



Microsoft Infrastructure Optimization Customer Solution Case Study



Firm Shrinks 650 Servers to 22, Cuts Energy Usage by 90 Percent with Virtualization

Overview

Country or Region: United States

Industry: Professional services

Customer Profile

Kroll Factual Data provides business information to mortgage lenders, consumer lenders, property management firms, and other businesses. The Loveland, Colorado-based firm has 300 employees.

Business Situation

Kroll Factual Data wanted to reduce its servers to minimize management work, costs, and time required to deliver new services. It also wanted to speed the process of integrating acquired firms.

Solution

Kroll Factual Data virtualized its data center using Windows Server® 2008 Datacenter and Hyper-V™ technology. It also uses Microsoft® System Center data center solutions to simplify IT management.

Benefits

- Servers reduced from 650 to 22
- Energy use reduced 90 percent
- Increased agility and responsiveness
- Improved business continuity

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Chris Steffen, Principal Technical Architect, Kroll Factual Data

Kroll Factual Data of Loveland, Colorado, is a longtime provider of information services to the mortgage industry. The firm wanted to optimize its server infrastructure to better meet spikes in demand and reduce data center costs. Kroll Factual Data virtualized its data center using Windows Server® 2008 and Hyper-V™ technology, consolidating 650 servers to 22. It further streamlined its infrastructure using Microsoft® System Center data center solutions to monitor and manage its physical and virtual landscape, and Microsoft Visual Studio® development tools to quickly develop applications. With its new optimized infrastructure, the company can grow faster, scale quickly to meet customer needs, and dramatically reduce IT costs. Kroll Factual Data has cut annual hardware expenditures by tens of thousands of dollars and energy costs by U.S.\$442,554 annually.



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Russell Donnan, Chief Information Officer,
Kroll Factual Data

Situation

Kroll Factual Data is a leading provider of business information to mortgage lenders, consumer lenders, property management firms, and other businesses. For over 20 years, the Loveland, Colorado-based firm has helped businesses make prompt, accurate decisions by providing credit reports, risk assessment reports, business background research, collection information services, employee screening, and many other information services. Kroll Factual Data is a subsidiary of Kroll, the world's leading risk consulting company, and has 300 employees.

Since Kroll Factual Data's product is information, its information systems are business-critical to the company's success. “Our systems have to be available 24 hours a day, seven days a week,” explains Russell Donnan, Chief Information Officer for Kroll Factual Data. “We also need to have a streamlined data center so that we can deploy systems quickly to meet swings in demand.” For example, because Kroll Factual Data serves the mortgage industry, changes in interest rates or federal lending policies can drive sudden surges in demand for the firm's services. Kroll Factual Data needs to be able to rapidly deploy servers to meet the processing load, and to scale back data-center resources and expenses when demand subsides. “Especially with all the sea-changes going on in the financial industry, and policies changing almost daily, we need to be able to react immediately,” Donnan adds.

The process of ordering, deploying, and testing physical server hardware impeded this agility. It took approximately two weeks to complete this process for a single server, so deploying dozens of servers a month took time that Kroll Factual Data could ill afford in striving to meet customer needs. It also required that a small army of IT professionals

spend their valuable time on mundane server setup tasks rather than creating new customer solutions.

The Kroll Factual Data IT staff also spent huge amounts of time integrating the company's many acquisitions. Kroll Factual Data has experienced an enormous amount of growth over the last five years, acquiring 58 companies. Donnan's staff had to physically transport an acquired firm's servers to Kroll Factual Data's data center, start up all servers and ensure that they were operational, and then integrate the firm's applications and data into Kroll Factual Data's setup one by one. The process was extremely time-consuming (30 to 60 days), involved a huge amount of risk, and resulted in occasional failures.

Of course, apart from setting up new servers and integrating acquired firms' servers, Kroll Factual Data IT staffers spent most of their remaining time managing the firm's 650 servers and the applications running on them. “Because most of our business applications are custom and proprietary, it was not easy to use off-the-shelf monitoring tools to monitor them,” Donnan says. “We had an entire department devoted to producing tools to monitor our applications and ensuring that our customer-facing systems were available and performing well.”

With so much riding on its IT infrastructure, Kroll Factual Data needed a fail-safe business-continuity plan. To ensure nonstop availability of business-critical systems, the company periodically sent a team to its disaster-recovery site 65 miles away to manually verify that applications were intact and could actually bear production-level customer traffic if the need arose.

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Russell Donnan, Chief Information Officer,
Kroll Factual Data

Solution

In 2003, Kroll Factual Data began to investigate server virtualization as a way to reduce its server holdings and management work, improve business agility, and generally create a more optimized infrastructure. Kroll was one of the first to deploy early commercial virtualization software, which enables firms to create individual virtual machines within a single physical, or host, server. Kroll Factual Data wanted to expand its use of virtualization and also move to new multi-core processors and server clustering, which many early virtualization programs did not support.

Virtualization with Hyper-V

In early 2008, Kroll Factual Data revisited the commercial virtualization software market and evaluated several products, including the Hyper-V™ technology included with the Windows Server® 2008 operating system, VMware, Citrix XenServer, and others. The company ultimately decided to deploy Hyper-V because, “Hyper-V seemed custom made for our environment,” says Chris Steffen, Principal Technical Architect for Kroll Factual Data. “Microsoft has always been one of the very first to address problems immediately and deal with real-world problems. We had no application compatibility issues with Hyper-V, and Microsoft technologies are substantially more cost-effective than competing products.”

Kroll Factual Data used Windows Server 2008 Datacenter with Hyper-V to dramatically prune its physical server holdings, from 650 to 22 systems. Each host server runs approximately 30 virtual machines. Further, the IT staff was so impressed with the stability and performance of Hyper-V that it deployed the virtualization software in its production environment first, and later in its development and test environments.

With virtualization, the laborious process of integrating the IT systems of acquired companies became dramatically simpler. Kroll Factual Data first virtualized the infrastructure of the new company and then moved the new virtual machines into its data center.

Integrated Management Solution

The integrated, optimized efficiencies continue with Kroll Factual Data's use of Microsoft® System Center data center solutions to monitor and manage its virtualized infrastructure. The company uses Microsoft System Center Operations Manager 2007 to monitor its 22 physical servers and Microsoft System Center Virtual Machine Manager 2008 to deploy, optimize, and manage its virtual machines. “System Center Virtual Machine Manager is a critical component of our virtualization infrastructure,” Steffen says. “With 85 percent of our data center virtualized, it becomes critical to be able to manage all our physical servers and virtual machines from a central location.”

Kroll Factual Data's network operations center staff uses System Center solutions to collect server availability data so that it can preemptively address potential issues before they cause customer systems to slow or fail. They can quickly and easily deploy a new virtual machine or move a workload from one virtual machine to another when a system fails, without interrupting application operation.

To help its executives keep their fingertips on the pulse of data center needs, Donnan's staff used the Windows Vista® operating system to create an executive dashboard that is displayed on executives' computers as a Windows Vista gadget. The dashboard provides a quick, graphical look at transactions flowing through the Kroll Factual Data data center in real time. This enables executives to make rapid, informed decisions

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using real-time business data about market activities and the company's current data center capacity and workloads.

Integrated Development Tool Set

Kroll Factual Data enhances its nimble IT infrastructure by using the Microsoft Visual Studio® development system to create custom line-of-business (LOB) applications. “We can be very responsive to customer demands by using Microsoft development tools and virtual machines in the development stage, then migrating those applications to quality assurance and ultimately into a production environment, all within the virtual infrastructure,” Steffen says. “Using a virtual infrastructure allows us to move applications through that chain very rapidly and reduces development and testing time. It also gives us a high degree of confidence that the deployment in each environment is exactly the same.”

Benefits

By optimizing its core infrastructure using Microsoft virtualization, management, and development solutions, Kroll Factual Data has been able to dramatically reduce IT costs, reduce its environmental impact, and strengthen business continuity. It has been able to better accommodate rapid business growth and react faster to customer demands and market changes.

Servers Reduced from 650 to 22

Using Hyper-V, Kroll Factual Data has trimmed its physical server holdings by a staggering amount—from 650 to 22 systems; each of its remaining 22 physical servers is essentially running the load of 30 physical machines. “We have reduced our annual hardware expenditures by tens of thousands of dollars, reduced our electrical costs by \$442,554 annually, and reduced our IT labor by hundreds of hours a week by having so many fewer servers to manage,” Steffen says.

Provisioning a virtual machine takes 10 to 15 minutes versus the two weeks required to order and provision a physical server. Consequently, Kroll Factual Data's IT staff is far more efficient and can concentrate on higher-value projects than deploying, maintaining, and upgrading servers.

Kroll Factual Data has found that an optimized, efficient infrastructure also improves job satisfaction for IT professionals, which is a powerful retention benefit. “Our staff enjoys much higher job satisfaction managing a virtualized environment because they are focused on higher-level tasks rather than on the minutia of managing a complex environment,” Donnan says.

Energy Use Reduced 90 Percent

The significant reduction in servers contributes hugely to Kroll Factual Data's “green” initiatives. In 2004, the company set a goal of using renewable power to run its entire Loveland campus. “We're lucky that we live where there is a substantial amount of wind-generated power, and also lucky that we have a choice in the power that we purchase,” Steffen says. “We made the decision in early 2005 to move 100 percent to wind-generated power for our entire facility. That enables us to be very green from a power perspective. Slashing our servers from 650 to 22 physical machines has led to even greater cost savings. We believe that Hyper-V has helped us reduce our energy usage by 90 percent.”

Increased Agility and Responsiveness

Using Windows Server 2008 with Hyper-V, Kroll Factual Data has reduced the cost, time, and risk involved in integrating the technology of acquired companies into its infrastructure. This frees the company to grow faster. “Acquisitions are 100 times easier with Hyper-V, because we can take an existing data center, virtualize it, and meld it

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seamlessly into our existing environment,” Steffen says.

Kroll Factual Data has the flexibility to add new virtual machines and scale its business up or down on demand. “With Hyper-V, we have a substantial amount of scalability built into our infrastructure, which enables us to be very competitive in a rapidly changing environment,” Donnan says. “Our customers’ needs change rapidly. As an example, in the mortgage industry, a small change in interest rates can cause a wild fluctuation in our business volume. We now have the ability to deploy additional server resources very rapidly.”

Improved Business Continuity

Kroll Factual Data has also been able to streamline and strengthen its business continuity plan using Hyper-V. In the event of a service interruption, the IT staff simply copies production virtual machines from one physical server to another. The firm maintains a golden image of its production applications at its disaster-recovery location, so there is no interruption. “Converting our disaster recovery environment into a production environment is as simple as using System Center Virtual Machine Manager 2008 to copy files to a standby host and activating them,” Steffen says. “This saves time and enables us to maintain uninterrupted service to our customers.”

Microsoft Infrastructure Optimization

With infrastructure optimization, you can build a secure, well-managed, and dynamic core IT infrastructure that can reduce overall IT costs, make better use of resources, and become a strategic asset for the business. The Infrastructure Optimization model—with basic, standardized, rationalized, and dynamic levels—was developed by Microsoft using industry best practices and Microsoft’s own experiences with enterprise customers. The Infrastructure Optimization model provides a maturity framework that is flexible and easily used as a benchmark for technical capability and business value.

For more information about Microsoft infrastructure optimization, go to:

www.microsoft.com/io

Software and Services

- Microsoft Server Product Portfolio
 - Windows Server 2008 Datacenter
 - Microsoft System Center Operations Manager 2007
 - Microsoft System Center Virtual Machine Manager 2008

- Microsoft Visual Studio
- Technologies
 - Hyper-V