

Supercharge your SQL Server 2016 database infrastructure

HPE All-Flash Virtual SAN Solution for SQL Server

Improve data center economics with a scalable, software-defined, flash-optimized solution powered by SanDisk.

More cost-effective database environment

Reduce CAPEX and OPEX while boosting database performance with an all-flash, integrated solution built on a world-class premium **HPE ProLiant platform**.

Breakthrough solution performance

More than 1.8 million New Orders Per Minute (NOPM) in a four node VMware Virtual SAN running SQL Server 2016.

Scalability to meet growing needs

Raise service levels and support future growth needs with flexible deployment and configuration options. This All-Flash solution can scale up to 33.6 TB (max of 23 x 1.6TB drives in DL380) per server. Add more **HPE ProLiant DL380 Gen9 Servers** to meet needs for larger data sets to support more users and complex workloads.

Servers to meet needs for larger data sets to support more users and complex workloads.

Tested solution elements

- 4 x HPE ProLiant DL380 Gen9 Servers
- 4 x 1.6 TB and 2 x 800 GB HPE 12G SAS SSD from SanDisk in each server
- VMware Virtual SAN
- Microsoft® SQL Server 2016
- Performance measured with TPC-C-like test

A better database solution

Real-time performance demands flexible, yet powerful, solutions that allow you to do more, faster. Adding in-server flash storage in a hyper-converged environment is the key to delivering new levels of technical and cost efficiencies for today's virtualized SQL server database environments.

Today, Hewlett Packard Enterprise and VMware® offer a new approach for your database workloads—making it cost-efficient, faster, highly available, scalable, and flexible.

Software Defined Storage is key

To take database infrastructure to new heights of efficiency and functionality, **Hewlett Packard Enterprise and VMware** designed HPE All-Flash Virtual SAN Solution for SQL Server. This flash-based software-defined cluster includes everything you need to support your highly demanding database needs—server, storage, networking, management, and virtualization software.

This **hyper-converged SQL server solution** includes modular infrastructure building blocks that offer a fast, simple, and efficient way to deploy SQL Server database infrastructure. These building blocks support database growth needs for performance and service levels, the need to provide more cost-effective capabilities per server—handling complex, high-capacity workloads—and high availability (HA) features that keep your data protected.

By applying this flash-optimized architecture to HPE Virtual SAN Solution for SQL Server, you benefit from:

- A single industry-standard SQL server system to purchase, deploy, manage, and support.
- A virtualized storage environment built into the system (i.e., VMware Virtual SAN™); no external SAN is required. All storage resources are pooled and shared among all users, allocated as needed and then returned to the pool.
- Significant reduction in total cost of ownership due to smaller data center footprint.
- Enhanced business productivity, made possible by the increased performance and responsiveness of the in-server all-flash capabilities.
- Faster application response, contributing to making timely strategic decisions leading to better business outcomes.

This tested and proven solution combines the performance, cost savings, and availability features of **HPE ProLiant servers** with the power and speed of flash. The result is a better platform for your SQL Server online transaction processing (OLTP) and data warehouse workloads. One that offers cost savings, including lower license fees, and new levels of scalability and performance.

Solution brief

Testing results

- 1.8 Million New Orders Per Minute (NOPM)
- HA and enterprise-grade reliability
- 33.6 TB capacity per server
- Cost-effective, small footprint
- Highly scalable by easily adding more SSDs and servers, as needed
- Microsecond data access latency
- Maximize technical/cost efficiencies
- Reduce complexity and software costs

Designed to scale

Each HPE Virtual SAN Solution for SQL Server includes four DL380 Gen9 Servers (nodes) with the built-in VMware Virtual SAN datastore configured using two disk groups in each node. Each disk group is configured with two caching tier using two SanDisk-based **HPE 800GB 12G SAS** Write Intensive SSD and four capacity-tier HPE 1.6TB 12G SAS Mixed Use SSDs.

As your needs grow, you can easily scale this solution with additional flash storage and **HPE ProLiant DL380 Gen9 Server** nodes to support your increasing needs for data, users, and workloads.

Our solution partners



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Four-node Virtual SAN architecture

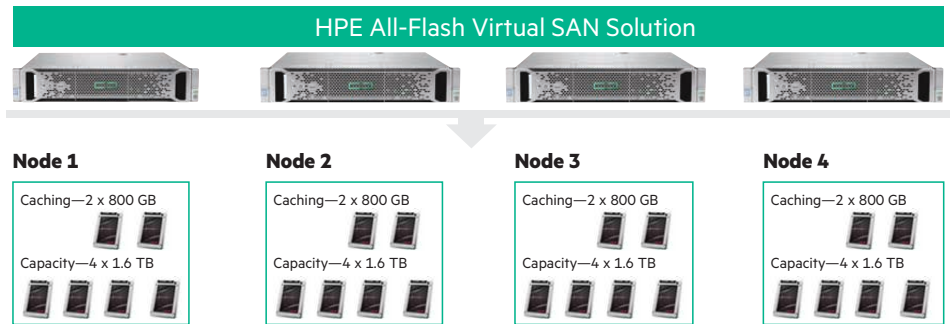


Figure 1. HPE All-Flash Virtual SAN Solution

The right solution based on the right technology

HPE ProLiant DL380 Gen9 Servers

Get reliability, serviceability, and near continuous availability—all backed by a comprehensive warranty—from the data center standard for business-critical database applications. Designed to reduce costs and complexity, HPE ProLiant DL380 Gen9 SQL Server leverages Intel® Xeon® E5-2600 v3 and v4 processors, along with the latest **HPE DDR4 SmartMemory** supporting capacity up to 3.0 TB. It also features support for 40GbE NIC with a broad range of graphics and workload accelerator options.

HPE ProLiant DL380 Gen9 Server simplifies management for more cost savings, with powerful new capabilities for automating and simplifying system deployment, maintenance, and troubleshooting.

Partners you can rely on

VMware vSphere® and Virtual SAN

As the leading server virtualization platform, VMware vSphere delivers business value from day one with powerful server virtualization, breakthrough availability, safe automated management, and intelligent operational insight. Radically simple, hypervisor-converged storage for virtual

machines, VMware Virtual SAN delivers enterprise-class, high-performance storage for SQL Server with seamless integration with VMware vSphere and the entire VMware stack.

Microsoft SQL Server 2016

SQL Server 2016 includes database innovations that deliver new levels of efficiency, performance, security, and availability.

HPE 12G SAS SSDs from SanDisk

SanDisk powered HPE 12G SAS SSDs push the performance density envelope as an in-server solution with capacities up to 1.6 TB each. With enterprise-grade reliability, high endurance, and microsecond data access latency, these have been architected to dramatically scale and accelerate SQL Server performance and deliver the real-time data access performance your business demands.

Let's make it happen together

Microsoft SQL Server 2016 with VMware virtualization technology running on SanDisk flash-enabled **HPE ProLiant DL380 platform** can transform the user experience and your business. Contact your HPE representative today.

Learn more at
hpe.com/servers/solidstate

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