

AZURE STACK HCI: SCALE-OUT STORAGE

Technical Use Cases
for Azure Stack HCI



Branch office
and edge



Virtual desktop
infrastructure



High-performance
SQL Server



Trusted enterprise
virtualization



Scale-out
storage

Microsoft Azure Stack HCI solutions provide industry-leading storage performance using leading-edge technologies in HPE servers. Technologies like NVMe, Intel Optane DC Memory, and RDMA networking combine to give you blazing fast performance that can scale from just 2 nodes all the way up to 16. Features like mirror-accelerated parity and data duplication ensure you get the most from your hardware investment. Connect it all to Azure File Sync, and you have a virtually bottomless storage solution. Below, you will find a how-to guide for Azure Stack HCI Scale-out storage configurations that includes:

- Plan and deploy HPE hardware and OS/tools to support Azure Stack HCI Scale-out storage
- Step by step documentation to enable Scale-out storage, including extending to the cloud with Azure File Sync

1. Hardware and OS configuration for Scale-out storage configurations

HPE ProLiant Servers

For complete guidance on hardware configuration, see our whitepaper: [Implementing Windows Server 2019 Storage Spaces Direct using HPE ProLiant servers.](#)

See the following HPE ProLiant Azure Stack HCI Solution technical white papers for your specific solution:

- HPE ProLiant DL325 Gen10 Platforms [a50000731enw](#)
- HPE ProLiant DL360 Gen10 Platforms [a50000732enw](#)
- HPE ProLiant DL380 Gen10 Platforms [a50000694enw](#)
- HPE ProLiant DL385 Gen10 Platforms [a50000695enw](#)



HPE DL380 Gen10 Hybrid NVMe SAS SSD+HDD

Scale:

- 2 to 16 nodes

Single Node Data:

- CPU: 4-56 cores (Intel)
- RAM: 64GB to 3TB
- Raw storage: 2.4TB to 100TB + 168TB JBOD
- Storage type: NVMe + SSD (SAS) + HDD (SAS)
- Network speed: Up to 100Gb

[Learn more](#)



HPE DL380 Gen10 Hybrid SAS

Scale:

- 2 to 16 nodes

Single Node Data:

- CPU: 4-56 cores (Intel)
- RAM: 64GB to 3TB
- Raw storage: 2.4TB to 168TB + 168TB JBOD
- Storage type: SSD (SAS) + HDD (SAS)
- Network speed: Up to 100Gb

[Learn more](#)



HPE DL385 Gen10 All Flash SATA

Scale:

- 2 to 16 nodes

Single Node Data:

- CPU: 8-128 cores (AMD)
- RAM: 64GB to 4TB
- Raw storage: 3.84TB to 115TB
- Storage type: SSD (SATA)
- Network speed: Up to 100Gb

[Learn more](#)



HPE DL380 Gen10 All Flash SATA

Scale:

- 2 to 16 nodes

Single Node Data:

- CPU: 4-56 cores (Intel)
- RAM: 64GB to 3TB
- Raw storage: 1.92TB to 115TB
- Storage type: SSD (SATA)
- Network speed: Up to 100Gb

[Learn more](#)



HPE DL385 Gen10 Hybrid NVMe SAS HDD

Scale:

- 2 to 16 nodes

Single Node Data:

- CPU: 8-128 cores (AMD)
- RAM: 64GB to 4TB
- Raw storage: 2.4TB to 140TB + 168TB JBOD
- Storage type: NVMe + HDD (SAS)
- Network speed: Up to 100Gb

[Learn more](#)



HPE DL380 Gen10 All Flash NVMe

Scale:

- 2 to 16 nodes

Single Node Data:

- CPU: 4-56 cores (Intel)
- RAM: 64GB to 3TB
- Raw storage: 6.4TB to 270TB
- Storage type: NVMe
- Network speed: Up to 100Gb

[Learn more](#)



HPE DL385 Gen10 All Flash NVMe

Scale:

- 2 to 16 nodes

Single Node Data:

- CPU: 8-128 cores (AMD)
- RAM: 64GB to 4TB
- Raw storage: 6.4TB to 270TB
- Storage type: NVMe
- Network speed: Up to 100Gb

[Learn more](#)



HPE DL385 Gen10 Hybrid NVMe SAS SSD+HDD

Scale:

- 2 to 16 nodes

Single Node Data:

- CPU: 8-128 cores (AMD)
- RAM: 64GB to 4TB
- Raw storage: 2.4TB to 100TB + 168TB JBOD
- Storage type: NVMe + SSD (SAS) + HDD (SAS)
- Network speed: Up to 100Gb

[Learn more](#)



HPE DL385 Gen10 All Flash SAS

Scale:

- 2 to 16 nodes

Single Node Data:

- CPU: 8-128 cores (AMD)
- RAM: 64GB to 4TB
- Raw storage: 3.2TB to 192TB + 153TB JBOD
- Storage type: SSD (SAS)
- Network speed: Up to 100Gb

[Learn more](#)



HPE DL380 Gen10 All Flash SAS

Scale:

- 2 to 16 nodes

Single Node Data:

- CPU: 4-56 cores (Intel)
- RAM: 64GB to 3TB
- Raw storage: 3.2TB to 192TB + 153TB JBOD
- Storage type: SSD (SAS)
- Network speed: Up to 100Gb

[Learn more](#)



HPE DL380 Gen10 Hybrid NVMe SAS HDD

Scale:

- 2 to 16 nodes

Single Node Data:

- CPU: 4-56 cores (Intel)
- RAM: 64GB to 3TB
- Raw storage: 2.4TB to 140TB + 168TB JBOD
- Storage type: NVMe + HDD (SAS)
- Network speed: Up to 100Gb

[Learn more](#)



HPE DL380 Gen10 Hybrid SATA/SAS

Scale:

- 2 to 16 nodes

Single Node Data:

- CPU: 4-56 cores (Intel)
- RAM: 64GB to 3TB
- Raw storage: 4TB to 168TB + 168TB JBOD
- Storage type: SSD (SATA) + HDD (SAS)
- Network speed: Up to 100Gb

[Learn more](#)



HPE DL385 Gen10 Hybrid SAS

Scale:

- 2 to 16 nodes

Single Node Data:

- CPU: 8-128 cores (AMD)
- RAM: 64GB to 4TB
- Raw storage: 1.2TB to 168TB + 168TB JBOD
- Storage type: SSD (SAS) + HDD (SAS)
- Network speed: Up to 100Gb

[Learn more](#)



HPE DL360 Gen10 All Flash SAS

Scale:

- 2 to 16 nodes

Single Node Data:

- CPU: 4-56 cores (Intel)
- RAM: 64GB to 3TB
- Raw storage: 3.2TB to 60.4TB + 160TB JBOD
- Storage type: SSD (SAS)
- Network speed: Up to 25Gb

[Learn more](#)



HPE DL360 Gen10 Hybrid SAS

Scale:

- 2 to 16 nodes

Single Node Data:

- CPU: 4-56 cores (Intel)
- RAM: 64GB to 3TB
- Raw storage: 4TB to 19.2B + 60TB JBOD
- Storage type: SSD (SAS) + HDD (SAS)
- Network speed: Up to 25Gb

[Learn more](#)



HPE DL325 Gen10 All Flash SAS

Scale:

- 2 to 4 nodes

Single Node Data:

- CPU: 8-64 cores (AMD)
- RAM: 64GB to 2TB
- Raw storage: 3.2TB to 60.4TB + 160TB JBOD
- Storage type: SSD (SAS)
- Network speed: Up to 25Gb

[Learn more](#)



HPE DL325 Gen10 Hybrid SAS

Scale:

- 2 to 4 nodes

Single Node Data:

- CPU: 8-64 cores (AMD)
- RAM: 64GB to 2TB
- Raw storage: 4TB to 19.2B + 60TB JBOD
- Storage type: SSD (SAS) + HDD (SAS)
- Network speed: Up to 25Gb

[Learn more](#)



HPE DL325 Gen10 Hybrid NVMe SAS HDD

Scale:

- 2 to 4 nodes

Single Node Data:

- CPU: 8-64 cores (AMD)
- RAM: 64GB to 2TB
- Raw storage: 4TB to 19.2B + 60TB JBOD
- Storage type: NVMe + HDD (SAS)
- Network speed: Up to 25Gb

[Learn more](#)

AZURE STACK HCI: SCALE-OUT STORAGE



HPE DL360 Gen10 Hybrid NVMe SAS HDD

Scale:

- 2 to 16 nodes

Single Node Data:

- CPU: 4-56 cores (Intel)
- RAM: 64GB to 3TB
- Raw storage: 4TB to 19.2B + 60TB JBOD
- Storage type: NVMe + HDD (SAS)
- Network speed: Up to 25Gb

[Learn more](#)



HPE DL360 Gen10 All Flash NVMe

Scale:

- 2 to 16 nodes

Single Node Data:

- CPU: 4-56 cores (Intel)
- RAM: 64GB to 3TB
- Raw storage: 6.4TB to 150TB
- Storage type: NVMe
- Network speed: Up to 25Gb

[Learn more](#)



HPE DL325 Gen10 All Flash SATA

Scale:

- 2 to 4 nodes

Single Node Data:

- CPU: 8-64 cores (AMD)
- RAM: 64GB to 2TB
- Raw storage: 3.84TB to 38TB
- Storage type: SSD (SATA)
- Network speed: Up to 25Gb

[Learn more](#)

HPE Apollo Servers

For Azure Stack HCI installation guidance on the HPE Apollo Servers, the ProLiant guidance in this whitepaper can be followed: [Implementing Windows Server 2019 Storage Spaces Direct using HPE ProLiant servers](#). For information on storage layout and other options, the product specifications for the HPE Apollo 4200 Gen10 Server can be found [here](#).

See the following HPE Apollo Azure Stack HCI Solution technical white papers for your specific solution:

- [HPE Apollo 4200 Gen10 All-Flash SAS SSD Azure Stack HCI Solution technical white paper](#)
- [HPE Apollo 4200 Gen10 Hybrid SAS Azure Stack HCI Solution technical white paper](#)
- [HPE Apollo 4200 Gen10 Hybrid NVMe SAS SSD+HDD Azure Stack HCI Solution technical white paper](#)
- [HPE Apollo 4200 Gen10 Hybrid NVMe SAS HDD Azure Stack HCI Solution technical white paper](#)

AZURE STACK HCI: SCALE-OUT STORAGE



HPE Apollo 4200 Gen10 All Flash SAS SSD

Scale:

- 2 to 16 nodes

Single Node Data:

- CPU: 8-56 cores (Intel)
- RAM: 64GB to 2TB
- Raw storage: 2.4TB to 336TB
- Storage type: SSD (SAS)
- Network speed: Up to 100Gb

[Learn more](#)



HPE Apollo 4200 Gen10 Hybrid NVMe SAS HDD

Scale:

- 2 to 16 nodes

Single Node Data:

- CPU: 8-56 cores (Intel)
- RAM: 64GB to 2TB
- Raw storage: 2.4TB to 336TB
- Storage type: NVMe + HDD (SAS)
- Network speed: Up to 100Gb

[Learn more](#)



HPE Apollo 4200 Gen10 Hybrid NVMe SAS SSD+HDD

Scale:

- 2 to 16 nodes

Single Node Data:

- CPU: 8-56 cores (Intel)
- RAM: 64GB to 2TB
- Raw storage: 2.4TB to 275TB
- Storage type: NVMe + SSD (SAS) + HDD (SAS)
- Network speed: Up to 100Gb

[Learn more](#)



HPE Apollo 4200 Gen10 Hybrid SAS

Scale:

- 2 to 16 nodes

Single Node Data:

- CPU: 8-56 cores (Intel)
- RAM: 64GB to 2TB
- Raw storage: 2.4TB to 336TB
- Storage type: SSD (SAS) + HDD (SAS)
- Network speed: Up to 100Gb

[Learn more](#)

HPE Synergy Servers

For Azure Stack HCI installation guidance on the HPE Synergy infrastructure, see the Synergy Azure Stack HCI whitepaper: [Azure Stack HCI Best Practices for Installation on HPE Synergy](#). The complete UEFI System Utilities User Guide for HPE Synergy is available [here](#).

See the following HPE Synergy Azure Stack HCI Solution technical white paper for your specific solution:

- [HPE Synergy 480 Gen10 Azure Stack HCI Solutions](#)



HPE Synergy 480 Hybrid SAS

Scale:

- 2 to 16 nodes

Single Node Data:

- CPU: 4-56 cores (Intel)
- RAM: 64GB to 3TB
- Raw storage: 4TB to 384TB
- Storage type: SSD (SAS) + HDD (SAS)
- Network speed: Up to 50Gb

[Learn more](#)



HPE Synergy 480 All Flash SAS

Scale:

- 2 to 16 nodes

Single Node Data:

- CPU: 4-56 cores (Intel)
- RAM: 64GB to 3TB
- Raw storage: 3.2TB to 230TB
- Storage type: SSD (SAS)
- Network speed: Up to 50Gb

[Learn more](#)



HPE Synergy 480 Hybrid NVMe SAS HDD

Scale:

- 2 to 16 nodes

Single Node Data:

- CPU: 4-56 cores (Intel)
- RAM: 64GB to 3TB
- Raw storage: 4TB to 384TB
- Storage type: NVMe + HDD (SAS)
- Network speed: Up to 100Gb

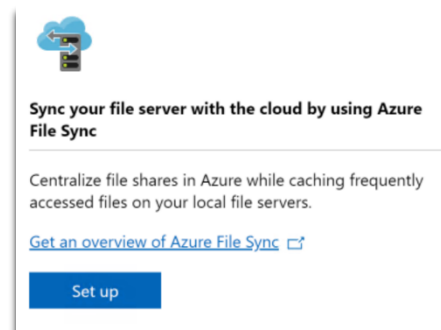
[Learn more](#)

[Step by Step guide to deploy Azure Stack HCI](#)

1. Install Windows Server 2019 Datacenter (follow guidance above for network connectivity for Clustering)
2. Add Roles and Features
3. Setup Failover Clustering and enable a Cluster Witness
4. Setup Storage Spaces Direct
5. [Install Windows Admin Center \(WAC\)](#)
6. [Check for customized HPE Azure Stack HCI extensions](#)

From Windows Admin Center (WAC), set up Azure File Sync.

Additionally, you can Set Up additional Azure hybrid services such as Backup, File Sync, Site Recovery, Point-to-Site VPN, Update Management, and Security Center in WAC.



2. Enable general purpose file services on your Azure Stack HCI cluster

Once your Azure Stack HCI cluster setup has been deployed, follow the [steps in this article](#) to configure it for general purpose file services.

Windows Failover Clustering supports different kinds of file service roles. The primary focus of this document is the general-purpose file server role, appropriate for serving files to information workers and other traditional file services roles. It enables key capabilities like quotas, data deduplication, accessible via multiple protocols like SMB and NFS.

The other is called the "Scale-Out File Server" role, which is designed for hosting virtual machines, high-performance SQL server databases, and other kinds of specialized, high-performance scenarios. The Scale-Out File Server role is not designed for the needs of typical user files and is outside the scope of this document.

3. Enable Azure File Sync to unify your on-premises file storage

Use Azure File Sync to centralize your organization's file shares in Azure Files, while keeping the flexibility, performance, and compatibility of an on-premises file server. You can use any protocol that's available on Windows Server to access your data locally, including SMB, NFS, and FTPS. You can have as many caches as you need across the world.

How do I deploy Azure File Sync on Azure Stack HCI?

Note: Updated guidance on how to install and configure Azure File Sync will [always be located here](#).

- a. If you do not already have an Azure account, get your [free account here](#)
- b. [Evaluate and prepare](#) your environment for Azure File Sync
- c. [Create an Azure File Share](#) in the Azure Portal
- d. [Deploy the Azure File Sync](#) locally on your Azure Stack HCI cluster

Summary

With completion of the Azure Stack HCI Scale-out storage deployment, you now have a scalable, flexible platform for all of your file serving needs. The addition of Azure File Sync will allow you to centralize and distribute your data quickly and easily among your various sites and users.