

# OpenFlex™ Data24 NVMe-oF™ Storage Platform for VMware vSAN™ and HCI

## Highlights

- Extends the high performance of NVMe™ flash to shared storage for VMware vSAN and HCI Solutions
- Provides low-latency sharing of NVMe SSDs over a high-performance Ethernet fabric to deliver similar performance to locally attached NVMe SSDs
- Lowers OPEX costs with dramatic savings in power, cooling and management
- Low latency and high throughput to support broad spectrum of applications such as VDI, Business Critical Applications, DevOps, etc.
- 24 NVMe SSDs provide up to 368TB<sup>1</sup> capacity in a 2U unit that allows up to six hosts to be attached without a switch

## Solution

Western Digital's OpenFlex Data24 NVMe-oF Storage Platform is a performance-optimized vSAN storage platform perfect for building complete HCI solutions based on VMware Cloud Foundation (VCF). The combined solution of Western Digital and VMware turbo charges vSAN clusters and VCF stacks for databases and performance-sensitive applications.

## VMware vSAN Deployment on OpenFlex Data24 NVMe-oF Storage Platform

Storage in the enterprise used to be confined to large and expensive centralized SANs, initially built with massive arrays of hard drives and later constructed with SAS SSDs and connected to the rest of the network over Fibre Channel interfaces. But as the volume of data grows in these centralized SANs, and performance needs increase, these centralized SAN configurations become very expensive and inefficient.

Enterprises have migrated from the centralized SAN architecture to a distributed, Software Defined Storage (SDS) architecture. Instead of placing storage in a single SAN with limited connectivity and high network latency, storage is instead distributed among industry standard servers connected to each other and the rest of the network with ultra-high-speed Ethernet. This also allows for newer technologies to provide even better solutions. One of the most popular options available is VMware vSAN Technology.

VMware vSAN is a hypervisor-converged, software-defined storage platform that is fully integrated with VMware vSphere®. vSAN aggregates locally attached disks of hosts that are members of a vSphere cluster to create a distributed shared storage solution. Because vSAN sits directly in the I/O data path, it can deliver the highest levels of performance, scalability, and resilience without taxing the CPU with additional overhead. vSAN enables the rapid provisioning of storage within VMware vCenter™ during virtual machine creation and deployment operations. vSAN can use an all-flash disk architecture that leverages flash-based mixed-use SSDs for performance and flash based read-intensive SSDs for capacity and persistent data storage. By using OpenFlex Data24 NVMe-oF storage platform with NVMe SSDs for an ultra-performance, all-flash configuration, businesses can fully utilize the power of vSAN and build virtual infrastructure to deploy business critical and next generation enterprise applications.

## VMware vSAN

VMware vSAN includes thin provisioning, compression, and deduplication, which significantly increase usable capacity with minimal performance impact to the cluster. Organizations implementing vSAN benefit from:

- All-flash architecture—Delivers maximum performance and consistent low latency through flash-based caching and SSD data persistence
- Quality of service (QoS)—Automatically limits and monitors IOPS consumption, eliminating noisy neighbor issues
- Self-tuning—Automatically rebuilds and rebalances storage to align with QoS limits
- Data reduction, deduplication, and compression—Optimizes storage capacity with as much as 10x data reduction while having minimal impact on server CPU and memory resources
- Management—Enables simplicity of management through the vSphere Web Client for storage, compute, and networking in a single, tightly integrated interface

## Designed for Fast Data that is Sharable

Flash technology has revolutionized the performance of storage systems; NVMe-oF technology extends flash storage to its full potential. The OpenFlex Data24 NVMe-oF Storage Platform provides the flexibility to meet varying requirements depending on data workload and performance requirements. Whether as a stand-alone file server or part of a scale-out deployment, the OpenFlex Data24 is built to deliver screaming performance in software-defined storage environments. With low latency and consistently high bandwidth, data is accelerated to the speed of flash and is shareable with up to six hosts without a switch.



OpenFlex Data24 NVMe-oF storage platform

## Ultrastar® DC SN840 NVMe SSD

The Ultrastar DC SN840 is a performance NVMe SSD targeting cloud compute and enterprise workloads that require low latency to data and high availability of data. The DC SN840 is Western Digital's 3rd generation of performance NVMe SSDs for the data center and extends Western Digital's leadership in dual-port architecture by vertically integrating proven flash controllers. Utilizing 96-layer 3D TLC NAND, it is available in capacities from 1.6TB to 15.36TB in a standard, front-loading 2.5" U.2 form factor.



Ultrastar DC SN840 NVMe SSD

## Conclusion

Running business-critical and performance sensitive enterprise applications on OpenFlex Data24 NVMe-oF Storage Platform provides immediate and obvious performance improvement while introducing a whole host of operational, management and data protection benefits. These not only maximize efficiency for IT, but for your business as well, by improving end-user experiences, increasing productivity and reducing storage costs in across various Cloud and Data Center applications.

For more information on how the OpenFlex Data24 NVMe-oF Storage Platform can turbo-charge Data Center and Hybrid Cloud application environments and improve business operations, visit <https://www.westerndigital.com/products/storage-platforms/data24-nvme-of-storage-platform>

<sup>1</sup> One terabyte (TB) is equal to one trillion bytes when referring to storage capacity. Accessible capacity will vary from the stated capacity due to operating environment.

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