

HPE STORAGE EXTENDER FOR AZURE STACK HUB

Economically expand data capacity for your Azure Stack Hub environment

A supported approach to save CAPEX by separately growing capacity for your on-premises Azure hybrid cloud without having to grow compute



HPE Storage Extender for Azure Stack Hub—Benefits to you

The HPE Storage Extender for Azure Stack Hub solution brings the value of enterprise-class storage arrays to systems otherwise reliant on only local disk capacity:

- Extend data capacity for Azure Stack Hub without expanding compute
- Expand up to over 16 PB of scale-out capacity²
- Significantly lower cost per TB vs. using only internal disk storage
- Access rich data services including snapshots, clones, and replication at no additional expense
- Enjoy guaranteed data availability of 99.9999%
- Get deployment guidance through published technical white paper
- Benefit from solution support by Microsoft

¹ "Connect to iSCSI storage with Azure Stack Hub", Oct 28, 2019

² Based on HPE Nimble Storage AF80 4x scale-out cluster, assuming 5:1 data reduction via data dedupe and compression. Published QuickSpecs available online.

Microsoft Azure Stack Hub is an extension of Microsoft Azure Public Cloud, but is located on-premises rather than in a cloud data center. Azure Stack Hub is deployed and operates on customer-owned and operated hardware, but an Azure Stack Hub implementation differs from cloud data centers in both scope and scale. Azure Stack Hub scales between 4 and 16 hybrid nodes and between 4 and 8 all-flash nodes. Azure Stack does not include all of the features, VM types, or services currently available in Azure Cloud Services, but does include a subset that are appropriate for hybrid, on-premises cloud deployments.

Azure Stack Hub mimics the most common features of Azure Public Cloud and presents the consumer with an easy transition from Azure Public Cloud when data needs to exist on-premises. The primary method of managing an Azure Public Cloud instance (the Azure portal) is almost identical to the method of managing an Azure Stack Hub instance (the Azure Stack portal).

Azure Stack Hub currently provisions storage using internal disks from hyperconverged nodes managed by Storage Spaces Direct (S2D). Up to this point, external storage has not been supported under the Azure Stack Hub design options. Therefore, the total capacity and performance available is capped by the maximum number of nodes in the scale unit, the disk drive configurations available from each OEM vendor, and the specific characteristics of the virtual machine type deployed. Since release of the solution,

customers and partners have requested flexibility to leverage external storage arrays to support key workloads along with ability to leverage key features such as migration, replication, and high availability.

To meet this customer need, HPE developed a means to connect HPE Nimble Storage arrays as an external iSCSI storage option. And in parallel with the Microsoft technical template for connecting to iSCSI storage with Azure Stack Hub,¹ HPE has released this supported approach to economically extend Azure Stack Hub data capacity with external HPE Storage.

AZURE STACK HUB—HYBRID CLOUD PLATFORM FOR AZURE DEVELOPMENT

Azure provides a rich platform for developers to build modern apps. However, some cloud-based apps face obstacles such as latency, intermittent connectivity, and regulations. Azure and Azure Stack Hub unlock new hybrid cloud use cases for both customer-facing and internal line-of-business apps:

• Edge and disconnected solutions:

Address latency and connectivity requirements by processing data locally in Azure Stack Hub and then aggregating it in Azure for further analytics, with common app logic across both. Azure Stack Hub is also an option for disconnected usage, whether in a secure facility, offshore, or miles underground.

Solution brief

- **Regional Azure clouds:** Service providers provide local customers with an Azure service set where regional connectivity or geography make connection to the actual Azure Cloud impractical. Multitenancy features deliver security, manageability, and metering.
- **Cloud apps with regulatory restrictions:** Develop and deploy apps in Azure with full flexibility to deploy on-premises with Azure Stack Hub to meet regulatory or policy requirements. App examples include global audit, financial reporting, foreign exchange trading, online gaming, and expense reporting.
- **Cloud app model on-premises:** Use Azure services, containers, and serverless and microservice architectures to update and extend existing apps or build new ones. Consistent DevOps processes across Azure in the cloud and Azure Stack Hub speed app delivery—program once and run on-premises or in the cloud with no code changes needed.

³ "HPE Get 6-Nines Guarantee, HPE Nimble Storage" Published details available online.

⁴ HPE Store More Guarantee for HPE Nimble Storage.

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HPE STORAGE FOR EXPANDED HYBRID CLOUD CAPACITY

Microsoft has published an approach for expanding capacity for Azure Stack Hub by using any iSCSI storage resource. The HPE Storage Extender for Azure Stack Hub solution leverages this approach and scripts with an optimized implementation initially available on HPE Nimble Storage.

HPE Nimble Storage brings intelligent, self-managing flash storage to your data center and hybrid cloud environment. HPE Nimble Storage leverages flash storage and predictive analytics for the highest levels of IOPS, low latency, and guaranteed 99.9999% availability,³ delivering the best all-flash storage capacity per terabyte in the industry.

HPE Nimble Storage is an ideal platform for your expanded Azure Stack hybrid cloud. With highly effective data efficiency features, HPE Nimble Storage is guaranteed to store more data per terabyte of flash storage than other all-flash arrays. Designed for NVMe and Storage Class Memory (SCM), HPE Nimble Storage delivers industry-leading effective capacity efficiency as well as a future-proofed architecture. Guaranteed data-reduction program details available in the [Store More Guarantee](#) documentation.⁴

HPE Storage Extender for Azure Stack Hub—A Microsoft Supported Approach

Azure Stack Hub is a valuable platform for hybrid cloud and on-premises Azure development, but as opposed to the Azure cloud service where storage capacity is virtually boundless, with Azure Stack Hub, storage is finite. The capacity you have available for your usage depends entirely on the per-node capacity you chose to purchase, in addition to the number of nodes you have. And because Azure Stack Hub is a tightly defined and controlled architecture, per Microsoft's supported configuration definitions, should you wish to grow your storage capacity to meet usage demands, you also need to

grow your compute footprint through the addition of nodes. This can be potentially cost prohibitive, especially if the need to extra capacity is for cold, archival storage that could be added for a much lower cost outside of the Azure Stack Hub system.

Fortunately, Microsoft has been receptive to partner and customer requests, and has published a supported means to extended Azure Stack Hub storage capacity with the use of external data storage.

The HPE solution provides the required elements of this approach to enable access to external data capacity while maintaining customers supported Azure Stack Hub configuration. The solution includes:

- HPE Nimble Storage on-premises which is officially Windows Server 2019 and 2016 certified
- Windows Server 2016 Datacenter or Windows Server 2019 Datacenter (latest build recommended)
- PowerShell DSC extension
- Custom Script Extension
- HPE Nimble Storage for HPE ProLiant for Microsoft Azure Stack solution Deployment guide

Get started

The HPE Storage Extender for Azure Stack Hub solution is available today. It brings additional data capacity to Azure Stack Hub without the cost of adding additional compute.

The HPE Storage Extender for Azure Stack Hub solution is an economical way to access and use more data within your Microsoft hybrid cloud while also getting the benefits of improved data management, protection, and availability thanks to HPE Nimble Storage. The solution includes technical guidance and scripts, and as an approach aligned with Microsoft published technical templates, is also supported by Microsoft.

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