



## JanPak Delivers High Availability, Nimble Business Response Using VMware ESX Server and P2V Assistant

VMware Helps Wholesale Distributor Create a Flexible, High-Availability IT Infrastructure that Paves the Way for Future Growth by Lowering Total Cost of Ownership and Reducing Deployment Time

### RESULTS

- Avoided \$19,000 in hardware costs by achieving applications redundancy in virtual machines on two existing servers, instead of purchasing seven additional servers
- Decreased time to migrate applications from about three days to less than five hours
- Reduced deployment time for new servers from weeks to about 20 minutes using preconfigured virtual machines
- Migrated crucial application from a failing legacy server to redundant virtual machines on two different servers in five hours

### High-Availability IT Infrastructure Dispatches the Goods to 14,000 Customers in Diverse Markets

For more than 50 years, JanPak has been dedicated to supplying customers with the highest-quality goods and services in the most efficient, timely manner possible. The distributor of janitorial and packaging products has evolved from its modest roots as a small paper supplier into a robust wholesale distribution entity supporting more than 14,000 enterprise customers. The company currently serves a number of industries including manufacturing firms, educational and governmental institutions, health care organizations, lodging, retail and the food service industry.

Responsiveness to customer requirements is at the heart of the JanPak business philosophy, and the company relies on technology to help further this goal. "Our Web site and enterprise resource planning (ERP) systems need to be up and running 100 percent of the time to enable us to respond instantly to customer needs," says David Simmons, IT director at Janpak, Inc. "We consider anything less unacceptable."

Given this sensibility, it's no surprise that high availability is a top priority in the JanPak data center. Nearly 300 employees access the company's large IBM Universe™ customer database and main ERP system over a wide area network (WAN) using Citrix® thin clients. To safeguard uptime, Simmons deploys these and other critical applications in pairs. However, while redundancy helps ensure continu-

ous availability if one application instance or server fails, purchasing duplicate hardware can significantly add to the cost of IT projects. In addition, the time required to deploy duplicate servers and migrate applications can slow time to market for essential distribution services.

In December 2003, Simmons was motivated to find a more time- and cost-effective way to ensure high availability for a new Citrix- Oracle 9i based application—an enterprise routing system designed to coordinate fleet operations. Already familiar with VMware® virtualization technology through prior use of VMware Workstation, Simmons obtained an evaluation license for VMware ESX Server™ software and began experimenting with the product. ESX Server virtualization software creates multiple independent partitions, or virtual machines, on a single x86-processor-based server. Each virtual machine runs a separate operating system instance and applications in an isolated environment; should a problem occur within one virtual machine, other virtual machines running on the same physical server are unaffected.

The JanPak IT department conducted a comprehensive series of benchmark tests in January 2004, comparing performance of the same workload on three physical servers versus three virtual machines on one physical server running VMware ESX Server software. Simmons was impressed by the performance of the virtual machines: "First, we ran the benchmarks concurrently to see what would happen and identify disk and CPU bottlenecks. Then we asked users to test the system using Citrix across our WAN. They didn't notice any difference between accessing

**"P2V Assistant is the best migration tool I have ever used. With it, we were able to move our large payroll system from a physical server to a virtual machine in just a few hours. We estimate that a comparable migration without P2V Assistant and ESX Server virtual machines would have taken us as long as three days."**

David Simmons  
IT Director, JanPak, Inc.



#### VMWARE ESX SERVER AND P2V ASSISTANT AT WORK

- VMware ESX Server deployed on one IBM eServer xSeries 345 server and one IBM xSeries 235
- The 2-processor IBM xSeries 345 has 4GB GB of RAM while the 2-processor IBM xSeries 235 has 8 GB of RAM. Each server is equipped with three Gigabit Ethernet network interface cards (NICs) and 350 GB of disk storage.
- Host operating system: VMware ESX Server
- Guest operating systems: Microsoft® Windows® 2000 Server and Linux®
- Applications: Oracle9i database, front-end routing software, Citrix, DNS, file and printer servers, domain controllers and web-commerce applications
- Network configuration: combination of 300 IBM and Neoware thin clients, IBM Laptops and workstations access nine active VMs on two physical servers over a WAN using Frame Relay and ATM protocols

the three different physical servers and the three virtual machines running on the same server—and we didn't either. That's when we gave the VMware ESX Server-based solution a go," Simmons says.

In addition to ESX Server, JanPak purchased P2V Assistant—an enterprise-class migration product that captures an application from an existing physical server and moves it to a VMware virtual machine. Within hours of receiving the VMware software, Simmons' team had deployed ESX Server on two physical systems running seven virtual machines apiece—an IBM® eServer® xSeries® 345 and an IBM eServer xSeries 235. Next, Simmons began using P2V Assistant to migrate the company payroll system from a physical server to a virtual machine.

#### ESX Server and P2V Assistant Streamline Application Migration and Server Deployment

"P2V Assistant is the best migration tool I have ever used," says Simmons. "With it, we were able to move our large payroll system from a physical server to a virtual machine in just a few hours and we had zero problems. The users in the payroll department never noticed a difference—in fact, to this day they don't even know that we performed the migration," Simmons says. "We estimate that comparable migrations without P2V Assistant and ESX Server virtual machines would have taken us as long as three days."

Not only has P2V Assistant significantly reduced the time involved in migrating applications at JanPak, but ESX Server has made the deployment of new servers much faster. Using VMware migration and deployment capabilities, JanPak can support existing applications more reliably as well as implement new systems quickly and cost-effectively, improving customer responsiveness while reducing costs in the data center.

#### • Reliable, quick migration of applications from unsteady legacy servers to virtual machines.

"P2V Assistant has been a real success story for us," says Simmons. A few weeks after JanPak acquired P2V Assistant, one of the company's oldest servers suffered a disk drive failure. Simmons became concerned when his staff found that replacement drives were no longer available for the end-of-life server, which contained a critical signature-capture system to digitally record proof of deliveries. At the same time, the server began experiencing power-supply problems. "Clearly, the server was dying," says Simmons, "and we couldn't afford to be without this particular application for long. Instead of paying for a replacement server, we decided to migrate the application to a VMware virtual machine using P2V Assistant. Within five hours, we had the application 100 percent operational on a virtual machine. Without P2V Assistant, we would have had to install and configure the original application on a new server, install patches, implement security, and only then begin the complex process of data migration—assuming, of course, that the original server's power-supply issues permitted us to access the data," Simmons says. "P2V Assistant eliminated the pain and hassle we anticipated for this particular migration. It is a first-class tool!"

- **Fast, efficient server deployment.** VMware products have also greatly reduced the inconvenience and time involved in deploying new applications and services at JanPak. "We maintain a separate data center with its own backup generator in a secure building. This keeps our equipment safe and provides for a continuous power supply. The trouble is, it takes time to drive over to the building," Simmons says. Using ESX Server, the company's distributed environment no longer hinders the efficiency of Simmons' staff. VMware virtual machines can be managed through a Web browser from any location, and the IT department maintains preconfigured virtual machines that can be deployed in minutes—enabling nimble IT response. "ESX Server has allowed us to cut server deployment times from hours, or even days, to just 20 minutes," says Simmons.



- Significantly lower data center costs.** VMware has helped JanPak dramatically reduce costs in the data center by enabling the consolidation of multiple applications onto fewer physical servers. Server consolidation not only lowers procurement costs but also reduces ongoing maintenance efforts. Currently, JanPak runs its Oracle9i database, Citrix, Domain Name System (DNS) server, file and printer servers, and domain controllers on virtual machines running on two physical servers. "Virtualization lets us utilize each server more fully," says Simmons. "We had plenty of headroom, so we also deployed our new enterprise routing software in virtual machines on these two servers. The capability to roll out this application without purchasing a single new server greatly reduced the overall cost of the project," Simmons says. "Without VMware software, we would have had to purchase two additional servers to achieve redundancy for the new routing software—one for Citrix and one for Oracle. VMware software paid for itself on the first installation."

### VMware Lowers Total Cost of Ownership for a High-Availability IT Infrastructure

For a company as dedicated to customer needs as JanPak, the capability to maintain and enhance its practice of redundant deployments of critical systems—without doubling IT costs or slowing the pace of urgent project development—is perhaps the most significant benefit that VMware ESX Server and P2V Assistant offer. JanPak runs seven virtual machines each on two physical servers. The virtual machines in the second physical server act as spare copies of the virtual machines in the first.

"We cannot afford to stop our company just because something goes wrong with one of our systems," says Simmons. "Deploying applications in pairs provides the redundancy that helps protect the JanPak data center from unplanned downtime. Virtual machines have enabled us to ensure redundancy for quite a number of our systems and applications using a minimal number of physical servers. Our resulting cost savings have been considerable," says Simmons.

Looking ahead, Simmons indicates that JanPak may opt to use additional VMware products across a storage area network—including VMware VirtualCenter and VMotion™ technology—to further increase the efficiency of overall JanPak operations and help ensure zero-downtime maintenance. VMware VirtualCenter infrastructure management software works with Intel processor-based servers running ESX Server software to provide a central point of control from which administrators can manage their virtual infrastructure. Working together with VirtualCenter, VMotion intelligent workload management technology enables the migration of a running virtual machine from one physical server to another without service interruption.

"The more responsive our data center is, the better we are able to support the business objectives of the company and the needs of our customers," says Simmons. "Using VMware, JanPak has already been able to achieve the high availability that we require and our customers deserve, conveniently and cost-effectively."

[www.vmware.com](http://www.vmware.com)

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