

Kansas City Terminal

Clients Count on Stratus

VMware and Stratus raise reliability and curb costs for rail industry's first virtualized rail management system

Business situation

Some of the largest U.S. freight rail companies – BNSF, Kansas City Southern, Norfolk Southern Railway, Union Pacific – as well as passenger carrier Amtrak rely on Kansas City Terminal (KCT) Railway to keep their trains running smoothly over its 85 miles of tracks in Kansas and Missouri. Scheduling problems are not just a matter of inconvenience for these companies. A single switching error on the strategically located KCT railway can quickly cause lost revenue, millions of dollars per hour in extra operational expenses, and weeks of delays all over the country. Conscious of its role in maintaining its customers' profitability, the nation's second-largest rail hub invests heavily in the latest railroad management technology.

KCT manages the 350 trains it moves per day with the world's first virtualized railroad control system. Nearly identical to its predecessor at the front end, the virtualized system is radically different on the back end, offering reliability and operational simplicity that the previous system could not match.

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Brad Peek
Chief financial officer
KCT

Quick Facts

Solution profile

- Manages rail traffic through the second-largest rail hub in the United States
- The rail industry's first virtualized management system
- Designed for 24/7 operation and disaster recovery
- Higher availability and security, lower operational overhead than previous solution
- Zero unplanned downtime since implementation

Products

- Stratus® ftServer® systems
- VMware virtualization software
- Railware ECIS (Enterprise Control and Information System)

"We pride ourselves on efficiency, accuracy and reliability, and we expect that every aspect of our business, no matter how small, operates to the highest standard of service," said Brad Peek, KCT chief financial officer. "The virtualization project managed by our partners at Railware Inc. puts us at the forefront of our industry with one of the most beneficial and productive technologies offered up by the high tech industry in quite some time."

Business objectives

The KCT project would leverage virtualization technology to fortify the company's exacting service standards and industry leadership:

- Maintain competitive edge through increased availability, performance, flexibility and disaster recovery strategies
- Eliminate points of failure
- Reduce operational overhead
- Simplify IT infrastructure



Count On Stratus™

The availability solution

KCT dispatchers work at multi-screen workstations displaying the applications in KCT's main management suite, Railware's ECIS (Enterprise Control and Information System). ECIS applications provide communications; tools for tactical planning traffic, locomotive and car management; and views of railroad operations, among other functionality.

The ECIS system runs on VMware virtualization technology and a Stratus Technologies fault-tolerant ftServer system. Railware, which manages the system for KCT, created a virtual Windows 2003 server on the Stratus system for application logic, SQL server, and front-end processor functions. The virtualized environment replaced a more server-intensive architecture in which each ran on its own Windows 2003 machine. Switching to a virtualized \ infrastructure reduced operational overhead, simplified KCT's IT infrastructure and eliminated several points of failure from the KCT network.

"We feel confident doing this for Kansas City Terminal Railway because of the extremely high levels of reliability provided by the Stratus ftServer hardware and the virtualization software from VMware. We simply would not have created a virtualized system otherwise,"

Ross Pirtle

President
Railware

It also, however, put a much higher premium on fault tolerance and reliability. With all key functions running on one server, any problem with that system affects every operational area. Railware recommended Stratus to KCT because of Stratus' experience in demanding environments where 99.999 percent uptime is mandatory.

Business impact

KCT has had zero unscheduled downtime since it implemented the virtualized system on Stratus hardware. Railware believes that virtualizing its ECIS applications for KCT created a competitive edge for offering other transportation clients improved availability, security, disaster recovery, performance, flexibility and server capacity.

The virtualized system running on ftServer provides the 24/7 uptime the rail management system requires plus an added layer of disaster recovery protection. Railware Technology Analyst Curtis Weakley said the company had faith in the Stratus servers to provide continuous availability, but had to consider what would happen if the servers were destroyed. Short recovery time is vital to operations such as KCT. Virtualized systems are easy to recover because there are exact copies of the hard drives running all over the network, Weakley said. That reduces recovery time from as much as a few days to just a few minutes.

"We're aware of a situation in which a company did not have a backup of its hard drive when its system failed during a power loss and corrupted both the primary server and the backup. It took two days to rebuild the operating system, get the applications installed and reconfigure the hardware because it was a complex system," Weakley said. "With a virtualized system, if the control center burned down we could literally be back up and running in minutes by re-deploying the virtual machine on a box anywhere without going through hours of configuration. The virtual machines are a much faster recovery vehicle than disk images because unlike images, they're hardware independent."

About Stratus

Stratus Technologies focuses exclusively on helping its customers keep critical business operations online without interruption. Business continuity requires resiliency and superior availability throughout the IT infrastructure, including virtual environments. Stratus delivers a range of solutions that includes software-based high availability, fault-tolerant servers, availability consulting and assessment, and remote systems management services. Based on its 28 years of expertise in product and services technology for total availability, Stratus is a trusted solutions provider to customers in manufacturing, healthcare, financial services, public safety, transportation & logistics, and other industries.

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