

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 Fujitsu servers. Technologies like NVMe, 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 Fujitsu 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

Fujitsu recommends the 2U dual-socket PRIMERGY RX2540 M5 rack server system as the best fit for the Scale-out storage scenario. Please see below the configuration options that have been certified according to the Azure Stack HCI program.



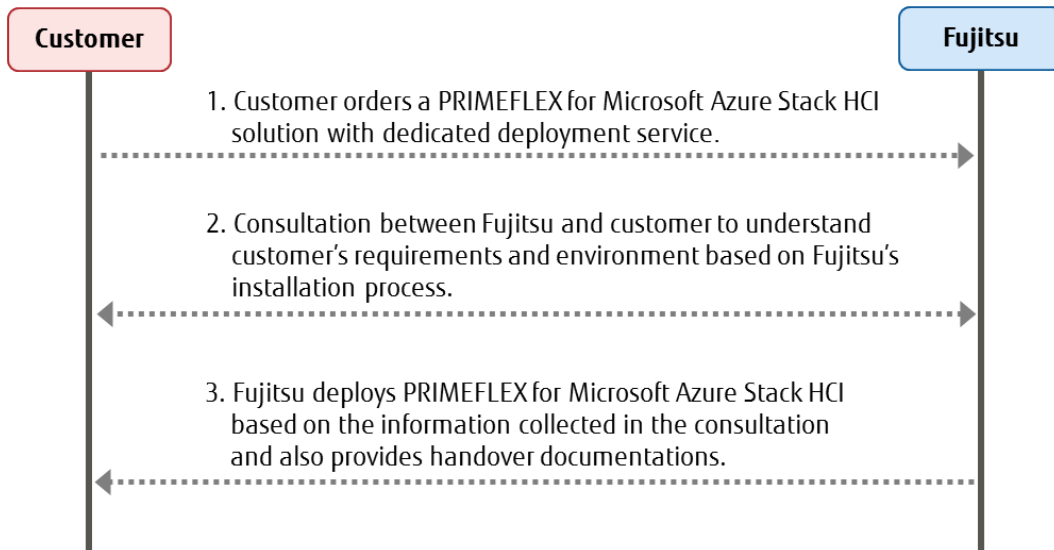
Type		Hybrid: SSD+HDD	All-Flash: All-SSD	All-Flash: NVMe+SSD
Server		PRIMERGY RX2540 M5(2.5" or 3.5")		PRIMERGY RX2540 M5(2.5")
Scalability		2 to 16 nodes		
CPU		2x Intel Xeon Silver 4208 or better (16-56 cores)		
Memory		64GB to 3TB		
Drives	Cache	2-12x 2.5" or 2-6x 3.5" SSD SAS/ SATA (800 GB per node or higher)	-	2-4x 2.5" NVMe (3.2 TB per node or higher)
	Capacity	4-22x 2.5 " or 4-10x 3.5" HDD SAS/SATA (2.4 TB per node or higher)	4-24x 2.5" SSD SAS/SATA (1.92TB per node or higher)	4-24x 2.5" SSD SAS/SATA (1.92TB per node or higher)
Network		2x PLAN EP QL41xxx	2x PLAN EP MCX4-LX 25Gb 2p SFP28 LP	
RDMA / TPM 2.0		yes / yes		
HBA		Fujitsu PSAS CP400i SAS		

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Deployment and Support

[Fujitsu Product Support Services](#) provide installation and support services for hardware and software. With the Fujitsu SolutionPacks, Fujitsu provides a special Infrastructure Support package that is designed to offer a single point of contact for all components (Fujitsu and third-party) of a Fujitsu infrastructure solution.

Customers can acquire Fujitsu Product Support Services for deployment of Azure Stack HCI the following way:



The following tasks are done by Fujitsu professional engineers:

- All power and network cabling.
- Installation and update Windows Server 2019 Datacentre.
- Configuration of Windows Server 2019 features, cluster, network and Hyper-V.

Scalability options

There are two possible options to scale an existing Azure Stack HCI environment.

- Scale up by adding additional hardware components (i. e. memory, LAN cards, and storage devices) to a Fujitsu PRIMERGY RX2540 M5 rack server system. For details, please see the [RX2540 M5 system configuration guide](#).
- Scale out by adding additional server nodes to an existing Azure Stack HCI cluster.

Infrastructure Management

For an efficient management of the complete hardware infrastructure, Fujitsu recommends [Fujitsu Software Infrastructure Manager \(ISM\)](#) providing a converged management for both the physical and the virtual environment, including compute, storage and network devices. ISM provides the following key features:


- A dashboard with a customisable layout providing you with all relevant information to make quick and proactive decisions
- Monitoring of all critical server components including CPU and memory utilisation
- Alerting in case of system failures to quickly identify affected components
- Firmware updates of all hardware components in a Azure Stack HCI cluster (covers server, storage and switch devices)

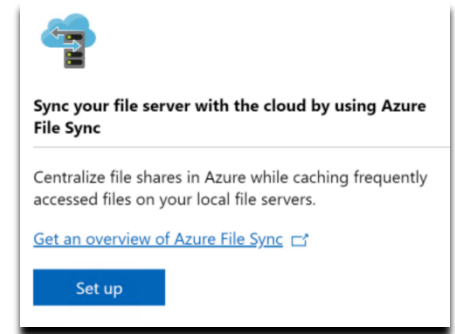
[Step by Step guide to deploy Azure Stack HCI](#)

1. Install Windows Server 2019 Datacentre (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 Centre \(WAC\)](#)

The step 1 to 4 above are done by Fujitsu Product Support Services.

From Windows Admin Centre (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 Centre 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 de-duplication, 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 specialised, 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 centralise your organisation'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](#).

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- 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 centralise and distribute your data quickly and easily among your various sites and users.

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