



AWS  
re:Invent

**STG362-R**

# Migrating Windows File Servers to Amazon FSx

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Amazon

# Agenda

What is Amazon FSx for Windows File Server?

What do I need to know before migrating?

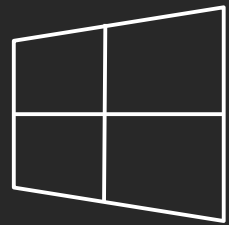
How do I migrate my data?

How do I seamlessly cut over to Amazon FSx from my existing file server?

Demo

# Benefits of Amazon FSx

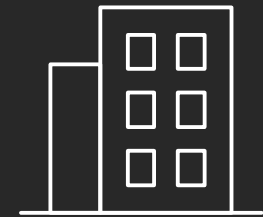
Fully-managed Windows File System built on AWS



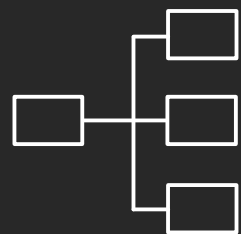
Native Windows  
compatibility



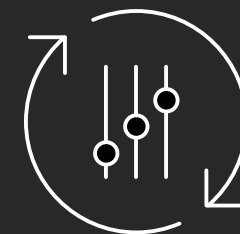
Fast and flexible  
performance



Enterprise-ready



Broad accessibility



Fully managed

# Prerequisites before migration

- Consider how you would like to represent your file storage in Amazon FSx
  - Amazon FSx file systems have a max size of 64 TiB. You may want to use multiple file systems.
- What is the desired usage mode? Will you be migrating entirely to the cloud or will you need to support a hybrid environment.
  - Consider network connectivity to your on-premises data center with AWS Direct Connect

# Choice of file system configurations

- Active Directory integration



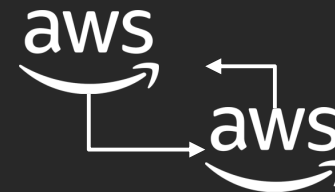
Integrates with  
Active Directory



Customer-managed  
Active Directory  
(on-premises & cloud)



AWS managed  
Active Directory



Shared AWS  
managed  
Active Directory

- Size and throughput capacity planning
- Single-AZ vs. Multi-AZ

# Migrating data into Amazon FSx: DFS-R

If you deploy FSx into your self managed Active Directory, you are able to take advantage of the following features:

- Distributed File System Replication (DFS-R) - Which allows you to automatically replicate data between your existing file servers and Amazon FSx, or between multiple Amazon FSx file systems across AWS Regions for data migration, cloud-bursting, data backup, and disaster recovery work flows
- AD configurations like Security Identifier (SID) histories from previous domain migrations and domain-local groups

\*Note: These features are not supported when deploying Amazon FSx into AWS Managed AD, even if a trust is in place with a self-managed AD

# Migrating data into Amazon FSx: Robocopy

The Robocopy command is a flexible file transfer utility with multiple options to control the data transfer process. Because of this Robocopy command execution, all the files and directories from the source share are copied to the Amazon FSx target share. The copy preserves file and folder NTFS ACLs, attributes, time stamps, owner information, and auditing information.

```
robocopy <Source> <Destination> [<File>[ ...]] [<Options>]
```

```
/copy:DATSOU
```

D - data

A - attributes

T - time stamps

S - NTFS ACLs

O - owner information

U - auditing information.

```
/secfix - Fixes file security on all files, even skipped ones.
```

```
/e - Copies subdirectories, including empty ones
```

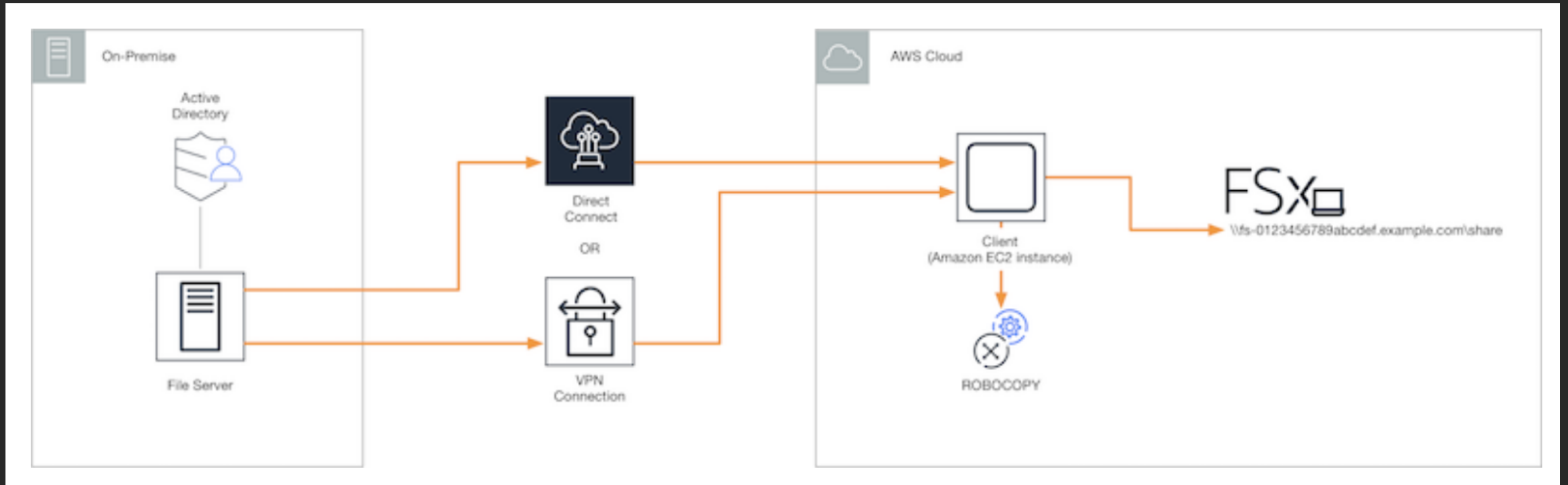
```
/z - Copies files in restartable mode.
```

```
/MT:8 - Specifies number of threads to use for copying
```

```
/b - Copies files in Backup mode
```

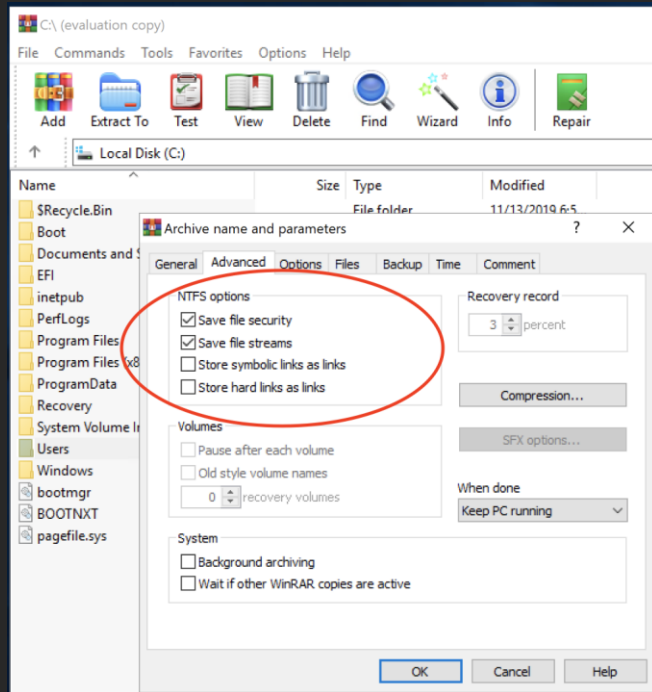


# Setup using Robocopy: Today's demo



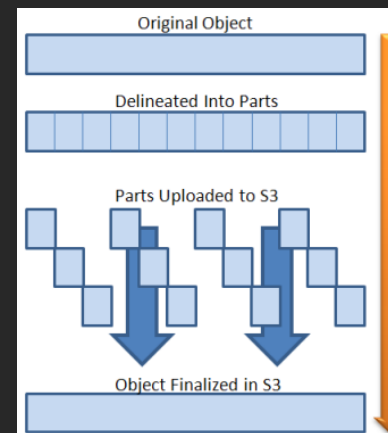
# Migrating data: 3rd-party tools (WinRAR)

- WinRAR archives can:
  - Preserve NTFS permissions and file streams
  - Encapsulate file shares into a single archive
    - One large file may transfer faster than hundreds/thousands of smaller files
  - Simplify packaging of files for a Snowball migration
  - Split into a multi-part upload to S3 if there are no bandwidth constraints



Snowball

or



Multipart Upload



FSx

# Create and validate file shares

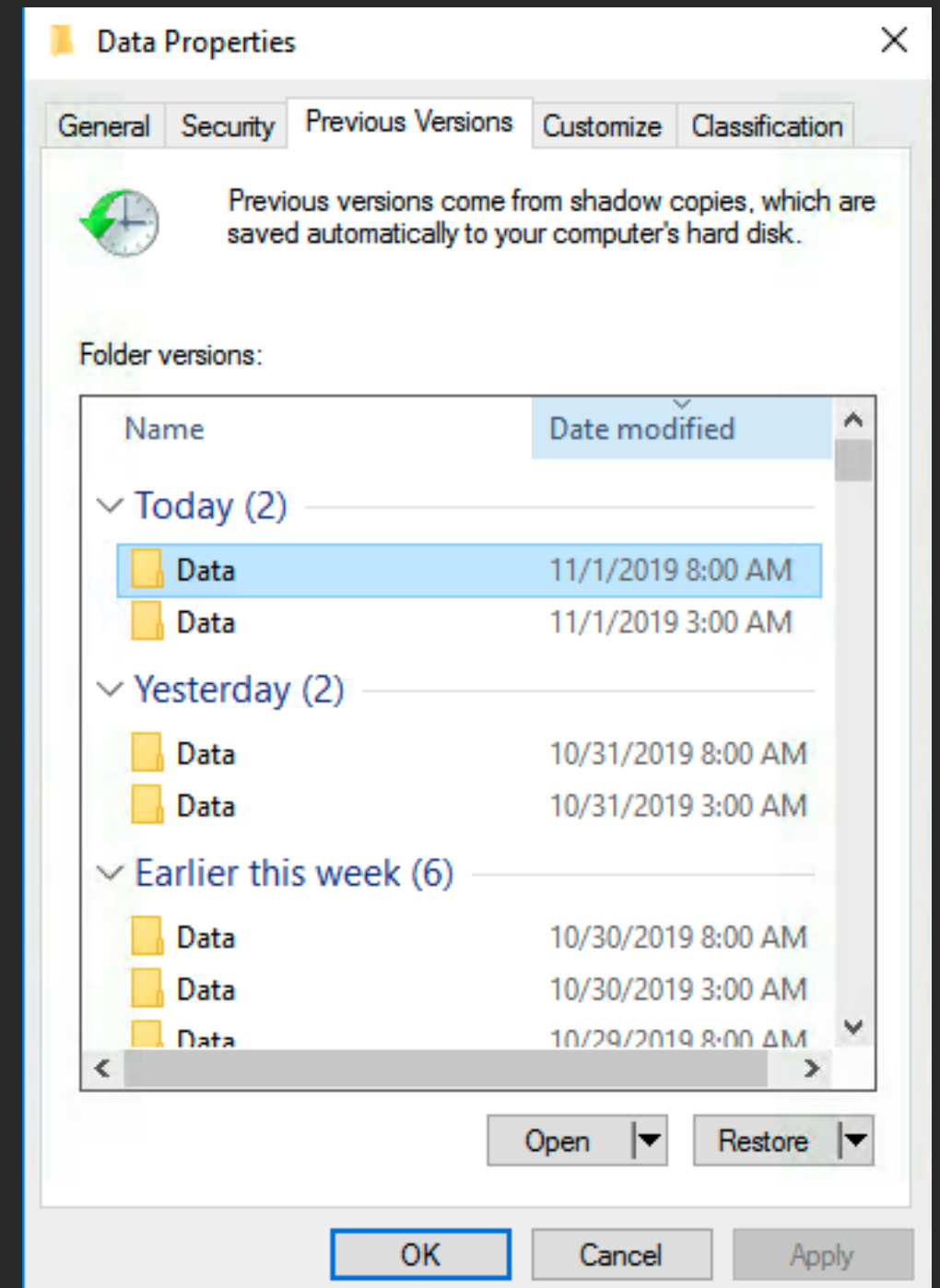
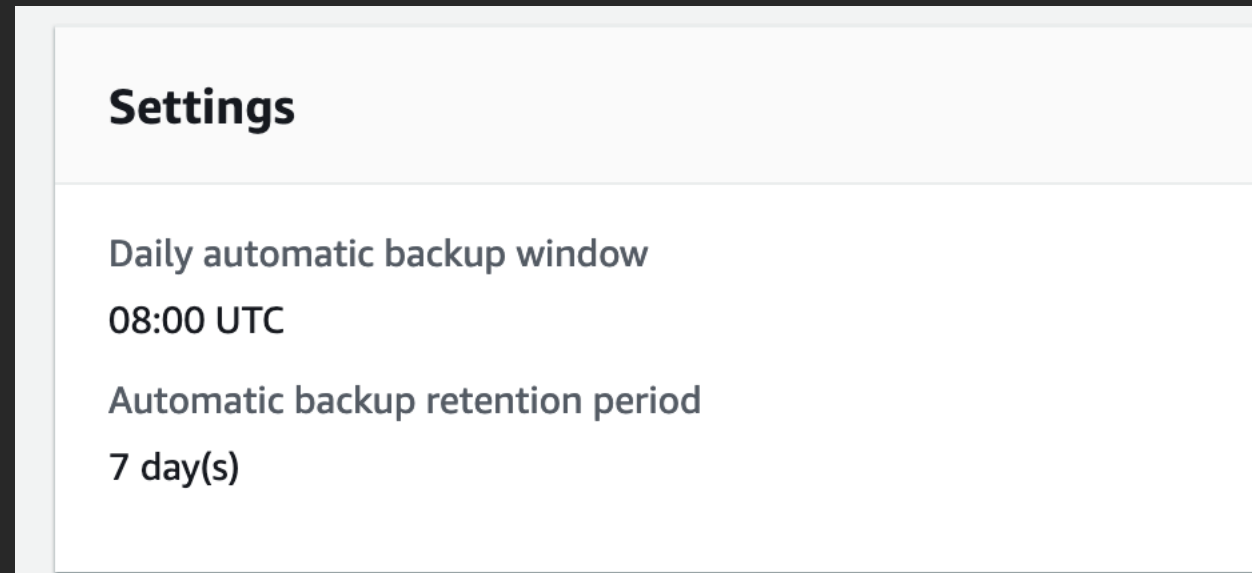
- A Microsoft Windows *file share* is a specific folder (and its subfolders) within your file system that you make accessible to your compute instances with the Server Message Block (SMB) protocol. Your file system comes with a default Windows file share, named **share**.
- Once your data has been migrated, you will need to create your file shares to make your data network accessible.
- You can create and manage as many other Windows file shares as you'd like in the Windows **Shared Folders** graphical user interface (GUI) tool.
- You can also programmatically migrate your existing file shares and permissions model using PowerShell

# File server cutover

- Since your existing file server is active, while you are copying data, you need to repeatedly copy data until you are ready for your final cutover. The copy duration should decrease with each iteration because the data that needs to be copied is only the incremental changes. Copy data repeatedly until you are ready to execute your cutover.
- Quiesce all connections
- Copy incremental changes since last copy
- Cut over DNS, possibly with one of the options below
  - DFS Namespace - Change link target to point to Amazon FSx
  - Update DNS CNAME to point to the Amazon FSx DNS name

# Backing up data

- Automatic daily backup
- User-initiated backup
- VSS shadow copies



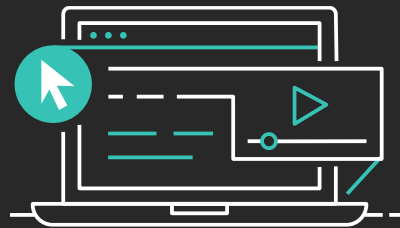
# Recap

Active Directory / Availability Zone configuration	Migration methods and tools		
	DFS-R	Robocopy	WinRar
AWS Managed AD – Single AZ	✗	✓	✓
AWS Managed AD – Multi AZ	✗	✓	✓
Self Managed AD- Single AZ	✓	✓	✓
Self Managed AD – Multi AZ	✗	✓	✓



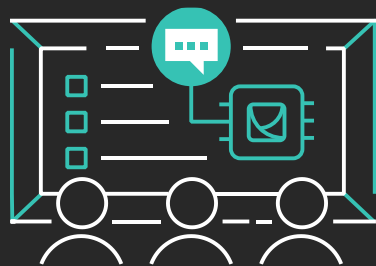
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- Amazon S3 Glacier
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- Amazon Elastic Block Store (Amazon EBS)



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# Thank you!





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