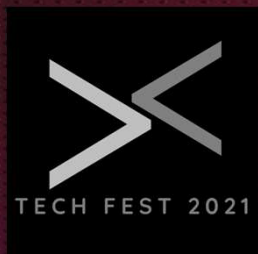# Azure Files - The optimal WVD profile store solution?

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TECH FEST 2021

Thank you to our partners

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Azure Meetup
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www.AzureBonn.de

Agenda

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

Azure Files Introduction

https://docs.microsoft.com/de-de/azure/storage/files/media/storage-files-introduction/files-concepts.png
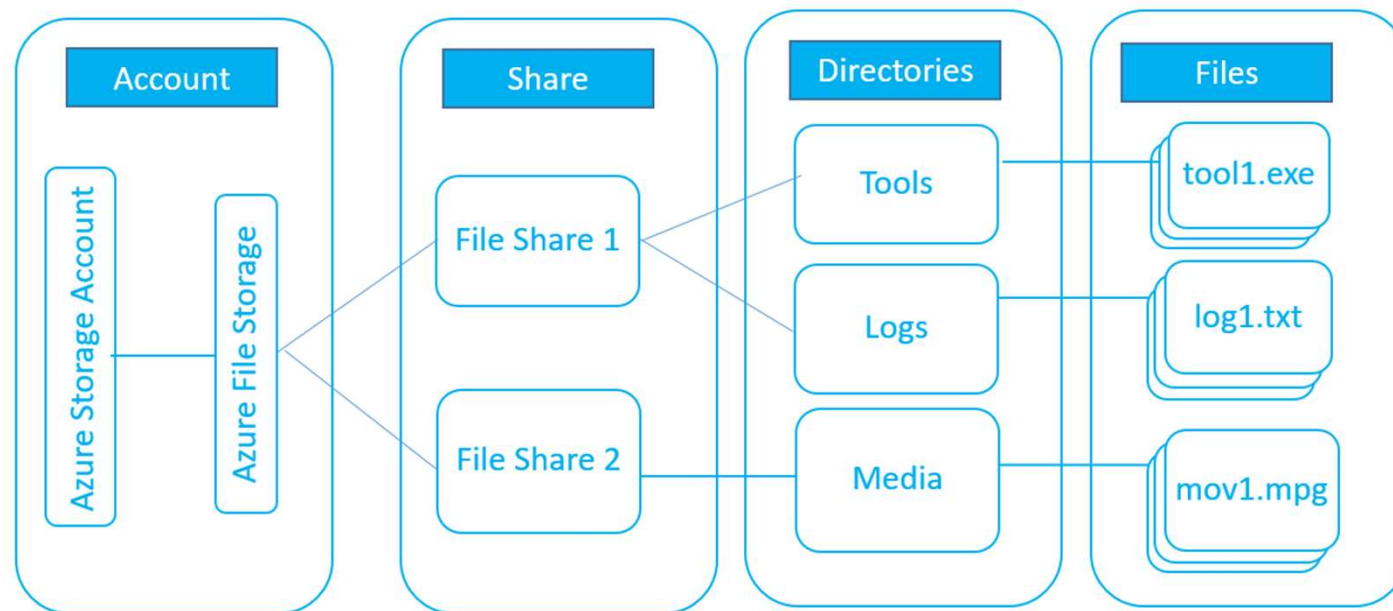
First some basically Introduction into Azure Files

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

- <u>wvdtechfest.blob.core.windows.net</u> -> Storageaccount Name

- <u>wvd.file.core.windows.net</u> -> Fileshare Name

WVD Profile IOPS recommendations

- Needed IOPS for Profileshare around 10 per User

- Login and Logout need around 100 per User

- Latency between Client and Store <=5ms

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
Max. bandwith				Ingress 4136MB/sec Egress 6204MB/saec

* Needs enabled Large Fileshare flag

Replication ⓘ

Locally-redundant storage (LRS)

Large file shares ⓘ
◉ Disabled   ○ Enabled

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 permissions
- Enabled Users
  - Must Synced to Azure AD
  - Need Fileshare access (Azure RBAC)
  - Need NTFS access

Storage File Data SMB Share Contributor ⓘ

Storage File Data SMB Share Elevated Contributor ⓘ

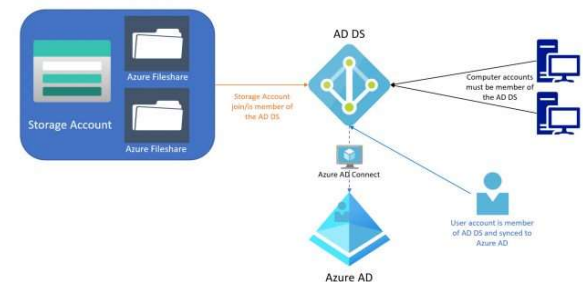Storage File Data SMB Share Reader ⓘ

Active Directory Domain Services (AD DS) ⓘ
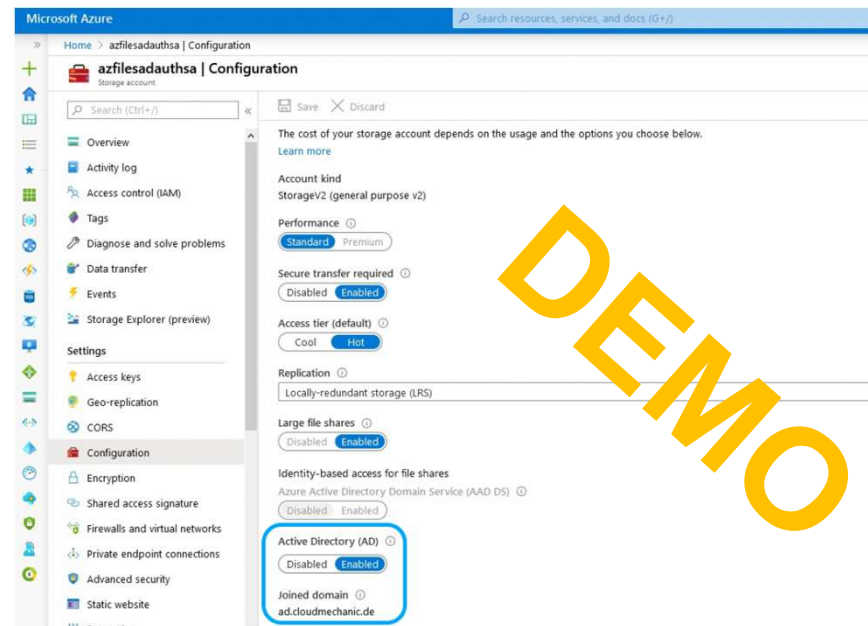○ Disabled ● Enabled

Joined domain ⓘ
ad.cloudmechanic.de

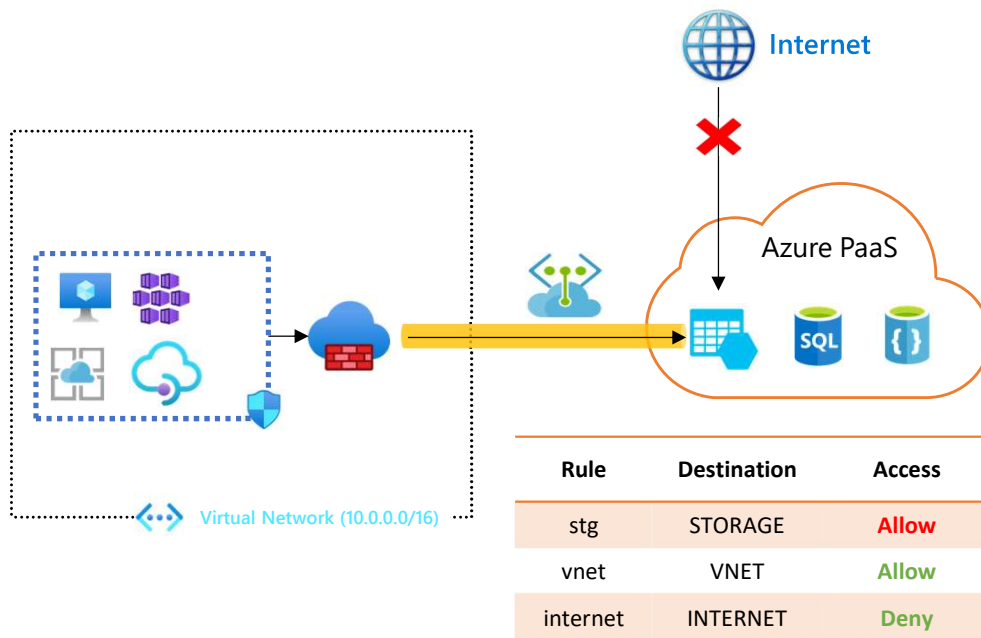Azure Files enabled AD DS SMB authentication

Azure Files Demo

Azure Files – Private Link

SERVICE ENDPOINT

Internet

Azure PaaS

Virtual Network (10.0.0.0/16)

Rule	Destination	Access
stg	STORAGE	Allow
vnet	VNET	Allow
internet	INTERNET	Deny

PRIVATE LINK – PRIVATE ENDPOINT

Internet

PRIVATE

Virtual Network (10.0.0.0/16)

Rule	Destination	Access
vnet	VNET	Allow
internet	INTERNET	Deny

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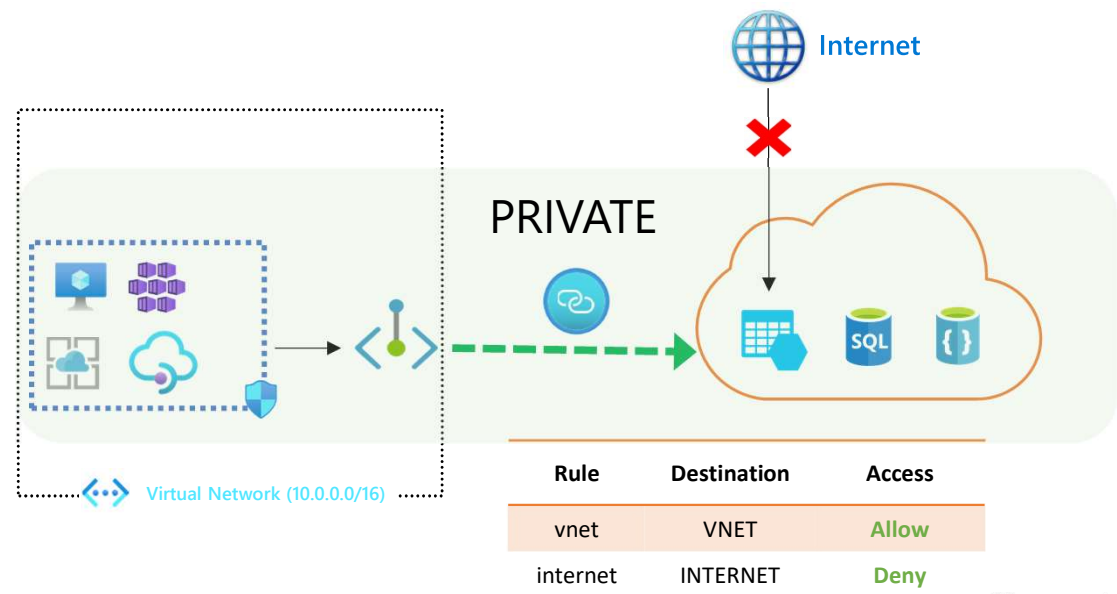
Azure Files - Recommendations

- 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 acces 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 – Pricing

Standard and Premium Storage

Premium Storage prices based on reserved capacity

Standard Storage prices based on used capacity

Note: Change tiering incure transaction costs

New file share   ✕

Name *
wvd   ✓

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 * ⓘ
99
Set to maximum   GiB
❌ 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**

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Azure Files – Options

Azure NetApp Files (ANF)	Available after request	Easier Domainintegration
Pay per capacity (Min 4TB)	Higher Performance level	Good choice for medium/high WVD profile solutions

Azure Files – Perfect WVD Profile solution?

It depends ☺

- 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 functionallity
  - 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 WVD deployments

- For big deployments take a look at Azure NetApp Files

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**

https://techcommunity.microsoft.com/t5/azure-architecture-blog/enterprise-file-shares-on-azure/ba-p/1775399

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=v4j5cvGGr0GRqy180BHbRyQyH4bq62dDl0xPwX9RwOlUQlJHMDM4QlM5TEc2S1VGNk5PNDBBOFoyNy4u (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
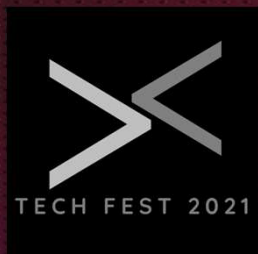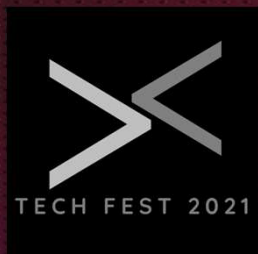- WVD FSLogix IOPs Calculator https://github.com/RMITBLOG/FSLogix

Questions? ->
Reach me via Twitter ☺

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