Customer Story

Hydraulic Products Supplier Looks to Azure Stack HCI for a Stable, High Performance IT Infrastructure

Flint Hydraulics chooses a 2-node switchless Azure Stack HCI from DataON with Intel® Optane™ Persistent Memory

The Challenge

- Refresh three-tier SAN infrastructure with Microsoft HCI
- Find a validated Azure Stack HCI solution provider
- Improve performance and reliability
- Meet tight budget
- Simplify infrastructure management

Company

Flint Hydraulics is one of the leading suppliers of original and replacement hydraulic products in the world. It is equipped with the latest distribution software and a custom-tailored cross-referencing database of more than 30,000 hydraulic pumps, motors, and parts. It has 50 employees in its headquarters in Memphis, TN.

Challenge

Damon Johnson, Director of IT, Flint Hydraulics, had to get up each morning at 6AM and check if the company's network had gone down overnight. It had become a morning ritual he dreaded. His SAN was not dependable and had reached the end of its life cycle. He wanted a stable infrastructure.

Damon researched a Microsoft hyper-converged infrastructure (HCI) as a viable SAN replacement. He had a modest budget and needed a highly scalable solution that could grow with Flint Hydraulics' business. It had to be easy to deploy and manage, but not overkill for the company's light SMB on-premises workloads, including its inventory management software.

Damon needed an experienced vendor who could deliver a validated solution within his budget and provide the support he needed. It was essential the vendor have longevity, as he would most likely use the infrastructure for more than five years.

The Solution

During a presentation at Microsoft Ignite, Damon learned about Microsoft Azure Stack HCI, a hybrid cloud solution, which included Hyper-V, software-defined networking (SDN), and OS-integrated Azure services on validated hardware. Microsoft highlighted a customer use case from DataON, one of its Azure Stack HCI-validated solution providers, which shared similar SMB workloads and infrastructure demands as his company. As a Microsoft shop and Hyper-V user, DataON and Azure Stack HCI piqued his interest.

Highly touted by Microsoft, Damon visited the DataON website and read its customer stories. He was encouraged by the success other companies had with the Azure Stack HCI solution provider. Curious to see how a Microsoft HCI would perform, Damon assembled a two-node cluster as a proof-of-concept. Although initially there were networking issues, that were eventually resolved, Damon saw the value the new highly scalable, highly resilient Microsoft architecture could bring and sought a validated solution.

The Solution

- Microsoft Azure Stack HCI
- DataON K2N-224 switchless solution for Azure Stack HCI
- Intel Optane DC Persistent Memory for 1.5TB of memory expansion
- All Flash NVMe and two-ways mirrors design for highest performance
- DataON MUST extension for the Windows Admin Center for better monitoring and management

He reached out to DataON and received a quote within a business day. Initially, he was concerned about working with a smaller company, but he learned that DataON had been in business for nearly thirty years and worked with Microsoft since Windows Server 2012 R2, Microsoft's first foray into software-defined storage. Seeing the experience the team brought, Damon chose DataON.

He purchased a DataON Kepler 2-node K2N-224 switchless solution configured with all Intel® NVMe flash, Intel® Optane™ persistent memory (PMEM), and 25GbE RDMA networking. The nodes were directly attached, eliminating the need for expensive Ethernet switches, and further simplifying the deployment process.

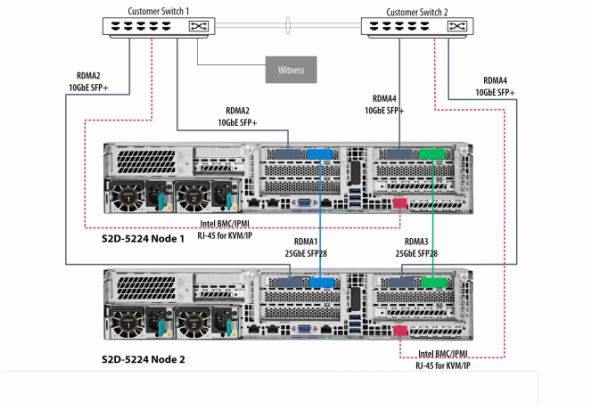
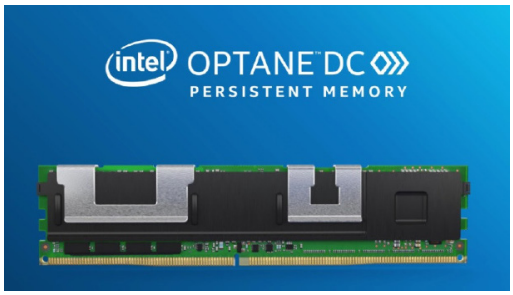


Figure 1: DataON K2N-224 Cabling Diagram

Intel® Optane™ DC Persistent Memory

- Accelerate response times and performance in Azure Stack HCI
- Help further consolidate resources in Azure Stack HCI
- Increase in SQL Server performance in Azure Stack HCI
- High endurance, increase storage media life cycles, and reduce costs in Azure Stack HCI
- Verified for optimized performance and simplified deployment in Azure Stack HCI

As part of the Intel Select Solutions for Microsoft Azure Stack HCI, persistent memory offers the advantage of retaining data through a restart of an in-memory database or of the entire system. It also offers high density - up to 512 GB per module - for a lower cost per gigabyte of memory than that of tradional DRAM DIMMs. Persistent memory complements Storage Spaces Direct by enabling workloads that demand more memory and input/output (I/O).



The Results

Included with a detailed custom deployment guide and scripts from DataON, Damon was able to deploy his Microsoft-validated Azure Stack HCI solution easily and without complications or networking problems. Featuring the latest networking and storage technologies, Flint Hydraulics saw a significant performance bump across all of its applications. With HCI and more storage capacity, Damon simplified his infrastructure and consolidated his workloads. When Flint Hydraulics' business grows, he can scale-out quickly and affordably by adding additional nodes for more compute and storage.

By choosing Intel® Optane™ PMEM for its DRAM-like access to data at a lower latency with higher throughput than NVMe flash, Damon's start times were reduced. Previously taking minutes, now seconds, Damon can minimize business interruption, ensure rapid service recovery, and maximize up-times. With up to 512GB per module and more affordable than DRAM, Johnson can also configure Intel® Optane™ PMEM as an affordable high-capacity, non-persistent memory solution to improve VM, container and application density and performance or use it as PMEM and non-persistent memory at the same time in the future.

The Result

- Deployed a switchless, hassle-free Azure Stack HCI solution on validated hardware
- Found Azure Stack HCI solution provider with excellent customer service and support
- Increased overall performance with all-NVMe flash and Intel® Optane Persistent Memory
- Came in under budget
- Simplified management with Windows Admin Center and MUST

Deployment Tip

"Unless you're comfortable with the technology. Please don't do it yourself. Do the research and look for a solution provider that offers an Azure Stack HCI validated hardware solution and has done this many times before. They need to be responsive and knowledgeable."

Damon Johnson
IT Director
Flint Hydraulics

"From contact to deployment, I couldn't be happier with DataON"

Damon Johnson, IT Director, Flint Hydraulics

Native to Azure Stack HCI, Windows Admin Center helped streamline and simplify infrastructure management for Flint Hydraulics. In one centralized location, Damon can manage and monitor in real time both his networking, Hyper-V, software-defined storage and more. He can also easily remote in when he travels abroad. Using the DataON MUST monitoring and management tool, Damon has greater visibility of his DataON hardware. "I used to have so many windows open. With Windows Admin Center, I can manage my infrastructure with only two." If something goes wrong with the cluster, DataON MUST sends automated e-mail alerts, which is ideal if anything happens at night or while Damon is traveling.

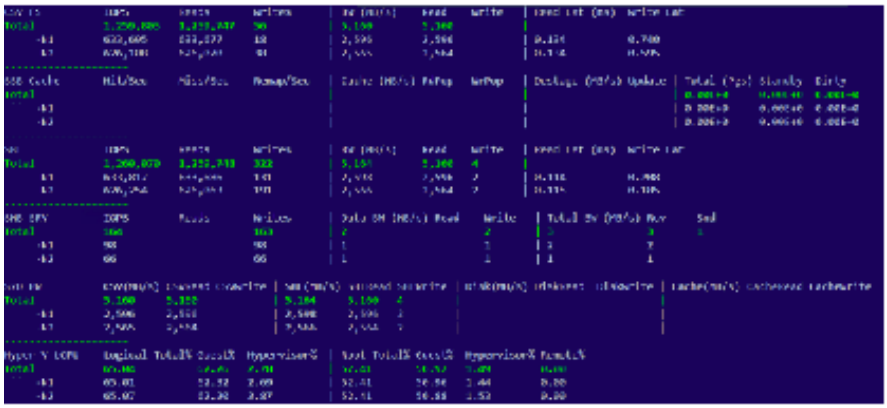


Figure 2: Random 4K, 8 Threads, 8 Outstanding I/O, 100% Read

With the DataON solution, Damon's co-workers no longer experienced annoying downtime and thanked him. There have been no network issues and operation has been completely hassle-free and without issue. "I no longer have to get up at 6AM to check and see if the network is up," Damon said. "From contact to deployment, I couldn't be happier with DataON."

Flint Hydraulics plans to use Azure Stack HCI OS-integrated Azure services for a future Azure offsite backup solution. The hybrid cloud strategy will eliminate any additional upfront hardware infrastructure costs and ensure the company's data is protected and secured in case of a natural disaster or fire.

Deployment Tip

When asked if he could provide any tips to customers thinking about deploying Azure Stack HCI, Damon said, "As an early adopter it was a challenge to assemble our own HCI for production. Unless you're comfortable with the technology, please don't do it yourself. Do the research and look for a solution provider who offers a validated Azure Stack HCI solution and has done this many times before. They need to be responsive and knowledgeable."

About DataON

DataON is a hybrid cloud computing company focused on delivering Microsoft Azure Stack HCI, on-premises storage systems, intelligent edge appliances, and cloud-based Microsoft Azure Services. Our company is helping enterprises and customers who have made the "Microsoft choice" to modernize their IT with Microsoft applications, virtualizations, and data protection through a complete and turnkey experience. With over 850 HCI clusters and 150PB of storage deployed, DataON enterprise-level solutions are designed to provide the highest level of performance, manageability, and security offered. DataON is a Microsoft Gold Partner, Microsoft Cloud Service Provider (CSP), and an Intel Platinum Partner.

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