# 7 Tips you need to know about using Azure File Sync in a perfect way

by Gregor Reimling

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# Gregor Reimling

Cloud Consultant @Sepago

Cloud and Datacenter, Governance

Azure Infrastructure (Governance, IaaS, Security)

info@reimling.eu

@GregorReimling | @AzureBonn

www.reimling.eu | www.neutralien.com

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# Azure File Sync - Agenda

- General
- 7 Topics you need to know
- Demo
- Conclusion
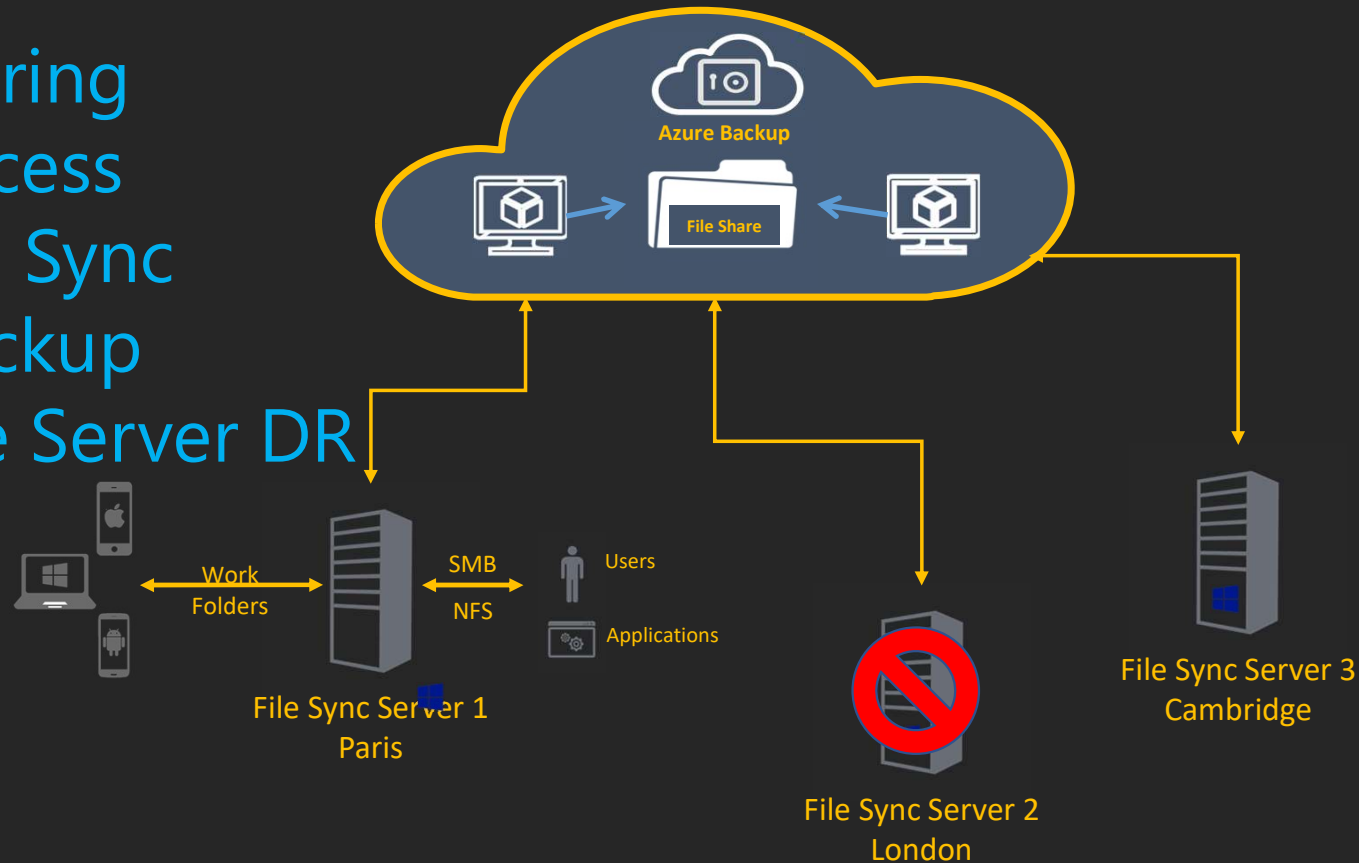- Links

# Azure File Sync Topics

- Azure File Tiers
- Management
- Cloud Tiering
- File collision handling
- Security
- Backup
- Limitations

# General

- AzureFileSync = AFS

- Synchronize Fileserver between Company Boundaries

- General Availability since July 2018

- Fileserver need Agent for syncing
    - Agent registered Fileserver in Azure
    - Monitoring and Syncing
    - Transparent for User

- Files will be synced to an Azure Fileshare

# Why Azure File Sync

- Cloud Tiering
- Cloud Access
- Multi-site Sync
- Cloud Backup
- Rapid File Server DR

**Azure Backup**

**File Share**

Work Folders

SMB

NFS

Users

Applications

File Sync Server 1
Paris

File Sync Server 2
London

File Sync Server 3
Cambridge

# 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
- [cloudeight.blob.core.windows.net](cloudeight.blob.core.windows.net) ->  Unique SA Name
- [cloudeight.file.core.windows.net](cloudeight.file.core.windows.net) -> Unique Fileshare Name
- Active Directory File Integration for Azure Fileshares

# Azure Files – How it works
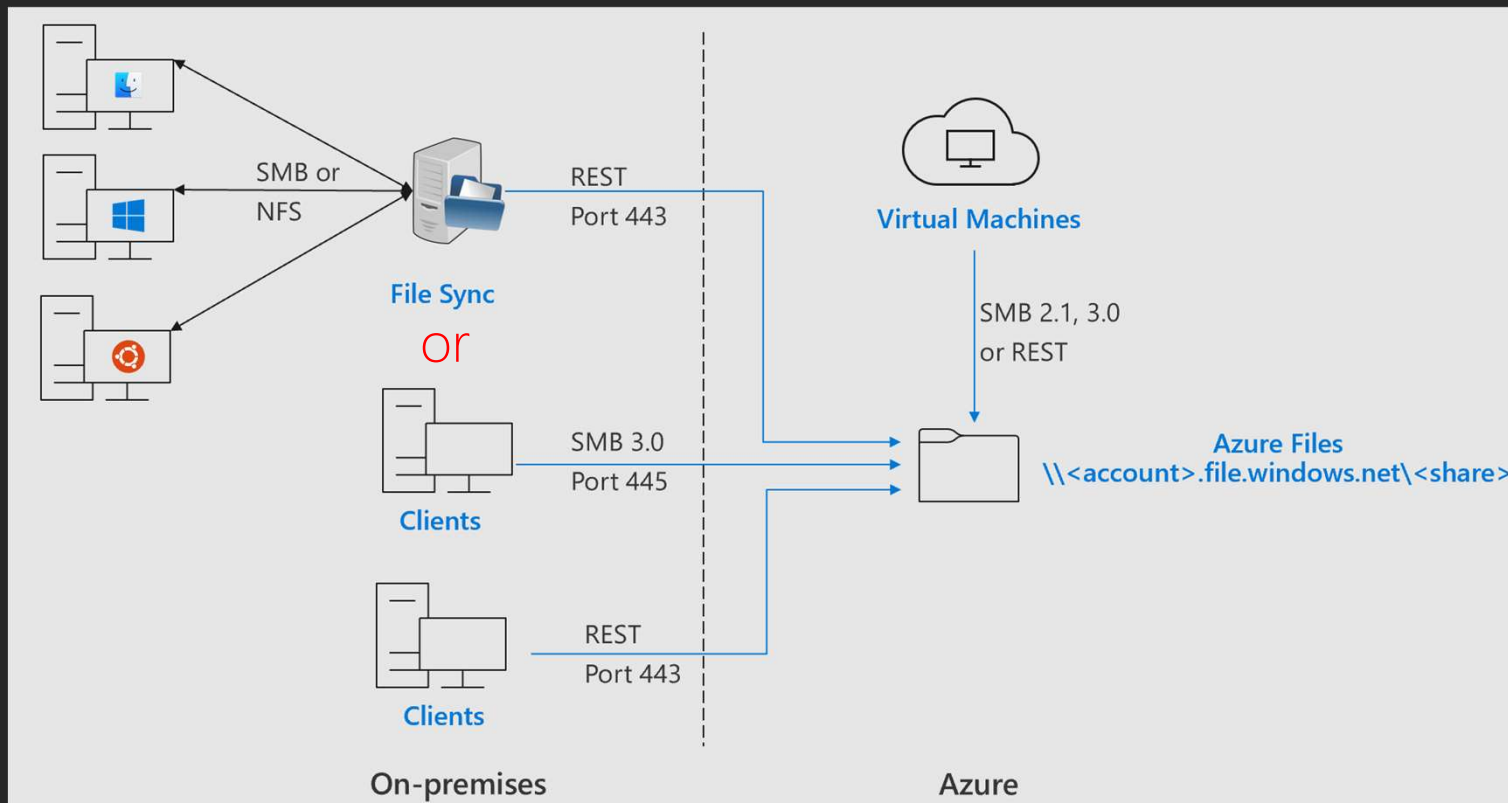
# 7 Tips you need to know about using Azure File Sync in a perfect way

# 1. Azure Files

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**

# 1. Azure Files tier

| 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 |

Replication ⓘ

Locally-redundant storage (LRS)

Large file shares ⓘ
◉ Disabled  ○ Enabled

* Needs enabled Large Fileshare flag

# 2. Managing (Windows Admin Center)

- Next Generation Servermanager
- Central web based replacement for Server Manager
- Easy installation - (MSI Paket) On-Premise or Cloud VM
- Managing via Azure Portal
- Webbased on HTML 5
- Serveranalysis agentless – WMI and PS

- Including many features and services
- Integrates in Azure for Hybrid Cloud scenarios
- Easy deployment of Azure File Sync on the servers
- Do not need logon on the Server
- Central view blade for Azure File Sync
- Easy to go to Azure Portal blade for additional configuration

# 3. Cloud Tiering

- Bring your Fileserver in caching mode
- Sync agent build a heatmap of local files
- Hottest data will be stored locally
- Cold data only available in the Cloud
- Transparent for the User
- Local file have an pointer to the cloud file
- Don´t remove Server Endpoint and add them new – can cause data lost
    - Cloudtiering enabled - then first disable it via Powershell

# 3. Cloud Tiering + Deduplication + DFS

- Only supported on Windows Server 2016 and Windows Server 2019
- Min. Azure File Sync Agent v. 12.0.0.0
- Dedup only works on the Server not on the Azure Fileshare
- Azure File Sync is fully supported on DFS-N servers
- DFS Replication when possible replace DFS-R with AFS

# 4. File collision handling

- File collision today -> saving two files with same name, the 2nd file get the servername appended

- Monitor Filecollision with Azure Monitor or Powershell script

- Global file locking planned – AFS Team needs your Feedback
  - https://forms.office.com/Pages/ResponsePage.aspx?id=v4j5cvGGr0GRqy180
    BHbR4MoPQd5uTpCnj3Y_cY3MXRUMUZWRlZOWEFKNUE1QUNBN0JQTjQ
    wQ0tYUi4u

# 5. Security

- Enable Private Link to secure sync traffic over VPN
- Check regulary for AFS update to get latest features and bug fixes
  - AFS Agent are still in development
- [https://docs.microsoft.com/en-us/azure/storage/file-sync/file-sync-release-notes](https://docs.microsoft.com/en-us/azure/storage/file-sync/file-sync-release-notes)
- Large fileshares only supports Local- or Zone Redundant Storage
- Azure File Sync store ACLs on the files in the Azure file share
- Azure Files on-premises Active Directory Domain Services authentication is also supported

# 5. Security



Azure Private Link – Connecting Azure Services privately to your Network
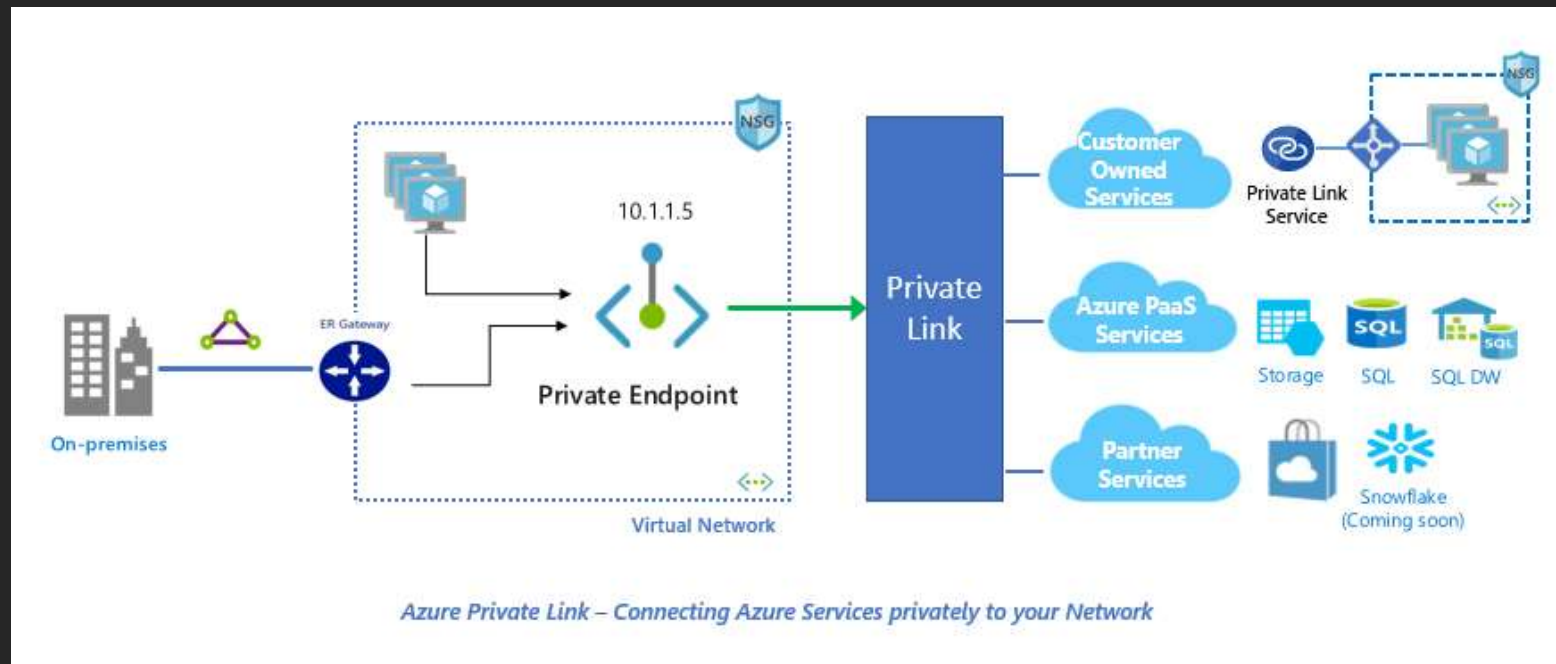
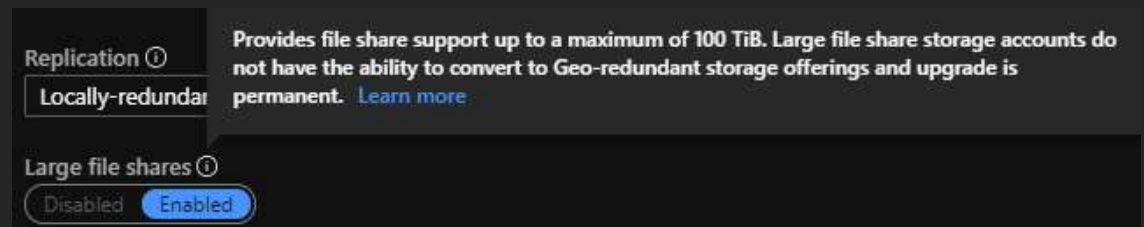| Rule | Destination | Access |
|------|-------------|--------|
| vnet | VNET | Allow |
| internet | INTERNET | Deny |

# 6. Backup

- Enable Azure File Sync on the Server (it can be a single server)
- Create a Backup Vault
- Create a Backup Policy for Fileshares
- Integrate the Azure File Sync Fileshare into the Backup Vault
- That`s it – Now you have a full backup for your Server in the Cloud
- Activate Soft delete (keeps deleted fileshares recoverable for defined days)
- Self-service restore is now possible (Cloud Tiering supports now VSS)

# 7. Know about AFS limitation

- Max. Size of Azure Fileshare 100TB
- Using more than one Fileshare possible (max. 500TB)
- Servers can only registered in one AFS group
- Filesystem only NTFS – No ReFS is supported
- Acessing only the Fileserver instead of access the Cloud Fileshare
- Server direclty synchronize changes directly to the Cloud
- Changes on the Cloud Fileshare synchronize with a delay to the Fileservers

# 7. Knowledge of the AFS limitations

- Files that are changed locally will immediately sync to Cloud

- Sync frequency can not be changed

- Don´t remove Server Endpoint and add them new – can cause data lost
  - Cloudtiering enabled - then first disable it via Powershell

- Limits Bandwith for Business hours - It depends on fileshare size
  - Import-Module "C:\Program Files\Azure\StorageSyncAgent\StorageSync.Management.ServerCmdlets.dll"
  - New-StorageSyncNetworkLimit -Day Monday, Wednesday, Friday -StartHour 9 - EndHour 17 -LimitKbps 10000

Replication ⓘ

Locally-redundar

Provides file share support up to a maximum of 100 TiB. Large file share storage accounts do not have the ability to convert to Geo-redundant storage offerings and upgrade is permanent. Learn more

Large file shares ⓘ

Disabled  Enabled

# AFS - Conclusion

- Fast installing and stable syncronizing ☺
- Costs: 1 Server Free, 5$ each additional server + storage ☺
- Easy and scalable DRaaS for Fileservers ☺
- Supporting for DFS-R and SOFS ☺
- Easily migrate Backup to the Cloud
- Fileshare Limit 100TB ☺
- Support for ACLs in Azure Files directly with AD Auth ☺
- Can not change sync frequency ☹
- Troubleshooting difficult ☹
- 1:1 binding between Server and Sync Group ☹

# AFS - Links

- Planning for an Azure File Sync deployment
    - https://docs.microsoft.com/en-us/azure/storage/files/storage-sync-files-planning

- Manage registered servers with Azure File Sync
    - https://docs.microsoft.com/en-us/azure/storage/files/storage-sync-files-server-registration

- Release notes for the Azure File Sync agent
    - https://docs.microsoft.com/en-us/azure/storage/files/storage-files-release-notes

- Introducing backup for Azure file shares
    - https://azure.microsoft.com/en-us/blog/introducing-backup-for-azure-file-shares/

- Feedback for AzureFiles Product Group - https://social.msdn.microsoft.com/Forums/en-US/home?forum=windowsazuredata

- MS Ignite 2019 – Migrate SMB and NFS to Azure File Sync BRK3241
    - https://myignite.techcommunity.microsoft.com/sessions/82847?source=sessions

- MS Ignite 2019 – Windows Admin Center – Unlock Azure Hybrid value - BRK2379 –
    - https://myignite.techcommunity.microsoft.com/sessions/81952?source=sessions

- Azure File Sync DSC from Jan Egil Ring - https://github.com/janegilring/AzureFileSyncDsc

- Azure File Sync Blog entries on Reimling.eu - https://www.reimling.eu/?s=azure+file+sync

- Azure Files AD DS SMB Authentication
    - https://www.reimling.eu/2020/06/configure-azure-files-on-premises-active-directory-ad-ds-authentication-for-fileserver-or-wvd/

- Connect and secure Azure PaaS to Virtual Networks with Private Link
    - https://www.reimling.eu/2020/06/connect-and-secure-azure-paas-services-to-virtual-networks-with-private-link/

# Q&A



# Thank you

@GregorReimling | @AzureBonn
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https://forms.office.com/r/JiEbV8AtvQ