Company Overview

For over a century, Mead & Hunt has built a reputation as an engineering and architectural firm powered by innovative thinkers and steadfast experts. From bridges and highways to airports and factories, Mead & Hunt offers design services in the fields of planning, design, architecture and engineering. Named one of the fastest growing firms in its sector, Mead & Hunt is committed to customer service and their “go-the-extra-mile” philosophy encompasses all aspects of its business. Now, the firm’s rapid growth (thirty offices nationwide with over five hundred employees) has increased the need for more efficient and higher performing data centers to meet the company’s current and future data demands.

IT Challenge: Upgrade to Windows Server 2016 in Resilient File System (ReFS) and Reduce Infrastructure Complexity, Storage and Software Costs

Mead & Hunt faced many challenges with its traditional storage area network (SAN). IT managers found themselves dealing with disk failures at least once a month from an aging EMC 4Gb Fibre Channel (4GFC) SAN. With increased maintenance costs, space-confinement challenges, costly software licensing fees, poor performance and an unsatisfactory eco-footprint, the company needed to make a change in its data center.

Mead & Hunt had to make a decision as to whether it would continue with a traditional SAN architecture or move to a Windows Server 2016 software-defined storage (SDS) Hyper-V cluster solution in an ReFS environment.

For Mead & Hunt, it was also important that the pre-existing four Cisco B200 M3 and four M2 blade servers housed in two Cisco UCS 5108 chassis (for production and disaster recovery respectively at different sites) would be fully compatible.

Mead & Hunt’s goals in updating to a more efficient IT infrastructure, included:

- Eliminating increasing SAN maintenance costs
- Finding a simpler, consolidated enterprise-level and resilient solution optimized for Microsoft Windows Server 2016 and Hyper-V in an ReFS environment (that is not compatible in a traditional SAN)
- Reducing the eco-footprint and hardware size to stay within its data center’s current physical space, including the amount of physical disks
- Capitalizing on features in Windows Server 2016 like re-balancing Storage Space Pool, which can’t be done in Windows Server 2012 R2
- Saving OPEX costs on management, maintenance and additional licensing fees
- Integrating with the existing Cisco UCS S108-housed B200 M2 and M3 blade server Hyper-V clusters

After analyzing its objectives, Mead & Hunt decided to deploy a Windows Server 2016 SDS Hyper-V cluster hardware solution that could meet all of its storage needs, achieve enterprise reliability and resiliency, while saving both CAPEX and OPEX by replacing the existing Fibre Channel SAN. In addition, managing Windows SDS (Storage Spaces) compared to a traditional SAN is much more efficient without all the management hassles and extra root level commands. It takes up less rack space, which would meet Mead & Hunt’s desire for a smaller eco-footprint, and is Microsoft friendly. For Mead & Hunt, SDS was a win-win.
What Were the Key Determining Factors That Drove Mead & Hunt to Choose a DataON Solution?

With the numerous Window SDS hardware vendors, it was hard to choose the right one. Mead & Hunt needed a vendor with a strong reputation, staying power, full service support and guaranteed end-to-end Windows Server 2016 and ReFS compatibility. It turned to Ned Pyle, Principal Program Manager in Microsoft’s Windows Server High Availability and Storage Group, for a recommendation.

“There aren’t very many SDS vendors, other than DataON, who fully support [Windows Server 2016 and ReFS].” – Ned Pyle, Principle Program Manager in Microsoft’s Windows Server High Availability and Storage Group

Ned has worked extensively with DataON for several years and knows its products well. “DataON is a solid company with a phenomenal product line,” he said. “Mead & Hunt was looking for a certified Windows SDS hardware vendor that could support Windows Server 2016 Storage Spaces and ReFS. There aren’t very many SDS vendors, other than DataON, who fully support it. And DataON runs ReFS well. There was no question in my mind—DataON was the right choice for Mead & Hunt.”

Mead & Hunt System Administrators Joseph Anich and Gavin Quamme said, “not only were the people at DataON easy to work with, but early on, they were the first SDS vendor to embrace and offer full functionality with Windows Server 2012 R2 and Windows Server 2016.”

“Just like that, DataON saved Mead & Hunt fifty thousand dollars.”
– Howard Lo, VP Sales and Marketing, DataON

Cost and performance were also crucial to Mead & Hunt’s choice. Howard Lo, VP of Sales and Marketing, DataON, said, “I knew our DataON CiB-9112 solution wouldn’t have a problem outperforming any other similar storage in its class, but we also could provide Mead & Hunt substantial cost savings not only in hardware, but in licensing. With our DataON solution and Windows Server 2016 Datacenter’s cluster-to-cluster replication, they withdrew from their second ongoing proof of concept (PoC). Just like that, DataON saved Mead & Hunt fifty thousand dollars.”

The Solution – Hardware Configuration

Mead & Hunt purchased one DataON CiB-9112 for each of its two data centers—one production data center in Madison, WI and a similarly configured offsite disaster recovery (DR) in Green Bay, WI—and replaced the four FC switches with four new Cisco-branded 10GbE switches.

Production – Madison, WI

The newly configured DataON production data center compute consisted of a Cisco 5108 chassis containing four Cisco B200 M3 server blades running Hyper-V clusters in a Windows Server 2016 ReFS environment.

The network switches included two Cisco 6248UP Fabric Interconnects between server and storage (Hyper-V networking configured per Cisco UCS best practices) and two Cisco 4500X core switches (upstream) that connected to clients and the Green Bay DR data center.

Storage consisted of a DataON CiB-9112 with two-node storage cluster system scale-out file servers (SoFSs) used for server messaging block (SMB) share applications, each running in a Windows Server 2016 Datacenter Edition ReFS environment. Two shares were presented to the Hyper-V cluster via Microsoft System Center Virtual Machine Manager (SCVMM).
For the DR backup, Windows Server 2016 Datacenter’s cluster-to-cluster replication application (with asynchronous replication enabled) allowed seamless block cluster replication from the production server in Madison to the offsite DR in Green Bay (see Figure 1).

Each of the CiBs was equipped with Storage Spaces and tiered HDD/SDD storage for the best performance and resiliency (six 1.6 TB SSDs and six 10TB HDDs) and Hyper-V cluster integration. The physical disks were arranged in two columns with three-way mirroring and optimized using the Windows Server 2016 Storage Pool tool (see Figure 2). In addition, Mead & Hunt created Hyper-V virtual hard disks (VHDx) to optimize performance and maximize disk space.

Disaster Recovery – Green Bay, WI

The DR data center was configured nearly the exact same way, but consisted of four slower Cisco B200 M2 server blades instead of the M3s. The network consists of two 6120XP Fabric Interconnects (Hyper-V networking configured per Cisco UCS best practices) and two Cisco 4500X core switches (upstream) that connected to the Green Bay DR data center (see Figure 1).
About DataON™

DataON is the industry leading provider of hyper-converged cluster appliances (HCCA) and storage systems optimized for Microsoft® Windows Server environments. Our solutions are built with the single purpose of rapidly and seamlessly deploying Microsoft applications, virtualization, data protection, and hybrid cloud services. Our company is exclusively focused on customers who have made the “Microsoft choice” and we provide the ultimate platform for the Microsoft software-defined data center (SDDC). DataON is a division of Area Electronics Systems, Inc.

www.dataonstorage.com
dataon_sales@dataonstorage.com
1.714.441.8820
1247 N. Lakeview Ave #C
Anaheim, CA 92807

About HGST

HGST is a wholly owned and independently operated subsidiary of Western Digital Corporation, marketing and selling its leading storage portfolio around the world. HGST strategically invests in high-growth and emerging technology segments, with expanding research and innovative product development.

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