



Investment Firm Expands Service Recovery, Lowers Costs with Virtualization

Overview

Country or Region: United States
Industry: Financial services—Capital markets and securities

Customer Profile

Munder Capital Management is a U.S.\$30 billion financial services firm that manages investments for corporations, foundations, universities, and individuals. The company employs 200 people.

Business Situation

Munder Capital wanted to cost-effectively expand its disaster recovery capabilities and staunch server proliferation to reduce capital and operating costs.

Solution

Munder Capital deployed Windows Server® 2008 with Hyper-V™ virtualization technology to expand its disaster recover capabilities. It also uses Microsoft® System Center solutions to manage its infrastructure and Compellent virtualized storage resources.

Benefits

- Uninterrupted access to financial data
- Reduced costs
- Increased business agility
- Improved regulatory compliance
- Enhanced application performance

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Munder Capital Management of Birmingham, Michigan, thrives on information. Interruptions to business systems often left traders and analysts without access to information needed to make quick decisions. The company also struggled with server sprawl, which raised operating costs and hindered new-service rollouts. Munder Capital Management used Windows Server® 2008 with Hyper-V™ virtualization technology to improve its disaster responsiveness, reduce server hardware by 40 percent, lower electrical and management expenses by U.S.\$1,000 a month, and increase business agility. Munder Capital plans to use Microsoft® System Center Virtual Machine Manager 2008 to manage its virtual landscape, and Microsoft Application Virtualization to deliver applications centrally and more reliably. Compellent Storage Center storage area networks round out the company’s virtualization solution.



Situation

Munder Capital Management is a U.S.\$30 billion financial services firm based in Birmingham, Michigan. Clients include corporations, public and private pension fund sponsors, trustees of charitable foundations and universities, insurance companies, and individual investors. Munder Capital employs 168 people in Birmingham and Boston, Massachusetts.

To make wise decisions for its clients, Munder Capital investment professionals need constant access to financial data and business applications. Every year, electrical outages due to storms, regional blackouts, gas or water-main breaks, and other unforeseen events plague the company. The company's data center is located seven miles from its Birmingham headquarters, to enhance disaster preparedness, though Munder Capital maintained equipment in Birmingham to recover the most critical 10 percent of business applications should the data center become unavailable. At the data center, the company has facilities and equipment to continue key business operations such as trading should the headquarters become unavailable.

However, Munder Capital wanted to be able to quickly recover even more business systems when unanticipated outages occurred. The company was not eager to purchase more servers. The data center was already overrun with servers, which steadily consumed more space, electricity, and IT staff time. "We run close to 150 specialized financial applications, and most require a dedicated server, storage, and backup resources," explains Ed Eades, Senior Systems Integrator for Munder Capital Management. "Consequently, we had 140 servers, most of them vastly underutilized, and growing heating and cooling costs." The staff maintained another 20 servers at the Birmingham headquarters.

All these servers became increasingly cumbersome to manage. When business users requested new services, the IT staff had to order new hardware, provision servers, and set up development and test environments. The whole process took weeks and increased the risk of proving out new ideas. "We could not move as quickly to experiment with new ideas that might improve the business, because the technology underpinnings were too expensive and complex," Eades says. The IT staff rolled out about 120 servers annually, for development, test, and production of new services. Development and test servers were reused but still required repeated provisioning efforts.

As Munder Capital scaled its infrastructure, regulatory compliance became more difficult. "The more servers you have, the more time you spend auditing to make sure that you're following best practices," says Wolfgang Goerlich, Network Operations and Security Manager for Munder Capital Management. With more time devoted to server provisioning, monitoring, managing, and auditing, the IT staff had less time to research and implement new services that would help the company compete and grow.

Solution

Munder experimented with server virtualization, using Microsoft® Virtual Server 2005, VMware, and the open source Xen hypervisor in its development and test areas. However, these technologies were used in very specialized scenarios, and Munder Capital wanted a single virtualization technology that was flexible enough to meet all its business needs. "We were convinced that virtualization was key to reducing our server and storage costs, improving disaster recovery, and increasing business agility," Eades says. "The next step was to see which

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technology would work best strategically for our company.”

Compatible, Affordable Solution

Over a yearlong evaluation period that began in June 2007, Munder Capital looked at the Windows Server® 2008 operating system with Hyper-V™ virtualization technology, VMware, Microsoft Virtual Server 2005, Xen, and Parallels Virtuozzo. The company’s virtualization solution had to meet three requirements:

- Match or enhance the skills of the company’s existing staff
- Fit into the ecosystem of operating systems, applications, and hardware the company already owned
- Deliver the best mix of features and performance for the price

“Hyper-V met all these requirements and was also the top performer of the group,” Goerlich says. “It supported native disk access, which would enable us to complete disaster recovery in a short timeframe. Hyper-V also worked best with our staff’s skill set, and the price was attractive. We just didn’t see the corresponding boost in benefits from the higher-priced alternatives. With VMware, we would have spent an additional \$10,000 to \$15,000 on IT staff training alone.”

Virtual Storage

To bolster the company’s disaster recovery plans, Munder Capital installed two Compellent Storage Center storage area networks (SANs), in the Birmingham headquarters and the remote data center. The setup relies on patented, space-efficient snapshot technology, called Replays, that back up the company’s data. It also enables thin replication, which affordably shuttles the Replays among sites to keep the data safe, and thin provisioning, which allocates storage volumes for virtual machines on a just-in-time basis. Compellent Technologies is a Microsoft

Gold Certified Partner located in Eden Prairie, Minnesota, that provides virtual storage solutions.

“We think that our SAN is a great match for Hyper-V, because we virtualize storage resources while Hyper-V virtualizes servers,” says Steve Anderson, Director of Alliances at Compellent Technologies. “We reduce a customer’s up-front disk costs by allowing customers to scale as they grow rather than having to buy all their storage up front.”

Because Hyper-V supports native disk access, Munder Capital is able to boot virtual machines directly from its Compellent SANs, which speeds recovery time and eliminates the lengthy physical-to-virtual migration process. This saves a significant amount of time when moving a physical server to a virtual machine for test or recovery. Hyper-V also supports the Compellent Replay feature, which enables Munder Capital to recover any size volume to any virtual machine in less than 10 seconds.

Eight Hosts, 32 Virtual Machines

Munder Capital deployed Windows Server 2008 Enterprise to take advantage of the liberal licensing terms—four virtual machines per license—and failover clustering capabilities. To date, Munder Capital has created 32 Hyper-V virtual machines on eight IBM Systems x3650 servers. Each server contains two Quad-Core Intel Xeon processors. The company will add two more servers in 2009 to run a planned implementation of Microsoft Exchange Server 2007 e-mail messaging and collaboration software.

Of the 32 virtual machines, 16 are production servers and 16 are for test. Munder Capital first virtualized its Web servers and domain controllers and is now moving financial applications to the virtual environment. Guest operating systems running under Windows

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Server 2008 include Windows Server 2003, Windows Vista®, and Windows® XP.

Application and Client Virtualization

Munder Capital also plans to use Microsoft Application Virtualization (App-V) for Terminal Services to provide easier remote access to the company's financial applications. The company currently uses Terminal Services in Windows Server 2003 to provide remote access to these applications from individual desktop computers. However, some of the company's terminal servers are severely underutilized and service only one or two users per server. The low utilization stems from the need to run certain applications on separate servers due to compatibility issues. By using App-V for Terminal Services, Munder Capital will be able to isolate the applications and consolidate its terminal servers to reduce unused capacity.

Munder Capital is also considering using App-V for the desktop to run applications that are difficult to manage. Making these applications available using App-V enables the applications to be managed centrally and then distributed on demand to user computers without affecting applications already installed on the desktop.

The company has also deployed the Virtual Desktop Infrastructure (VDI) architecture to enable specific employees, such as developers, to use personal virtual computers for work. When they log on to the corporate network, they access a Windows operating environment that runs on a server-based virtual machine in the data center. Similar to Terminal Services remote desktop, VDI gives IT the ability to centralize user desktops. Instead of virtualizing server sessions, VDI virtualizes the client environment inside a server-based hypervisor. Users get a rich and individualized desktop experience with full administrative control over desktop and applications.

“We use VDI for our engineering and development staff,” Goerlich says. “We could provision separate desktop computers, but that takes up too much space. We could deliver a published desktop over Terminal Services, but that does not give the end user administrative control over their machine. Virtual desktops give users a remote environment wherein they have complete control, which is an ideal second desktop for testing, developing, and running processes.”

Centralized Management Infrastructure

Munder Capital uses several programs in the Microsoft System Center suite of data center solutions to simplify IT management work. It uses Microsoft System Center Configuration Manager 2007 to automate application deployment. It's planning to use Microsoft System Center Virtual Machine Manager 2008 to more easily manage its physical and virtual server landscape. And it will also use Microsoft System Center Data Protection Manager 2007 to back up its Exchange Server 2007 messaging environment and its Microsoft Office SharePoint® Server 2007 collaboration sites.

Benefits

By virtualizing its server infrastructure using Hyper-V, Munder Capital Management has strengthened its disaster recovery and can return more business systems to service after an outage. It has also reduced its server holdings by 40 percent, its operating system licensing costs by \$136,000 over three years, and its IT maintenance and electrical costs by \$1,000 per month. Deploying servers as virtual machines increases business agility and lowers risk in trying new ideas. Having fewer servers also simplifies regulatory compliance.

Uninterrupted Access to Financial Data

Munder Capital counts stronger disaster recovery as a key benefit of virtualizing its

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server infrastructure. “If we’re unable to talk to our colleagues and access needed information, we can lose a lot of money,” Eades says. “Our systems have to be up. By augmenting our infrastructure with Hyper-V, we have been able to back up lower-tier systems and deliver more services after an unanticipated interruption.” Before deploying Hyper-V, Munder Capital could deliver 10 percent of its applications and information feeds to portfolio managers after a disaster. Today, it can deliver twice as many applications using fewer servers. The company will increase the number of recovered services going forward.

The IT staff can quickly reboot any virtual machine from a remote site, enabling them to resume services in minutes versus hours or days. “The process of recovering a failed physical server, which used to take days or weeks of manual work, is now managed by provisioning a new virtual server and restoring the failed one with data from a SAN,” Goerlich says. “We can provide around-the-clock access to data, which is critical for a securities business.”

The company also plans to cluster virtual machines across multiple Hyper-V servers to improve everyday reliability. Windows Server 2008 clustering, available with Enterprise and Datacenter editions, is supported across virtual and physical servers. Munder Capital is using virtual machine clustering to provide less expensive high availability for critical applications. Cluster support also gives the financial services company more confidence in the safety of its data. If a physical server fails, the IT staff can quickly move its virtual machines and workloads to another server.

Reduced Costs

Munder reduced the number of physical servers by 40 percent—from 140 to 86—along with the associated electrical and management costs. “Within a year, we expect

to be down to 60 production servers, which represents a \$186,000 annual savings in recurring hardware purchases,” Goerlich says.

With fewer servers to manage, the IT staff is saving time throughout the day. For example, the task of matching virtual machines to storage volumes takes one to two hours less each day than previous server virtualization technologies required. When Munder deploys System Center Virtual Machine Manager 2008, the IT staff will be able to manage all virtual machines from one interface.

Provisioning a new virtual machine also takes dramatically less time—minutes versus hours—than provisioning a physical server. “Every couple of weeks we build or tear down a test environment,” Goerlich says. “With Hyper-V, we save about 20 hours a month on server deployment. This means we’ll be able to grow the company and improve our service levels without hiring new IT staff.”

Eades estimates that Munder Capital saves about \$1,000 a month on maintenance, cooling, and power costs due to virtualization. The company has also reduced operating system licensing costs by \$136,000 over a three-year period. An added bonus is the ability to be a better environmental citizen. “We are very conscious of our environmental impact these days, and Hyper-V helps us run a greener computing operation,” Eades says.

Increased Business Agility

A more nimble server infrastructure enables Munder Capital to adjust and deploy business resources in a timely fashion. When a business group requests a new service, the IT staff no longer has to procure and deploy hardware. “We can get services to our internal customers much faster using Hyper-V,” Goerlich says. “Using server and storage virtualization, we can bring up test environments and prototypes very quickly

and prove new ideas quickly. This reduces our IT risk.”

Using the snapshot feature of the Compellent Storage Center, Munder Capital IT staff can mount an unlimited number of hardware snapshots on test servers to simulate applications and test service packs against live data. Once they install a service pack successfully, they can create a new master image and automatically boot both physical and virtual servers with that image. This capability gives Munder Capital added flexibility in testing new applications without taxing or interrupting the production infrastructure.

Improved Regulatory Compliance

By consolidating servers, Munder Capital has been able to reduce auditing time by one hour for each server, each quarter. “The less time we spend maintaining compliance, the more time we have to spend implementing new projects and piloting new technologies. Simpler is more secure, less is more compliant,” Goerlich says. “Also, the fewer servers we have, the more time we can spend on any one server, so the more thorough our auditing can be.”

Enhanced Application Performance

Munder Capital has found the stability and input/output performance of Windows Server 2008 to be phenomenal. “It’s very robust,” Goerlich says. “We can take a bare-metal Windows Server 2003 server and put it on a Windows Server 2008 virtual machine hosted on the very same hardware and get better performance. In a database environment, our users absolutely notice this improved performance. The more time our traders and analysts save, the better investment decisions they can make.”

For More Information

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For more information about Compellent Technologies products and services, call (877) 715-3300 or visit the Web site at: www.compellent.com

For more information about Munder Capital Management products and services, call (248) 647-9200 or visit the Web site at: www.munder.com

Microsoft Virtualization

Microsoft virtualization is an end-to-end strategy that can profoundly affect nearly every aspect of the IT infrastructure management lifecycle. It can drive greater efficiencies, flexibility, and cost effectiveness throughout your organization. From accelerating application deployments; to ensuring systems, applications, and data are always available; to taking the hassle out of rebuilding and shutting down servers and desktops for testing and development; to reducing risk, slashing costs, and improving the agility of your entire environment—virtualization has the power to transform your infrastructure, from the data center to the desktop.

For more information about Microsoft virtualization solutions, go to: www.microsoft.com/virtualization

Software and Services

- Microsoft Server Product Portfolio
 - Windows Server 2008 Enterprise
 - Microsoft System Center Configuration Manager 2007
 - Microsoft System Center Virtual Machine Manager 2008
 - Microsoft System Center Data Protection Manager 2007
 - Microsoft Application Virtualization
- Technologies
 - Hyper-V
 - Terminal Services

Hardware

- IBM System x3650 servers with dual Quad-Core Intel Xeon processors
- Compellent Storage Center storage area networks

Partners

- Compellent Technologies