Micron® Accelerated All-Flash VMware vSAN™ 6.6 Solution

Building an Optimally Balanced All-Flash Virtualization Node for vSAN 6.6 and Beyond

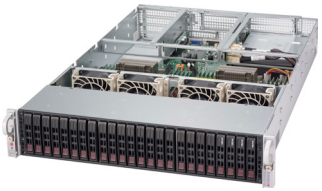
Data-intensive businesses that thrive in today's environment move quickly, and data platforms must move quickly with them. Technologies such as SSDs with NVMe™ and advanced DRAM, in conjunction with standard servers, multicore processors and state-of-the-art virtualization like VMWare vSAN™, are chasing application lethargy out of the data center.

Today, many vSAN deployments are all-flash, reinforcing the need for high-performance nodes in a data center to enable dense, cost-effective virtualized application environments. Following the standard AF-6 all-flash VMware vSAN Ready Node™ definition, the Micron® Accelerated All-Flash VMware vSAN solution combines low-latency NVMe SSDs in its cache tier, high-capacity, enterprise-grade SATA SSDs in its capacity tier and Micron® DRAM in standard 2-socket rackmount servers to optimize compute, capacity, cost and performance with vSAN 6.6.

This solution (developed by Micron in collaboration with VMware and Supermicro) is designed for optimal results and value, providing predictably high performance that's easy to deploy and manage while enabling the key features and capabilities of vSAN 6.6.

Cache SSDs:
NVMe U.2
1.2TB (x2)

Capacity SSDs:
SATA 2.5-inch
3.84TB (x8)



Standard Server Platform:
Intel® CPUs (2U, 2-socket)

Figure 1: Major Components: Micron SSDs, Standard 2U, 2-Socket Servers with Micron DRAM

Key Features

Balanced All-Flash Performance

Micron's all-flash vSAN solution with NVMe SSDs is optimized at the platform level for better results and better value.

Cache tier NVMe SSDs bring high speed, low latency and endurance to the vSAN cache tier. SSDs with NVMe bring data processing closer the processor, minimizing latency and providing consistently fast throughput.

Capacity tier SATA SSDs disrupt the data deluge that can overwhelm a traditional IT infrastructure and are tailored to meet the needs of read-intensive deployments.

Flexibility and Choice

Micron's solution enables you to build with confidence. Engineer-designed and lab-validated, these solutions enable faster time to deployment with predictable results.

Easier Deployment

Micron's solution helps free your deployment teams from the drudgery of experimentation, testing and reconfiguration, enabling them to focus on higher-value tasks like rapid deployment, faster time to value and building your bottom line.

Micron® Accelerated All-Flash VMware vSAN™ 6.6 Solution

vSAN 6.6 Key Features and Capabilities

According to the VMware vSAN 6.6 data sheet, the following are achievable[1]:

Flash-optimized IOPS: vSAN 6.6 optimizations deliver up to 50% more IOPS than previously possible, deployed for over 50% less than the cost of competing hybrid hyper-converged solutions.

Deduplication and Compression: Software-based deduplication and compression optimizes all-flash storage capacity, providing as much as 7X data reduction[2].

Data Protection (Erasure Coding): Increases usable storage capacity by up to 100% while keeping data resiliency unchanged.

vSAN Encryption: Native to vSAN, vSAN Encryption provides data-at-rest security at the cluster level; built for compliance requirements and offers simple key management.

Micron's Accelerated All-Flash Solution Delivers

Balanced CPUs, DRAM and Storage: Engineered and lab-tested by Micron experts in vSAN and platforms to optimize each node for memory and I/O-intensive applications, releasing the full potential of vSAN 6.6 in demanding mixed-workload environments.

A Complete, Deployable Reference Architecture: The reference architecture linked below provides deployment and testing details for one of the most compelling vSAN configurations: a performance-optimized all-flash vSAN-enabled VMware vSphere® cluster using a combination of Micron SSDs (NVMe and SATA).

Faster Time to Happy Applications: Storage (SSDs and DRAM) can represent up to 70% of the value of today's advanced solutions. As a leading designer, manufacturer and supplier of advanced storage and memory technologies with extensive in-house software, application, workload and system design experience, Micron's Accelerated All-Flash solutions help you build and deploy faster with confidence.

SOLID Ready: Tested, optimized and data center-ready!

Reference Configuration

Component	Details	Component	Details
Server platform	SYS-2028U-TNRT+	CPU	2x E5-2650V4 (12-core)
Cache SSDs	Micron 9100 MAX (1.2TB, NVMe)	Memory	16x 16GB 2400 MHz ECC DDR4
Capacity SSDs	Micron 5100 ECO (3.84TB, SATA)	Networking	Intel Dual-port 10 GbE SFP+
OS drive	16GB SATA DOM	Storage Controller (per node)	LSI 9300-8i (SAS/SATA, x2)

systems

software

storage

memory

Get Started with All-Flash vSAN 6.6 and NVMe

An all-flash vSAN can bring amazing benefits. Download the Reference Architecture to learn about deployment: https://www.micron.com/~/media/documents/products/other-documents/micron_vmware_vsan_ready_node_reference_architecture.pdf?la=en

Visit Micron's NVMe SSD page to learn more about our latest NVMe SSDs: https://www.micron.com/products/solid-state-storage/product-lines/9200

Visit our Enterprise SATA SSD page for our most recent enterprise SATA products: https://www.micron.com/products/solid-state-storage/product-lines/5100

For more details on vSAN 6.6, visit VMware's vSAN page: https://www.vmware.com/products/vsan.html

micron.com

1. Source: https://www.vmware.com/content/dam/digitalmarketing/vmware/en/pdf/products/vsan/vmware-virtual-san-datasheet.pdf
2. Assumes deployment enables 7X data reduction; actual data reduction is dependent on several external factors.
NVMe (non-volatile memory, express) is an ultra-high bandwidth, ultra-low latency storage access protocol – see www.nvmexpress.org for complete details.

Products are warranted only to meet Micron's production data sheet specifications. Products, programs and specifications are subject to change without notice. Dates are estimates only. ©2017 Micron Technology, Inc. All rights reserved. All information is provided on an "AS IS" basis without warranties of any kind. Micron, the Micron logo, and all other Micron trademarks are the property of Micron Technology, Inc. Supermicro is a trademark of Super Micro Computer, Inc. VMware, the VMware logo, and vSAN are trademarks of VMware. All other trademarks are the property of their respective owners. Rev. A 11/17 CCM004-676576390-10883