the time and found that VMware technology best met our needs." Instead of buying a new server for each new application, International Truck could use VMware® software to enable a single server to host multiple server applications. One server running VMware ESX Server can operate multiple virtual machines, each with its own software, operating system and hosted server application.

A Test Drive for VMware ESX Server

Naber and his team used an evaluation copy of VMware ESX Server to determine if it would accommodate the company's applications. "We loaded several applications on the software to observe how many it could handle and make sure it functioned properly," Naber says. "We spent time to create a failover scenario and ensure high availability, which is important to us."

Impressed with the software's performance, Naber began purchasing ESX Server licenses, gradually moving more and more applications to the virtual infrastructure. "As soon as we had an application user who wanted to purchase another server, we would look to see whether it was a viable application for VMware software. It helped us avoid purchasing more servers and we've been very successful with the product."

Naber has also recently added VMware VirtualCenter and VMware VMotion™ for optimal management of virtual computing resources. "Having a dozen physical servers instead of hundreds, plus being able to centrally manage them with VirtualCenter, makes us very happy with our VMware virtual infrastructure."

"We have a developer start on a development environment, build a new application, get everything set up and working properly, and then we use VMotion to migrate it to a production environment. It has worked well; even better than we could have hoped."

*Barry Naber
Assistant Director, International Truck Corporation*



VMWARE VIRTUAL INFRASTRUCTURE AT WORK

- ESX Server, VirtualCenter and VMotion on 4- and 8-CPU IBM and HP servers
- Guest operating systems: Microsoft® Windows NT4, Windows 2000 and Windows 2003
- Applications running in test and production on virtual machines include: HP Director, Patrol, Web Sense. Other types of applications running in virtual machines: training, expense, networking, Web services, purchasing and accounting applications

Heavy Duty Time and Money Savings

Currently at about 150 virtual machines on 11 physical servers, International Truck plans to grow its virtual infrastructure over the long haul to continue garnering such benefits as the following:

- **Cost Avoidance.** International Truck tracks how much money it would spend if it had to purchase physical servers instead of creating virtual machines. "For every production virtual machine, we estimate a \$7,500 cost avoidance per server," explains Naber, adding that the cost includes hardware and maintenance. "We multiply 150 applications by \$7,500 and estimate a \$1.1 million cost avoidance."
- **Faster server deployment.** Instead of taking two or three weeks to order a physical server, plus hours to configure it, International Truck is able to set up new servers within hours. "It's much faster because we have the ability to set up an existing virtual machine and just clone it," Naber says.
- **Increased responsiveness to business needs.** With VMware software, Naber's team can quickly respond to requests for new development and production servers. "We're driven by the business," Naber says. "We're able to quickly create new environments. Employees don't know whether their applications are running on a standalone server, a linux partition or a VMware partition. We can turn things around faster because we don't continually have to order hardware to meet their needs."

- **Reduced staffing cost.** ESX Server and VirtualCenter also increase productivity for International Truck IT staff, allowing them to focus their skills on more important tasks than tedious server deployment and management. "If we had to purchase 150-300 servers for those 150 applications running on VMware software, I would have had to add a lot more people to my Windows team," says Naber. "It's a cost avoidance on staffing."

- **Easy migration from development to production.** International Truck uses VMotion to migrate development partitions into production. "We have a developer start on a development environment, build a new application, get everything set up and working properly, and then we use VMotion to migrate it to a production environment," Naber says. "It has worked well; even better than we could have hoped. Without VMotion, we'd probably have to do a backup and restore. I'm not sure how we would go about that."

IT Puts the Hammer Down with VMware Software

With VMware software, Naber says he has been able to optimize control of the company's server environment while radically avoiding IT costs. "Using VMware software has brought a huge cost benefit to IT — avoiding costs by \$1.1 million is fantastic," he says. "In a large company whose business is constantly growing, scalability is crucial. With VMware software, we're able to respond quickly to business needs, and we can get more projects done in a shorter amount of time."

www.vmware.com

VMware, Inc. 3145 Porter Drive, Palo Alto, CA 94304 USA
Tel 650-475-5000 Fax 650-475-5001