

Azure Files, Azure NetApp Files, and Azure Blob-Nasuni Product Comparison

As file data keeps growing, ransomware attacks mount, hybrid/remote work becomes the new normal, and analytics are needed for competitive advantage, IT organizations are turning to Microsoft Azure to deliver file data services. This document helps you compare three options in the Microsoft Azure portfolio for modernizing Windows file server, NetApp, Dell Isilon, and other aging hardware-defined file storage infrastructures.

Product	Azure Files	Azure NetApp Files	Azure Blob-Nasuni
Description	<p>Azure Files is a fully managed, highly available, cloud service that is optimized for random access SMB or NFS file workloads that traditionally run on Windows file servers.</p> <p>Multiple performance tiers are offered to meet specific performance requirements.</p> <p>The optional Azure File Sync service enables files to be cached on a Windows file server when on-premises access without cloud latency is needed.</p> <p>Best for smaller organizations wanting simple, secure, and serverless cloud file shares.</p>	<p>Azure NetApp Files is a fully managed, highly available, NAS service that can handle the most demanding, high-performance, low-latency workloads requiring advanced data management capabilities such as SAP and Oracle applications.</p> <p>Azure NetApp Files is built on NetApp's bare metal with ONTAP storage OS running inside the Azure datacenter.</p> <p>Multiple performance tiers are offered – Standard, Premium, and Ultra – to meet specific performance requirements.</p> <p>Best for SAP HANA, databases, enterprise web apps, and other workloads that are I/O-intensive but lower in capacity (due to the high cost).</p>	<p>The Nasuni File Data Platform backed by low-cost Azure Blob object storage is a customer-managed, highly available, cloud file service optimized for SMB and NFS workloads that traditionally run on Windows file servers and NAS.</p> <p>Nasuni can be deployed fully in Azure or as a hybrid cloud deployment with on-premises caching for high-performance file access in any location.</p> <p>Best for organizations that require enterprise-grade file shares with advanced capabilities such as unlimited recovery points; ransomware inline detection and mitigation policies; VPN-less file share access; Microsoft Teams and Office 365 integrations; unlimited file, directory, and volume sizes;; multi-site file sync; global file lock; fast data propagation; desktop sync for offline access; extended macOS SMB support; external file/folder sharing, and more.</p>
Performance Tiers	<ul style="list-style-type: none"> • Premium • Transaction Optimized • Hot • Cool 	<ul style="list-style-type: none"> • Ultra • Premium • Standard 	<ul style="list-style-type: none"> • Performance is determined by edge cache configuration, not object storage tier. • For on-premises caching, all storage behind VMware ESX, Hyper-V, and Nutanix AHV VMs is supported. • For Azure cloud caching, all Azure Disk Storage types are supported, e.g. Azure Ultra disk, Azure Premium SSD, Azure Standard SSD - to learn more, see Azure Managed Disk Types.

Durability / Redundancy Levels	Premium: <ul style="list-style-type: none"> LRS ZRS Transaction Optimized, Hot, Cool <ul style="list-style-type: none"> LRS ZRS GRS GZRS 	All tiers: <ul style="list-style-type: none"> Built-in local HA Cross-region replication (added charge) 	Same as Azure Blob object storage: <ul style="list-style-type: none"> LRS ZRS GRS
Region Availability	Premium: 30+ Regions Other Tiers: All regions To learn more, see Products available by region.	All tiers: 28+ Regions To learn more, see Products available by region.	All regions (same as Azure Blob object storage region availability)
Cloud Support	<ul style="list-style-type: none"> Azure 	<ul style="list-style-type: none"> Azure 	<ul style="list-style-type: none"> Azure AWS Google Cloud On-premises object storage (e.g. NetApp StorageGRID, Pure Storage FlashBlade, IBM Cloud Object Storage)

Security

Product	Azure Files	Azure NetApp Files	Azure Blob-Nasuni
Encryption	Encryption at rest (AES 256) with customer or Microsoft-managed keys.	Encryption at rest (AES 256) with Microsoft-managed keys.	Encryption at rest (AES 256) and in transit with customer-managed keys.
Authentication	SMB: <ul style="list-style-type: none"> Active Directory Domain Services (AD DS) Azure Active Directory Domain Services (Azure AD DS) 	SMB: <ul style="list-style-type: none"> Active Directory Domain Services (AD DS) Azure Active Directory Domain Services (Azure AD DS) NFS: <ul style="list-style-type: none"> ADDS/LDAP integration NFS/SMB dual protocol: <ul style="list-style-type: none"> ADDS/LDAP integration 	SMB: <ul style="list-style-type: none"> Active Directory Domain Services (AD DS) Azure Active Directory Domain Services (Azure AD DS) NFS: <ul style="list-style-type: none"> ADDS/LDAP integration NFS/SMB dual protocol: <ul style="list-style-type: none"> ADDS/LDAP integration
Connectivity	<ul style="list-style-type: none"> Internet Secure VNet access VPN Gateway ExpressRoute Azure File Sync 	<ul style="list-style-type: none"> Secure VNet access VPN Gateway ExpressRoute Azure HPC Cache 	<ul style="list-style-type: none"> Internet Secure VNet access VPN Gateway ExpressRoute Nasuni Edge Caches HTTPS "VPN-less Access" TLS "VPN-less Access"

Scalability and Performance

Product	Azure Files	Azure NetApp Files	Azure Blob-Nasuni
Maximum Account / Volume Capacity	100 TB	100 TB	Unlimited
Maximum File Share Capacity	100 TB	100 TB	Unlimited
Maximum File Size	4 TB	16 TB	Unlimited
Maximum Share/Volume IOPS	Premium – up to 100,000 Other Tiers – up to 20,000	Ultra and Premium – up to 450,000 Standard – up to 320,000	On-Prem Edge Caches – up to 450,000 using all-flash arrays Azure Edge Caches – up to 160,000 using Azure Ultra disk
Data Reduction	Not Available	Not Available	40% on average

Data Protection

Product	Azure Files	Azure NetApp Files	Azure Blob-Nasuni
Maximum Snapshots (Recovery Points)	200	255	Unlimited
Snapshot immutability	Yes	No	Yes
File/directory user self-restore	Yes	Yes	Yes
Share-level soft delete	Yes	Yes	Yes
Restore to same or new location	Yes	Yes	Yes
Cross-region replication	Yes, with ZRS and GRS durability tiers	Yes, with second Azure NetApp Files account and cross-region replication charges	Yes, with object storage ZRS and GRS durability tiers (no cross-region replication charges or extra accounts required)
Ransomware Protection	Yes <ul style="list-style-type: none"> Immutable snapshots 	No	Yes <ul style="list-style-type: none"> Immutable snapshots In-line edge detection using ransomware signature database Alerts and notifications with root cause analysis Mitigation policies Incident reports for compliance

File Sharing and Access

Product	Azure Files	Azure NetApp Files	Azure Blob-Nasuni
Protocols	Premium: SMB 2.1, 3.0, 3.1.1; NFS 4.1; REST Other Tiers: SMB 2.1, 3.0, 3.1.1; REST	All tiers: SMB 2.x, 3.x; NFS 3.x, 4.x; Dual protocol access (NFSv3/SMB)	SMB 2.x, 3.x; NFS 3.x, 4.x; Dual protocol access (NFSv3/SMB); REST; HTTPS; and TLS (for "VPN-less" access to file shares)
macOS support	Basic	Basic	Advanced: macOS SMB extensions, tags, long file/path names, extended metadata attributes
Multi-site file synchronization	Yes, Azure File Sync caches copies of frequently accessed file data on Windows file servers (requires Windows Client Access License) and keeps them in sync. Enables the same file shares to be presented in multiple on-premises offices.	Yes, with NetApp Global File Cache product that must be purchased from NetApp.	Yes, Nasuni caches copies of frequently accessed file data on Nasuni Edge VMs (Linux OS, no Windows CAL required) and keeps them in sync. Enables the same file shares to be presented in multiple on-premises offices and Azure regions.
Global file locking	No	No	Yes, Nasuni Global File Lock minimizes version conflict when 2 or more users attempt to open the same file for editing in different locations by allowing only 1 user at a time to make changes.
Intelligent data propagation	No	No	Yes, Nasuni Global File Acceleration applies Machine Learning to file system audit logs to prioritize which locations should receive new files first, increasing data propagation speeds up to 20X..
Microsoft Teams integration	No	No	Yes, Nasuni Access Anywhere includes a Microsoft Teams app that enables network file shares to be accessed directly from within Teams projects. Eliminates the need to copy files between file shares and the SharePoint storage used by Teams.
VPN-less access	Yes, through SMB 3.1, but requires port 445 to be open.	No	Yes, Nasuni Access Anywhere uses secure TLS protocol to provide remote users with accelerated access to file shares on any Nasuni Edge, without VPN bottleneck.
Desktop sync	No	No	Yes, Nasuni Access Anywhere syncs files from a Nasuni Edge to a local desktop for offline access, and syncs changes back when network connections are restored.
External file and folder sharing	No	No	Yes, Nasuni Access Anywhere enables internal users to securely share files with authenticated external users using web and desktop clients.

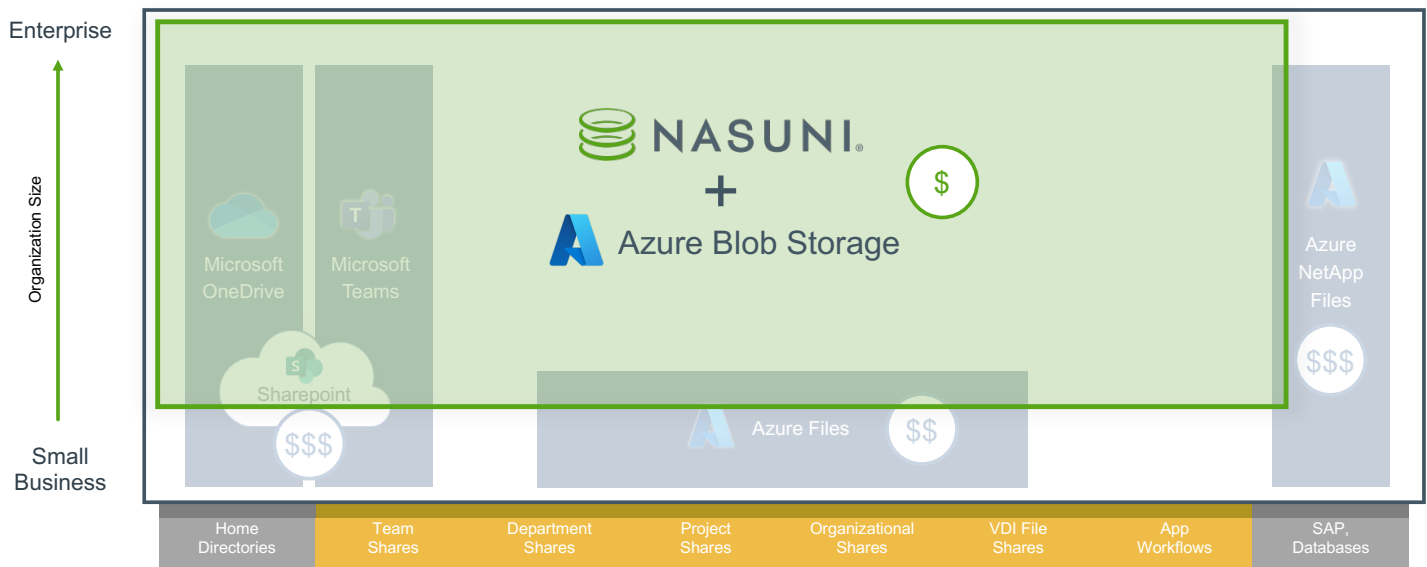
Purchase and Deployment

Product	Azure Files	Azure NetApp Files	Azure Blob-Nasuni
Licensing	<ul style="list-style-type: none"> Per GB/per month subscription Reserve capacity with 1 and 3-year commitments to lower costs (10 and 100 TB increments) 	<ul style="list-style-type: none"> Per GB/per month subscription 	<p>Nasuni</p> <ul style="list-style-type: none"> Per TB/per year subscription Capacity tiers to lower costs (price per TB decreases as more capacity is purchased) <p>Azure Blob</p> <ul style="list-style-type: none"> Per GB/per month subscription Reserve capacity with 1 and 3-year commitments to lower costs (100 TB and 1 PB increments)
Cost Factors	<ul style="list-style-type: none"> Azure Files subscription <ul style="list-style-type: none"> Performance Tier Durability Level Azure Region Azure Files Snapshots Azure Backup Azure File Sync <ul style="list-style-type: none"> Azure File Sync Service Windows file servers – Infrastructure and Windows Client License costs of on-premises caching targets Egress fees to cache data from Azure Files to Windows file server 	<ul style="list-style-type: none"> Azure NetApp Files subscription <ul style="list-style-type: none"> Performance Tier Azure Region Azure NetApp Files second account for Disaster Recovery Azure NetApp Files Cross-Region Replication 	<ul style="list-style-type: none"> Nasuni subscription <ul style="list-style-type: none"> Capacity Tier Nasuni Edge VM – infrastructure costs of on-premises or Azure-based caching targets Azure Blob Storage subscription <ul style="list-style-type: none"> Durability Level Nasuni storage efficiency Nasuni snapshot overhead Egress fees to cache data from Azure Blob to Nasuni Edge VMs
Relative Pricing	<p>\$\$</p> <p>Will vary based on performance, durability, region, capacity, and optional features.</p>	<p>\$\$\$</p> <p>Will vary based on performance, region, capacity, and cross-region replication.</p>	<p>\$</p> <p>Will vary based on durability, capacity, and optional features.</p>
MSRP Example: 150 TB, 5 offices, backup, DR, on-premises caching, Azure US East 2	<p>\$132,770 per year (\$885/TB/year)</p> <p>Includes:</p> <ul style="list-style-type: none"> Azure Files Transaction Optimized LRS – 150 TB (2 accounts needed, 1 for every 100 TB); Hot or Cool tiers may suffice depending on use case Azure Files Transaction Optimized Snapshots – 30 TB (20% overhead) Azure Backup Azure File Sync – Sync Server Azure File Sync – 5 Windows File Server VMs (virtual infrastructure costs and Windows Client Access Licenses not included) 	<p>\$543,600 per year (\$3,624/TB/year)</p> <p>Includes:</p> <ul style="list-style-type: none"> Azure NetApp Files Standard – 150 TB (Primary) Azure NetApp Files Standard – 150 TB (DR) Cross-Region Replication fees not included 	<p>\$116,250 per year (\$775/TB/year)</p> <p>Includes:</p> <ul style="list-style-type: none"> Nasuni File Data Platform* – 150 TB Azure Blob LRS Cool – 108 TB (40% storage efficiency, 20% snapshot overhead) Nasuni Edge caches – 5 VMs (virtual infrastructure costs not included; Windows Client Access Licenses not required) <p>* Backup built-in with unlimited immutable snapshots in Azure Blob object storage; DR built-in with Azure Blob object storage durability</p>

Available through Microsoft Azure Customer Portal	Yes	Yes	Yes
Available through Microsoft Reseller Partners	Yes	Yes	Yes
Count against Microsoft Azure Consumption Commitment (MACC)	Yes	Yes	Yes <ul style="list-style-type: none"> Both Nasuni subscription and Azure Blob storage used by Nasuni can be used to draw down MACC
Migration Tools	<ul style="list-style-type: none"> Azure Data Box Azure File Sync Storage Migration Service AzCopy Robocopy Azure File Migration Program 	<ul style="list-style-type: none"> Storage Migration Service AzCopy Robocopy 	<ul style="list-style-type: none"> Azure Data Box Nasuni Edge VM Storage Migration Service AzCopy Robocopy Nasuni Migration Services

From this comparison of Azure Files, Azure NetApp Files, and Azure Blob with the Nasuni File Data Platform, you should now understand the use cases for each solution in the Microsoft Azure file storage portfolio:

- If you're a small business looking to host a few Windows file servers in the cloud, Azure Files may suffice.
- If you're looking to host SAP, databases, or other I/O-intensive block workloads in Azure, Azure NetApp Files may be worth the high cost.
- If you have Windows file server, NetApp, or Dell Isilon SMB or NFS workloads, and you want a cost-effective, scalable, and easy-to-manage solution with more recovery points, ransomware protection, hybrid and remote work capabilities, and a wide range of file data caching, synchronization, and locking features, Nasuni backed by Azure Blob object storage is the best choice.



Nasuni with Azure Blob Storage costs considerably less than both Azure Files and Azure NetApp Files, has none of their scalability limits, is easier to manage, and has a more advanced feature set that's better suited to random access file shares. For these reasons, the combination is often referred to as "the enterprise version of Azure Files."