



MUNDER MAKES A SOUND INVESTMENT WITH COMPELLENT, SSDS AND HYPER-V



When managing \$15 billion in assets for diverse clients, including corporations, public and private pension fund sponsors, trustees of charitable foundations and universities, insurance companies and individual investors, Michigan's Munder Capital Management requires quick IT response time. "Global financial markets operate around the clock, and our systems

need to deliver high availability to support client transactions," says Ed Eades, senior systems integrator at Munder Capital. "Our business relies on keeping systems highly responsive and available, whether it's five minutes after the opening bell or in the middle of a raging blizzard."

However, the company's data center had reached the limitations of spinning media. The price of a trade could change in the time it took to process an order, and users often compromised the depth of business intelligence reporting to accommodate slow technology. "Users didn't want to wait an hour or two for reports, so they made them less granular or avoided running particular analytics altogether," says Wolfgang Goerlich, network operations and security manager for Munder Capital.

To improve its competitive advantage, Munder needed to build a more efficient data center. In order to do so, the company's IT group created a virtualized data center using Compellent® Storage Center™ storage area networks (SANs) with solid state drives (SSDs) and Microsoft® Windows Server® 2008 Hyper-V™ technology.

ROBUST DATA RECOVERY AND COST REDUCTIONS

In a business that never sleeps, Munder relies on two dual-controller SANs, 10 miles apart, as the foundation for its disaster recovery strategy. Compellent's Replay technology takes space-efficient snapshots of Munder's production data every 15 minutes. Because Replays capture only the block-level changes, the IT team can affordably replicate them to their remote site, providing a robust DR solution at a fraction of the cost of traditional storage vendors.

Compellent Thin Provisioning has dramatically increased disk utilization, allowing Munder to provide sufficient storage to applications without having to pre-allocate physical capacity. When Eades or another team member needs to add capacity, they can scale the storage alongside the company without artificial limitations.



"To add the SSDs to the Compellent was a no brainer, we did it in a matter of ten minutes. The way Compellent allows you to keep your costs down while migrating to a new technology is a substantial advantage over other storage vendors."

ED EADES
Senior Systems Integrator
Munder Capital Management

RESULTS REPORTED BY MUNDER CAPITAL MANAGEMENT

- » Two solid state drives improve performance 15:1 over hard disk drives
- » Automated tiered storage keeps just the 30 percent of data that is most active on solid state disks
- » Support for Hyper-V virtualization reduces testing hardware costs by 50 percent and saves \$1,000 per month on maintenance, cooling and power costs
- » Thin Provisioning helps recover 70 percent of disk capacity and cut up-front storage purchases by one-third
- » Simplified management cuts 10 hours of IT administration time per week

OPERATING SYSTEMS

- » Microsoft Windows Server 2008 with Hyper-V

KEY APPLICATIONS

- » Microsoft System Center Virtual Machine Manager 2008
- » Microsoft System Center Configuration Manager 2007
- » Microsoft System Center Data Protection Manager 2007
- » Microsoft Application Virtualization

AUTOMATED TIERED STORAGE MAXIMIZES SSD INVESTMENT

Because only about 30 percent of Munder's trading data is active at anytime, the company is able to leverage Automated Tiered Storage to get the performance it needs using only two solid state drives. Compellent intelligently classifies and migrates data based on actual usage, leaving the horsepower of the SSD for only the most active data. When data is inactive for 24 hours, it automatically migrates off the SSDs. The Replays Munder snaps of its critical SQL databases every 15 minutes are the only exception; they immediately migrate to Fibre Channel drives.

"With the Compellent SAN, we don't need to try to predict future storage needs and buy excess capacity upfront," says Mike Dufek, director of information systems at Munder Capital. "As a result, Compellent allowed us to recover 50 to 70 percent of the unused space previously allocated to boot and application volumes, and it has helped cut our total upfront storage purchases by one-third."

INTELLIGENT SSDS IMPROVE I/O AND FURTHER REDUCE COSTS

Recognizing the need to improve performance, Munder became one of the first Compellent customers to test and implement SSDs with its Compellent SANs. "We were seeing performance demands continuing to increase, putting Munder at risk of losing thousands, even millions of dollars if applications became too slow," says Goerlich.

Before installing the SSDs, Goerlich and Eades benchmarked the company's existing 15K Fibre Channel drives. Then, they installed two SSDs into the Compellent environment, leveraging the existing controllers and an SBOD enclosure.

The result was an incredible performance improvement, with just one SSD delivering the same performance as 15 Fibre Channel drives. What's more, the team saw dramatic improvements in disk response times - an average response time of 5.08 ms for the Fibre Channel drives dropped to just 0.57 ms with the SSDs. Based on the performance testing, Goerlich estimated he could spend \$72,000 on three SSDs or \$94,500 on 45 Fibre Channel drives.

Munder also tested its Microsoft® Office SharePoint® Server search performance on SSDs and compared those results to others published by Microsoft. Munder's average search time for a standard list of 1,500 items was nearly 50 percent less than the Microsoft baseline test—dropping from an average of 184 ms to just 92.

"With the pace of the market, that kind of performance can equate to a competitive advantage for us," says Dufek. "SSD can help us process trades significantly faster or help our analysts build a better business model using more in-depth reporting."

Not only was the team at Munder blown away by the performance, but it was also amazed at how easy it was to integrate SSDs into the company's current Compellent SAN without additional equipment. Furthermore, several of Compellent's ultra-efficient software features enable Munder to start with only a few SSDs for performance and grow capacity using spinning media. Compellent's unique block-level management, Thin Provisioning and Automated Tiered Storage, which the team had come to appreciate on their spinning drives, also added up to savings when used with SSD.

"To add the SSD to the Compellent was a no brainer; we did it in a matter of ten minutes," says Eades. "The way Compellent allows you to keep your costs down while migrating to a new technology is a substantial advantage over other storage vendors."

VIRTUALIZATION WITH MICROSOFT HYPER-V ENHANCES DATA RECOVERY AND LOWERS IT COSTS

To further enhance both disaster recovery capabilities and end-to-end data center efficiency, the IT group decided to leverage Compellent's advanced storage virtualization to support its Microsoft Hyper-V virtual server environment.

Compellent's single pool of virtual storage complements the Hyper-V environment by simplifying storage management. Administrators can also recover data for Microsoft Windows Server 2008 applications quickly and easily using Compellent's Server Instant Replay™ boot from SAN functionality.

“We can provision a new virtual server and boot it from a gold image stored on the Compellent SAN to have an application up and running again in minutes, not hours or days,” says Goerlich.

That easier management has resulted in streamlined processes for regulatory auditing, regular maintenance and other administrative tasks. By consolidating the total number of servers, the IT team has been able to reduce the time devoted to auditing each month from 140 hours per month to just 86. In addition, Munder has also automated routine storage maintenance for many of its virtual servers.

“We save an additional 10 hours per week by simplifying tasks such as deploying servers, provisioning storage and migrating data,” says Goerlich. “Overall, we can support a growing company and improve our level of service without having to hire more IT staff.”

The virtualized data center enabled Munder Capital to decrease its data center footprint.

“We have eliminated nearly 50 physical production servers,” says Goerlich.

“Data center virtualization also helps us save the costs of buying new servers and storage for test environments—we have saved nearly 50 percent of hardware costs for testing alone. In addition, we’ve cut costs for power, cooling and operating system licensing. We save about \$1,000 per month on electricity.”

With SSDs running on Compellent SANs and Hyper-V technology, the IT group has much greater confidence that it can deliver high system performance and availability even in the event of a disaster. “Virtualization gives us the ability to recover applications much more quickly than before,” says Dufek. “And ultimately that translates into better service for our customers because of our ability to provide data precisely when it’s needed.”

“Obviously we want to buy only the number of SSDs to get the performance we need. Compellent Automated Tiered Storage allows us to buy only what we need because we get the most out of every drive.”

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