



**COMPANY**

Founded in 1948, Omaha, Nebraska-based Millard Lumber is a building materials and products supplier that caters to the needs of both professional contractors and do-it-yourself homeowners. Millard was an early manufacturer of roof trusses, pre-manufactured wall sections, and pre-hung doors and has stayed in the forefront of advanced building techniques since that time. As a family-owned business, a sense of community has always been important, and Millard Lumber has proven itself an active participant in local civic activities, supporting a variety of charitable and other organizations over its 60+ years in business.

**INDUSTRY**

Construction

**CHALLENGES**

- Improving storage capacity utilization in Microsoft Hyper-V environments
- Meeting performance requirements while keeping storage costs in check

**SOLUTION**

Microsoft Windows Server 2008 R2 Hyper-V with Virsto One

**RESULT**

Meeting the performance requirements of a range of Windows applications running on Hyper-V while minimizing storage capacity utilization and streamlining administration

*“With Virsto deployed, we get all the performance we need out of Hyper-V while minimizing our use of storage capacity.”*

*Chris Routhe  
IT Director*

**CHALLENGES**

In 2009, Millard began migrating their information technology (IT) infrastructure from physical to virtual servers, choosing Microsoft Hyper-V as the server virtualization platform. With 15 physical Windows servers and roughly 5TB of storage under management, Millard was looking for a more flexible and dynamic computing environment that would allow them to accommodate an evolving business climate with very limited IT resources. Chris Routhe, the IT Director at Millard, presided over a fairly typical Windows-based small business environment. Key applications on which their business was based included their mail system (Microsoft Exchange), a document management system which represented their most data-intensive environment, and a smattering of other applications, including terminal services, SQL Server, and SharePoint.

“While Hyper-V was able to offer us the added flexibility we were looking for, it also set up a conundrum,” said Routhe. “If we configured the environment with “fixed” disks, we were able to meet our performance requirements but our storage costs and administrative time went up significantly. Alternatively, if we configured using “dynamic” disks, we enjoyed very attractive management and storage capacity utilization benefits but were not able to meet our performance requirements.”

**SOLUTION**

Joel Russell, the CIO at Millard Lumber, forwarded to Routhe an article on Hyper-V performance optimization in which Virsto Software was mentioned. Virsto’s software solution promised to provide the performance of fixed disks with the storage capacity utilization and management advantages of dynamic disks in Hyper-V



environments, and Routhe brought the product in for an evaluation in the spring of 2010.

“Virsto installed quickly and easily in our environment, and its advantages were immediately apparent,” continued Routhe. “The fact that it allowed us to thin-provision our .vhd files without any decrease in performance promised to save us a bundle on storage hardware.”

There were some unexpected benefits associated with the Virsto deployment as well, particularly in the management area. “Setting up new virtual machines and patch management operations required lots of data movement in the past, and these administrative tasks took up a lot of time,” explains Routhe. “Virsto allows us to create usable copies of thin-provisioned golden images literally in seconds. We have a relatively small environment, but I can see how Virsto’s snapshotting capabilities would be a huge advantage in larger environments, both in terms of time savings and space utilization. Even in our small shop, this capability has made management easier and much less time-consuming.”

Virsto’s solution deploys at the hypervisor level with a single filter driver on each physical node, regardless of the number of supported VMs. With its support for heterogeneous storage, Virsto avoids hardware lock-in and provides the flexibility to accommodate a wide variety of storage subsystems. “We’re very happy with our Dell storage today, but it’s nice to know that in the future, if we decide to use different storage, Virsto supports that option,” added Routhe.

Virsto integrates with the Microsoft Management Console (MMC), preserving the look and feel of native Microsoft management semantics. “Virsto plugged right into MMC, with which I was already familiar,” notes Routhe. “There was very little ramp-up time.”

Today, Millard has 15 virtual servers running Windows deployed on Dell PowerEdge server hardware connected to a Dell MD3000 iSCSI SAN. “Going forward, though, it’s very likely that we’ll be deploying more data-intensive applications, and as our environment grows we have confidence that Virsto will allow us to accommodate that, meeting our performance goals very cost-effectively.”

## RESULT

The bottom line for Millard was simple: Virsto enabled them to meet performance requirements with their Hyper-V environment while using a fraction of the storage they needed before. Ease of use benefits and time savings in new VM provisioning were unexpected but nonetheless valuable in reducing the VM management requirements. “As a smaller shop, we have limited administrative resources to address IT issues,” says Routhe. “As we grow over time, and our environment evolves, solutions like what Virsto offers help us make the most of our existing budget.”

“With Virsto deployed, we get the performance we need out of Hyper-V while minimizing our use of storage capacity,” concludes Routhe. “I like to think of it as getting all of the advantages of both dynamic and fixed disk usage without any of the disadvantages.”