

# Azure Files - The optimal AVD profile store solution?

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Please go to -> [menti.com](https://www.menti.com) enter -> **95841317** and give me insights how familiar you are with different Storage solutions or use the following link -> <https://www.menti.com/jjc6wu8ejm>



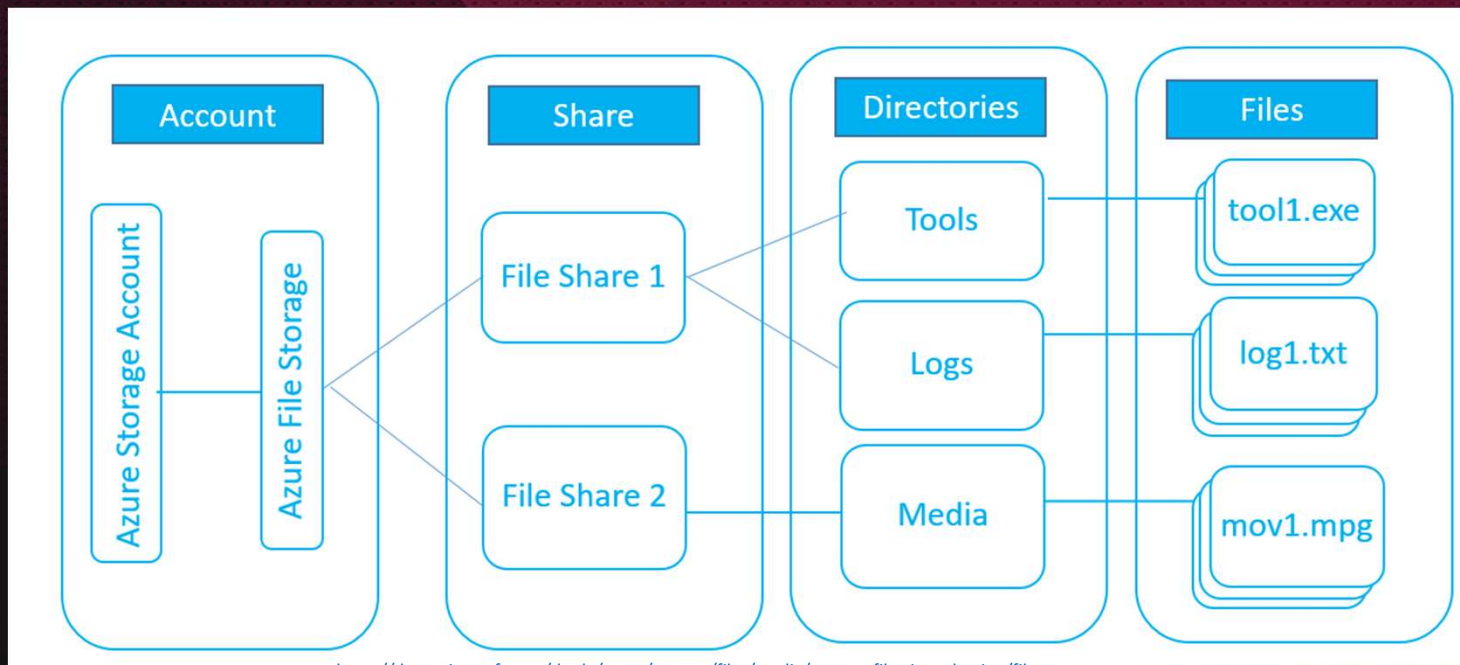
# Agenda

- Introduction
- Azure Files
- AD DS Integration
- Performance and Pricing
- Azure NetApp Files
- Summary

Please go to -> [menti.com](https://www.menti.com/jjc6wu8ejm) enter -> **7805165** and give me insights how familiar you are with different Storage solutions or use the following link -> <https://www.menti.com/jjc6wu8ejm>



# Azure Files Introduction



<https://docs.microsoft.com/de-de/azure/storage/files/media/storage-files-introduction/files-concepts.png>

First some basically Introduction into Azure Files



# Azure Files

- Hosted SMB 3.1 Share for you on Azure
- PaaS solution
- You don't need to spin up and manage VM's
- No Volume layout
- Unique namespace, based on Azure Storage
- avdtechfest.blob.core.windows.net -> Storageaccount Name
- avd.file.core.windows.net -> Fileshare Name



# AVD Profile IOPS recommendations

- Needed IOPS for Profileshare around 10 per User
- Login and Logout need around 100 per User
- Latency between Client and Store  $\leq 5\text{ms}$
- Activate SMB Multichannel for Premium Storage
  - Only supported for Windows Clients
  - Maximum Channels = 4
  - Private Endpoints not supported
  - For LRS SA enabled in all regions | ZRS is in rollout



# Azure Files Performance Tiers

Need GPv2 SA	Cold	Hot	Transaction-optimized (formerly Standard)	Premium
Storage Type	HDD	HDD	HDD	SSD
Pricing	Used capacity	Used capacity	Used capacity	Reserved capacity
Max. IOPS	1.000/10.000*	1.000/10.000*	1.000/10.000*	100.000
Min. capacity	1GB	1GB	1GB	100GB
Max. capacity	100TB*	100TB*	100TB*	100TB
Tier moving	Possible	Possible	Possible	Not possible
Ingress Egress	300MB/sec* 300MB/sec*	300MB/sec* 300MB/sec*	300MB/sec* 300MB/sec*	4136MB/sec** 6204MB/sec**

Replication ⓘ

Locally-redundant storage (LRS)

Large file shares ⓘ

☒ Disabled ☐ Enabled

- \* Needs enabled Large Fileshare flag
- \*\* Based on provisioned GB (Ingress (40MB/sec+ 0.04) | Egress (60MB/sec + 0.06) x GB)

# Azure Files Performance Tiers

Need GPv2 SA	Cold	Hot	Transaction-optimized (formerly Standard)	Premium
Storage Type	HDD	HDD	HDD	SSD
Write transactions	0.11€	0.06	0.01	Included
List transactions	0.06	0.06	0.01	Included
Read transactions	0.0110	0.0048	0.0013	Included
Additional operations	0.0048	0.0048	0.0013	Included
Tier moving	Possible	Possible	Possible	Not possible

Replication ⓘ

Locally-redundant storage (LRS)

Large file shares ⓘ

☒ Disabled ☐ Enabled



# Azure Files – Enable AD DS SMB Auth

- Use separated OU (without effective GPO)
- Use a Domain-joined Client
- Use a Domain-joined and synced user account
  - Allowed to create Computer- or Service accounts
  - Account need SA account owner or contributor permission
- Enabled Users
  - Must Synced to Azure AD
  - Need Fileshare access (Azure RBAC)
  - Need NTFS access
- New
  - [Enabled access for all authenticated users](https://www.reimling.eu/2020/12/azure-files-enabled-ad-ds-smb-authentication-all-you-need-to-know/)

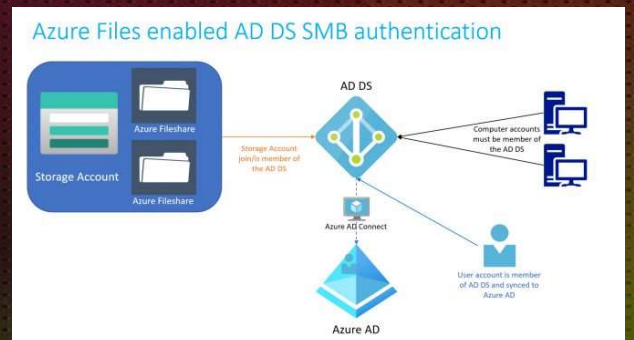
Storage File Data SMB Share Contributor ⓘ  
Storage File Data SMB Share Elevated Contributor ⓘ  
Storage File Data SMB Share Reader ⓘ

Active Directory Domain Services (AD DS) ⓘ

☐ Disabled ☒ Enabled

Joined domain ⓘ

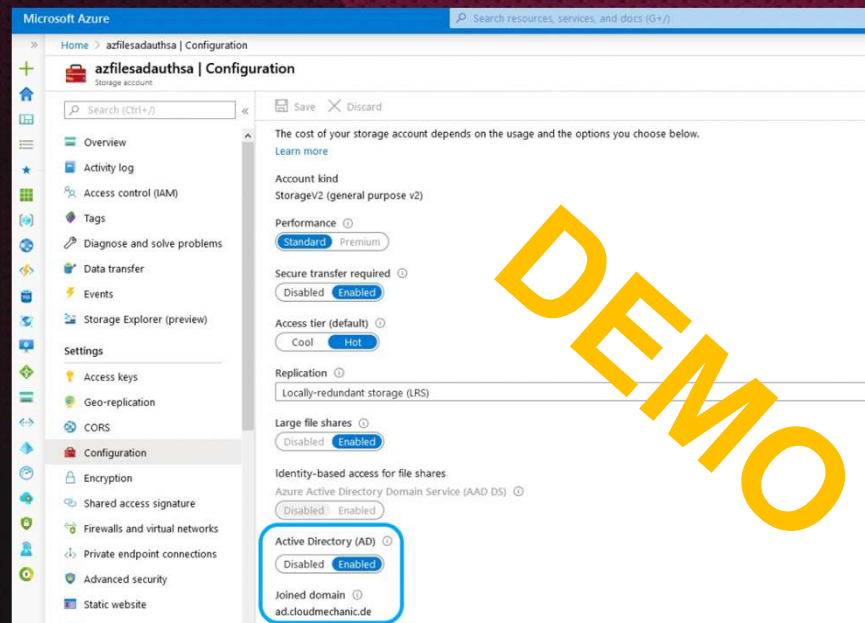
ad.cloudmechanic.de



<https://www.reimling.eu/2020/12/azure-files-enabled-ad-ds-smb-authentication-all-you-need-to-know/>



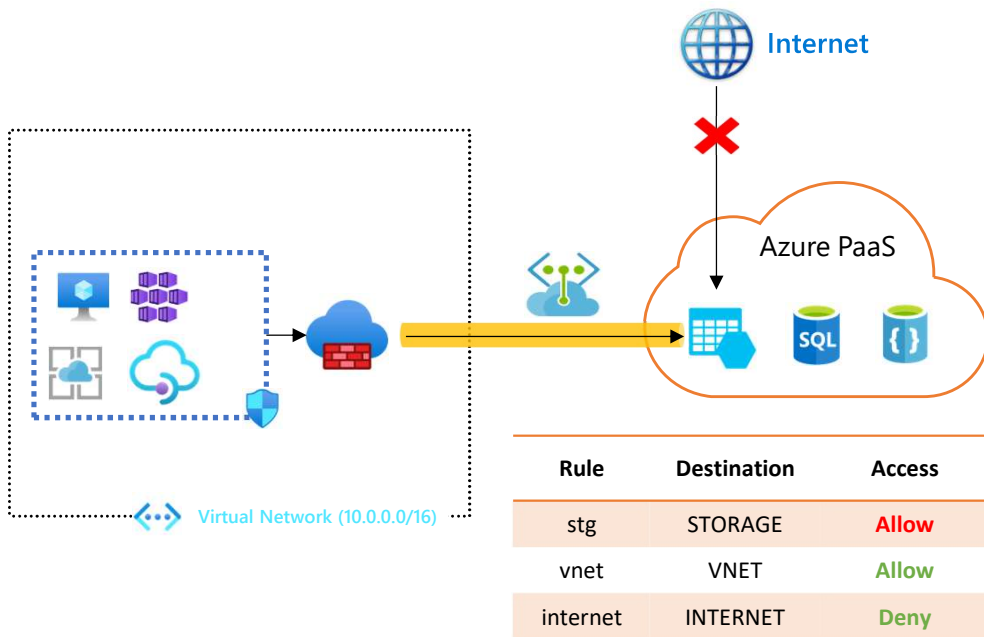
# Azure Files Demo



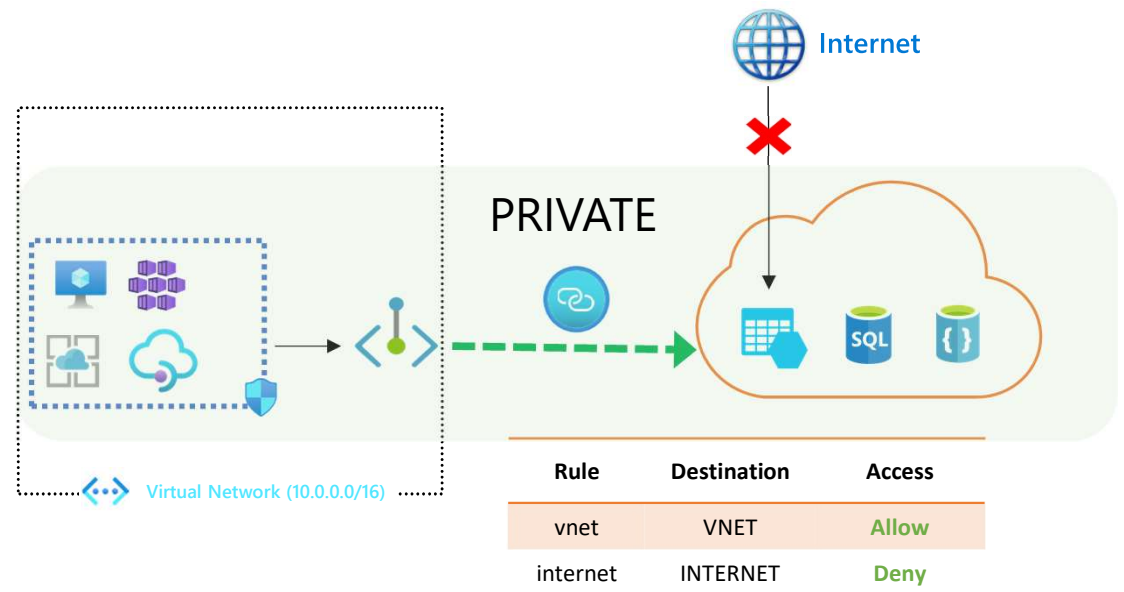


# Azure Files – Private Link

## SERVICE ENDPOINT



## PRIVATE LINK – PRIVATE ENDPOINT





# Azure Files - Recommendations

- Activate Soft delete (keeps deleted fileshares recoverable for defined days)
- When using ADDS SMB authentication:
  - Sync AD DS groups to Azure AD and give the group access to the Fileshare
  - Do not forget to set Azure RBAC permissions (Fileshare permissions)

Storage File Data SMB Share Contributor ⓘ

Storage File Data SMB Share Elevated Contributor ⓘ

Storage File Data SMB Share Reader ⓘ



# Azure Files – Closing



Standard and Premium Storage



Premium Storage prices based on reserved capacity



Standard Storage prices based on used capacity



Note: Change tiering incur transaction costs

**New file share** ✕

Name \*  
 ✓

Sizing your file share:

- A premium file share is billed by provisioned share size, regardless of the used capacity.
- Share sizes can range from 100 GiB to 102,400 GiB.
- Provisioned share size is specified by share quota.
- IO and network bandwidth limits scale with the provisioned share size.

[Learn more](#)

Provisioned capacity \* ⓘ  
 GIB  
Set to maximum

✖ Quota must be between 100 and 102400 GiB.

Baseline IO/s ⓘ : 499  
Burst IO/s ⓘ : 4000  
Egress Rate ⓘ : 65.9 MiBytes / s  
Ingress Rate ⓘ : 44.0 MiBytes / s



# Azure NetApp Files – Overview

Azure NetApp Files  
(ANF)

Available after  
request

Easier  
Domainintegration

Pay per capacity  
(Min 4TB)

Higher  
Performance level

Good choice for  
medium/high AVD  
profile solutions

# Azure Files vs. NetApp Files

	Transaction-optimized (formerly Standard)	Premium	NetApp Files
Regional availability	All regions	32 (more are coming)	25 (more are coming)
Tiering	Cool, Hot, T O	Only Premium – Performance based on selected capacity	Standard, Premium, Ultra
Identity based auth	Azure AD DS AD DS SMB Auth	Azure AD DS AD DS SMB Auth	Azure AD DS AD DS
Supported Protocols	SMB 3.0 (3.1) NFS 3 / 4.1	SMB 3.0 (3.1) NFS 3 / 4.1	SMB 3.0 (3.1) NFS 3 / 4.1 & Multiprotocol
Min Size	1GB	100GB	4TB
Max Filesize	1TB	4TB	16GB
Pricing	0.0487€/GB	0.1620€/GB	0.149593€/GB
Pricing for 4TB store	194.63€ *	647.65€ **	612.73€ **

\*Transaction costs **not** included

\*\* Transactions costs **included**



# Azure Files – Recommendations

Plan and categorize AVD User and count estimated AVD user

Small Usage

Medium Usage

Heavy Usage

Standard or  
Premium Files

Premium Files

NetApp Files

Use AD DS SMB  
Authentication

Use AD DS SMB  
Authentication

Easier AD DS  
integration

Enable Private Link

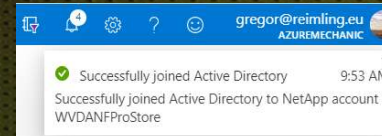
Enable Private Link

Access directly over  
own NetApp Subnet

Enable SMB  
Multich. (Premium)

Enable SMB  
Multichannel

SMB Multichannel  
enabled by default





## Azure Files – Perfect AVD Profile solution?

- Many options – needs good planning
- Best fit with Transaction-optimized for Standard Storage
- Premium Tier needs planning about performance/cost ratio
- Need additional steps for full functionality
  - Azure Fileshare need to be domain joined for AD DS auth
  - Integrate Private Link for traffic flows over VPN (VNET) not Internet
- Performance good for PoCs and Small-Medium AVD deployments
- For big deployments take a look at Azure NetApp Files



# Links

- <https://docs.microsoft.com/en-us/azure/storage/files/>
- <https://www.reimling.eu/2020/12/azure-files-enabled-ad-ds-smb-authentication-all-you-need-to-know/>
- <https://docs.microsoft.com/en-us/azure/storage/files/storage-files-identity-auth-active-directory-enable>
- <https://azure.microsoft.com/en-us/updates/active-directory-for-authentication-on-smb-access-to-azure-file-in-preview/>
- <https://github.com/Azure-Samples/azure-files-samples/releases>
- <https://docs.microsoft.com/en-us/azure/azure-netapp-files/>
- <https://forms.office.com/Pages/ResponsePage.aspx?id=v4j5cvGGr0GRqy180BHbRyQyH4bq62dDI0xPwX9RwOIUQIJHMDM4QIM5TEc2S1VGnk5PNDBBOFoyNy4u> (Waitlist request for Azure NetApp Files)
- <https://azure.microsoft.com/en-us/updates/more-iops-at-no-additional-cost-for-azure-files-premium-tier/>
- <https://docs.microsoft.com/en-us/azure/virtual-desktop/create-fslogix-profile-container>
- AVD FSLogix IOPs Calculator <https://github.com/RMITBLOG/FSLogix>
- <https://docs.microsoft.com/en-us/azure/storage/files/storage-files-smb-multichannel-performance>





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