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Simplify your file storage with Amazon FSx for Windows File Server

David Stein, Business Development
Nathan Redmond, Solutions Architect

Tech Talk Agenda

- What is Amazon FSx for Windows File Server?
  - Overview of the service – benefits, use cases
  - Recently released features
- See Amazon FSx for Windows File Server in action
  - Demo
- Wrap Up
  - Resources
  - Q&A

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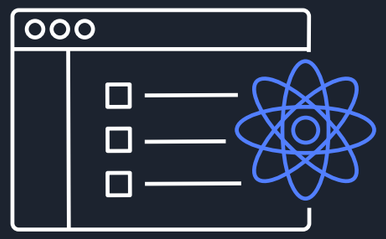
Amazon FSx for Windows File Server



Fully managed file shares built on Windows

Quick and Easy Migration

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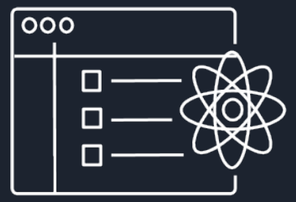
Amazon FSx for Windows File Server

Fully managed Windows file server, built on Windows Server



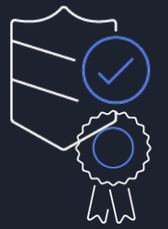
Built on Windows Server

Lowest cost SMB file storage in the cloud

Simple and Fully Managed

Broad accessibility

Fast and flexible performance



Secure and Compliant

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A glimpse of customers using Amazon FSx…

Deep Dive

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Availability & durability

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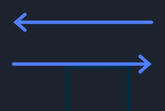
Availability

Single-AZ

Continually monitors and addresses hardware failures



Replicates data within Availability Zone

Multi-AZ

Synchronously replicates data across Availability Zones

Automatically fails over across Availability Zones

Durability

Snapshots

File-level Restore (Shadow Copies)

- Point-in-time snapshots
- Uses simple PowerShell commands
- Users able to restore individual files and directories

Backups

Automatic, durable backups to S3

- Supports data retention and compliance needs
- Highly Durable (11 x nines)
- File System Consistent
- Incremental
- Fully Managed

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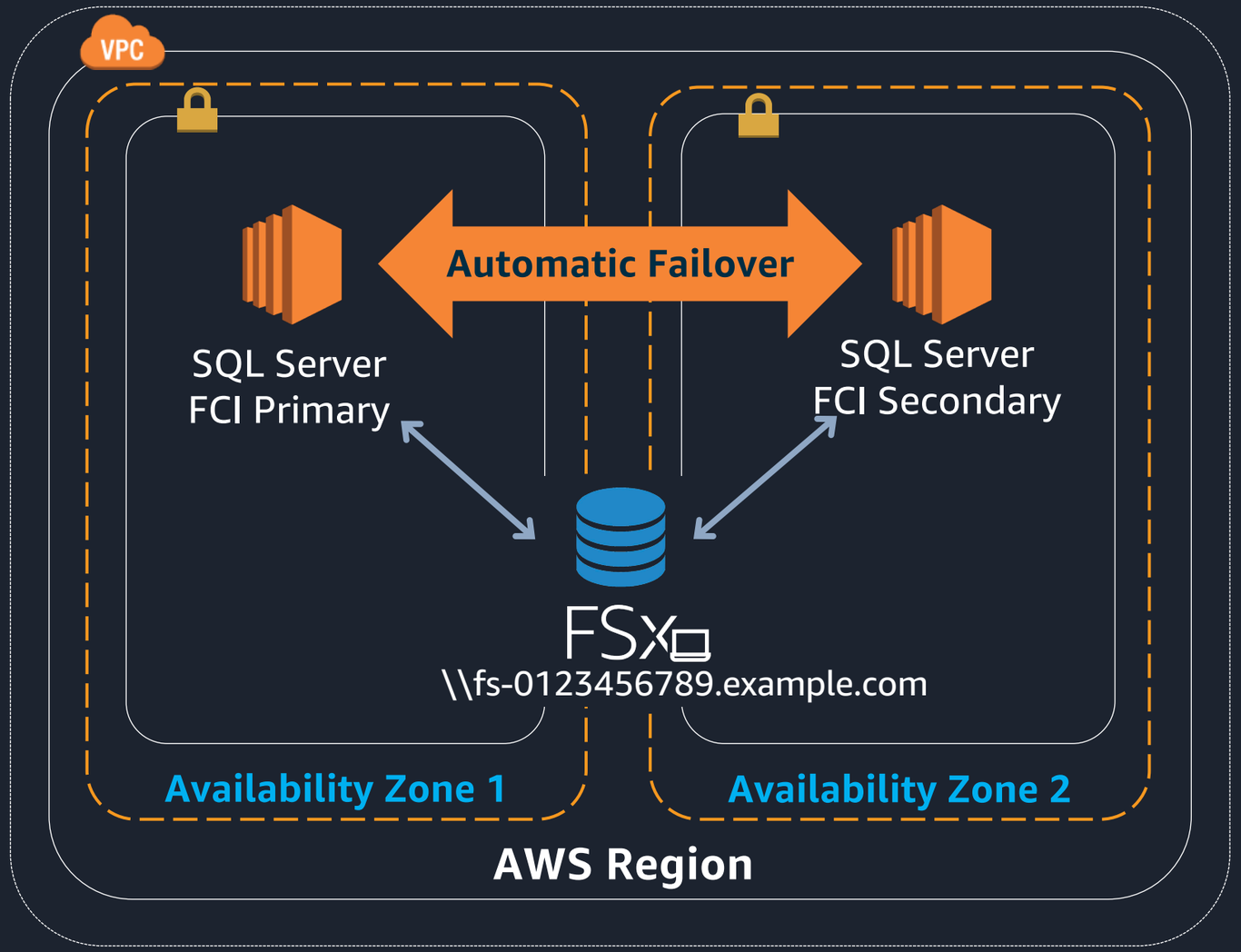
Support for SQL Server HA deployments

- Supports SMB Transparent Failover (aka Continuously Available shares)
- Use Amazon FSx to store databases and logs for SQL Server Always On Failover Cluster Instance (FCI) deployments
- No need to deploy, manage, and pay license fees for storage replication software solutions



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Performance and scale

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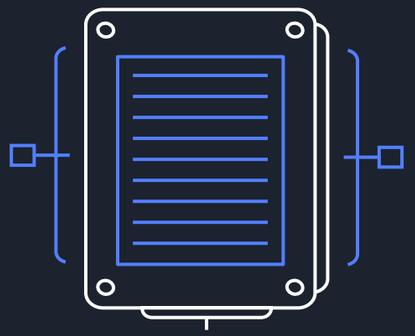
Amazon FSx: Storage Options



SSD

Highest performance

HDD

Lowest cost – optimized for general-purpose workloads

Flexibility to choose throughput independently of file system size

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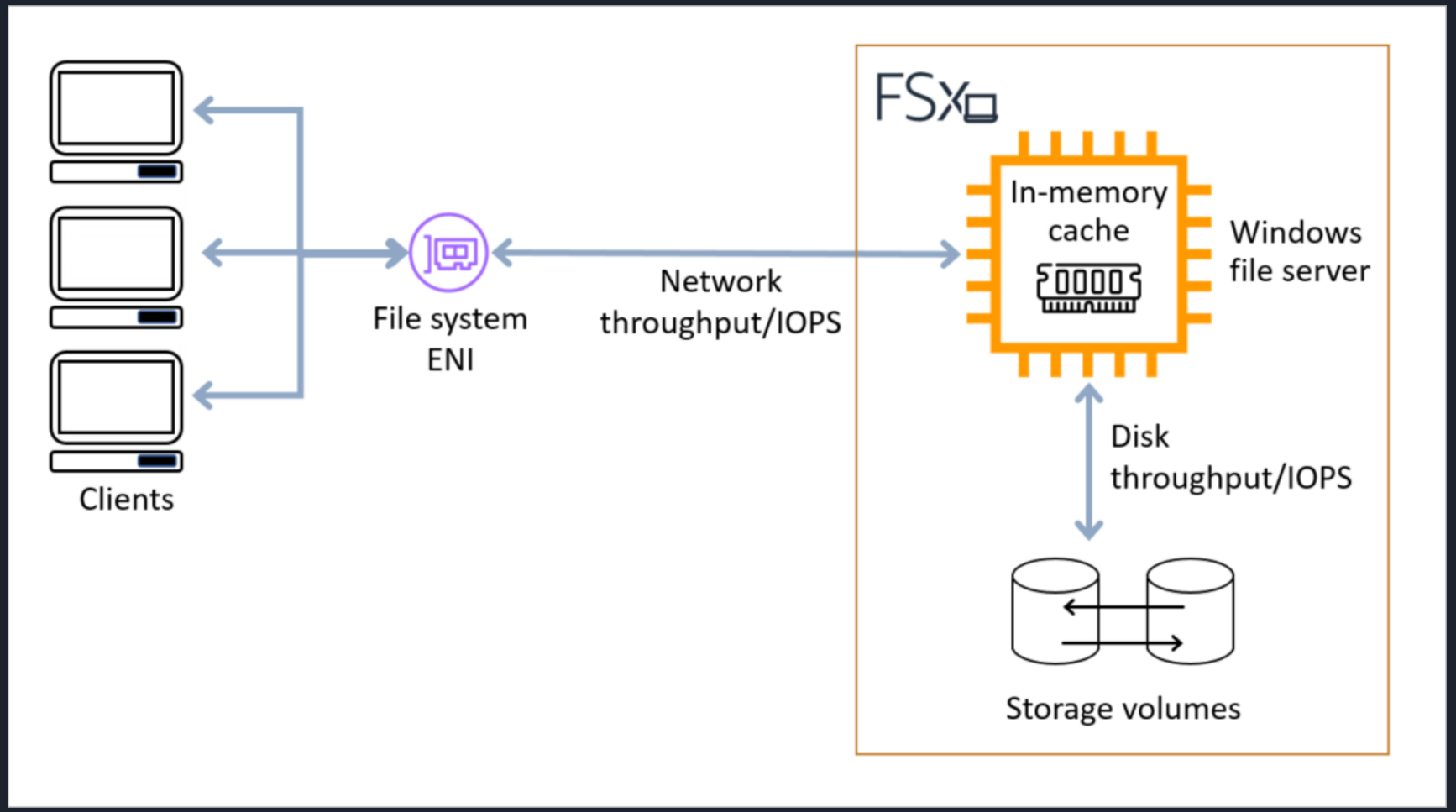
Amazon FSx for Windows File Server architecture



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Throughput capacity impact on performance

Throughput capacity (MB/s)	Network throughput capacity (MB/s)		In-memory cache (GB)	Disk throughput (MB/s)	
	Baseline	Burst		Baseline	Burst
8	8	600	0.5	8	260
16	16	600	1	16	260
32	32	600	2	32	260
64	64	600	4	64	350
128	150	1250	8	128	600
256	300	1250	16	256	600
512	600	1250	32	512	–
1024	1500	–	64	1024	–
2048	3125	–	128	2048	–

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Backups and data retention

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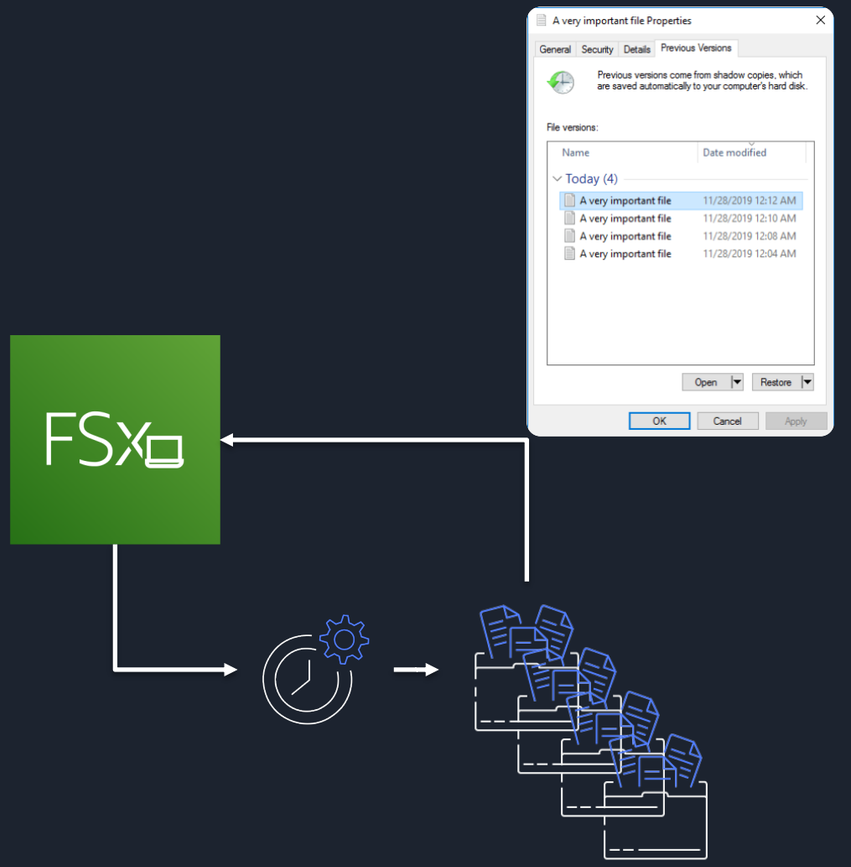
Snapshots (Shadow Copies) – file and folder recovery

- Point-in-time file system snapshot
- Stored in-line within the file system
- End users can restore individual files and folders
- On-demand and scheduled



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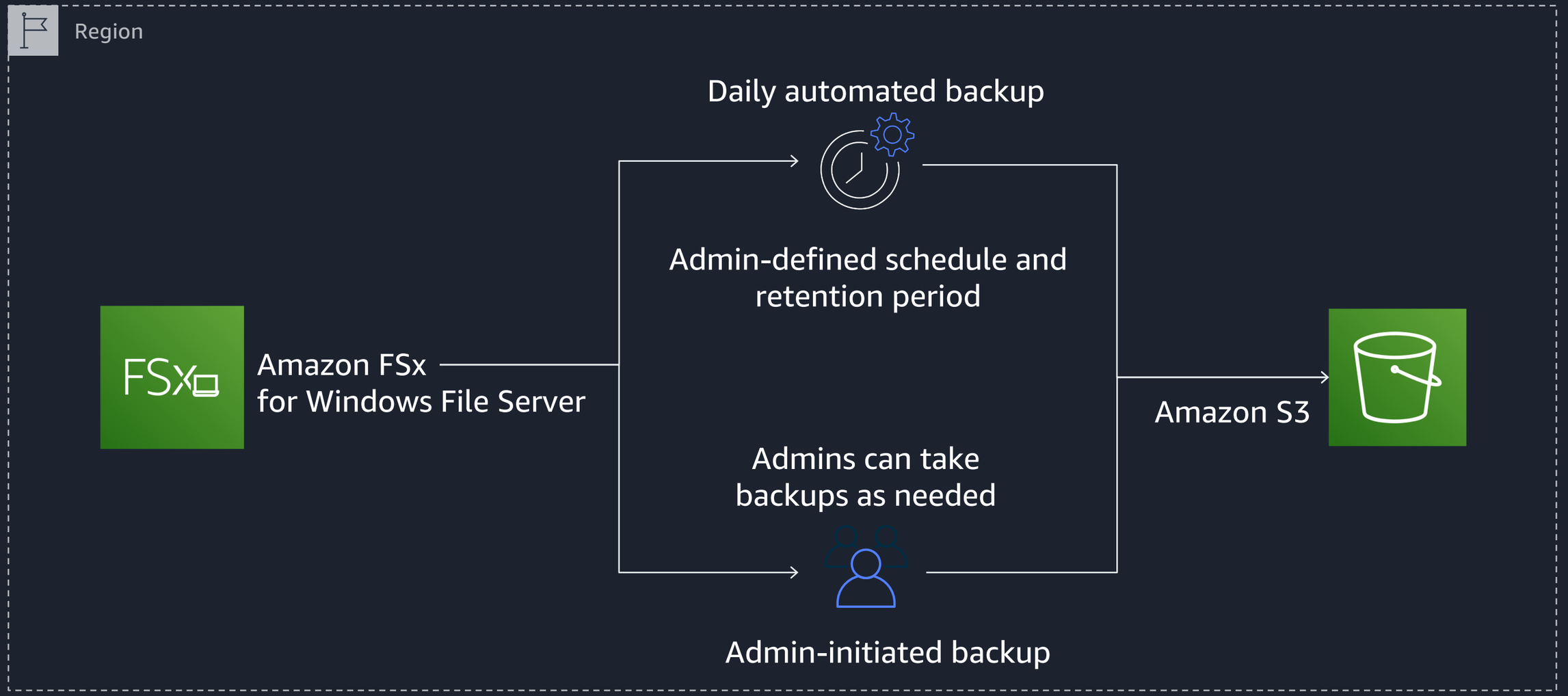
Backups – file system recovery



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Backups

Highly durable	Highly durable (11 nines) – stored in Amazon S3
File system consistent	Capture and restore a point-in-time view of file system Ensures file system-consistency using VSS
Incremental	Only changes after your most recent backup use backup storage
Fully managed	Automatic daily backups, with retention policy Admin-initiated backups via API/Console

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Shadow copies and backups compared

Feature	Shadow copies	Backups
Storage location	Within the file system	Amazon S3
Storage capacity	Configurable size (% or Bytes)	Unlimited
Retention	Up to 512 at a given time	Automatic – up to 35 days User initiated – unlimited
File system consistent	Yes	Yes
On-demand	Yes	Yes
Scheduled	Yes	Automatic – once a day User initiated – customized schedule
User-initiated restores	Yes	No
File and folder restores	Yes	No
File system restores	Yes – over existing file system	Yes – on to new file system

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Cost-effective

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Storage pricing

Industry's Lowest cost file storage in the cloud for Windows workloads

Cost-effective

	Single-AZ	Multi-AZ
SSD-based storage	13 cents	23 cents
NEW HDD-based storage	1.3 cents	2.5 cents

Typical savings from deduplication for general file shares is an additional 50-60%

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Reduce costs with Data Deduplication

Large datasets often have a lot of duplication, which increases storage costs

User shares (home directories)
Multiple users have many copies or versions of a file

Software dev shares
Most portions of binaries remain unchanged from build to build

Data Deduplication

- Removes duplicated content and compresses common content
- Works at the sub-file level
- Uses post-processing optimization to minimize performance impact

Scenario	Content	Typical savings
User documents	Office documents, photos, music, and videos	30-50%
Software dev shares	Binaries, build files, and program symbols	70-80%
General file shares	Mix of the above	50-60%

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Security and compliances

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Security and compliances

Data encrypted
at-rest and in-transit

Option to enforce
encryption in-transit

Integrates with
your organization's
AD and supports
Windows ACLs

Network traffic access
control using Amazon
VPC security groups

Admin API
access control
using AWS IAM

Monitor and log
API calls using
AWS CloudTrail

PCI-DSS + ISO-
+ SOC + GDPR
compliant
and HIPAA eligible

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Integrate with your Active Directory environment

Integrate your Amazon FSx file systems with your organization's AD (on-premises or in-cloud)

- **Authentication**: continue to access file shares by authenticating with their existing credentials
- **Authorization**: You can migrate and use your existing file and folder ACLs

Supports two AD integration options

- AWS Managed Microsoft AD
- Self-managed Microsoft AD (on-premises or in-cloud)

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Administrative tools

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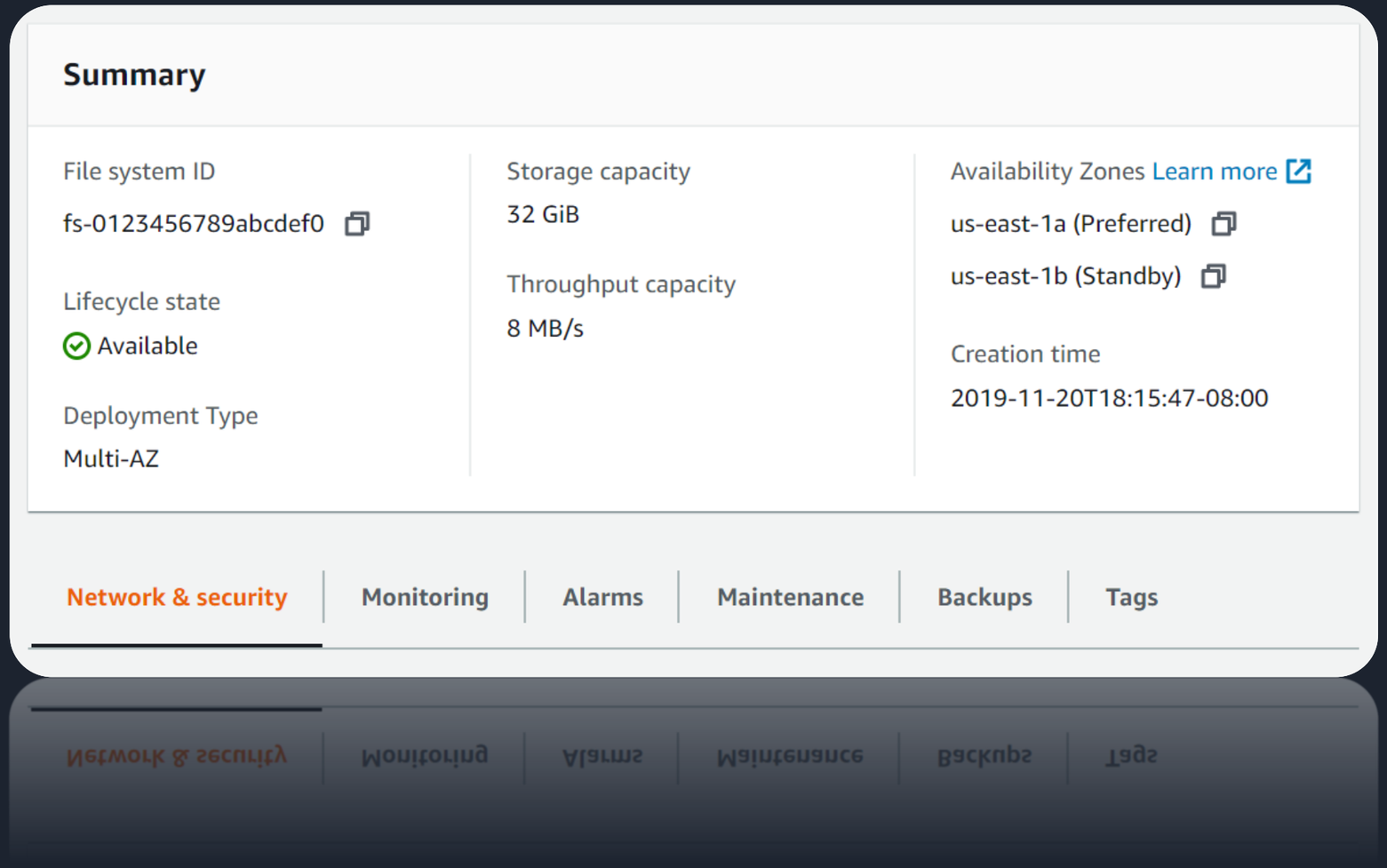
Administering AWS resource properties

- Active Directory configuration
- Backups - automatic and user-initiated
- CloudWatch metrics and alarms
- Tags



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Administering file system features

What you can configure using remote PowerShell:

- SMB file shares
- Shadow copies
- Data deduplication
- User quotas
- Open sessions / files
- Enforcement of encryption in transit

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Fully featured and compatible

Protocol and OS support
✓ Full SMB protocol support
✓ Access from Windows Server 2008+
✓ Access from Windows 7+
✓ Access from Linux
✓ Access from MacOS

Compute instance accessibility
✓ EC2, WorkSpaces and AppStream 2.0
✓ VMware Cloud on AWS
✓ ECS and EKS containers
✓ Lambda (via PySMB)

Accessibility across environments
✓ Cross-VPC/Account/Region access
✓ Shared VPC access
✓ On-prem access (DirectConnect/VPN)

Performance and scale
✓ Consistent, sub-millisecond latencies
✓ PB-scale storage scalability
✓ Tens of GB/s throughput scalability
✓ Millions of IOPS scalability
✓ Server-side and client-side caching
✓ SMB MultiChannel
✓ Monitor performance via CloudWatch

Availability, durability, and backups
✓ High availability: automatic recovery
✓ High durability: automatic replication
✓ Multi-AZ deployment
✓ SMB Continuous Availability
✓ Snapshots (with end-user file-restore)
✓ Backups

Cost optimization
✓ Storage type flexibility (SSD / HDD)
✓ Deployment type flexibility (Single-AZ / Multi-AZ)
✓ Select throughput and storage independently
✓ Data deduplication and compression
✓ User storage quotas

Security and compliances
✓ Active Directory integration
✓ Encryption at-rest and in-transit
✓ PCI DSS, ISO, SOC, GDPR, and HIPAA compliances
✓ File access control via NTFS ACLs
✓ Network traffic access control via VPC
✓ Administration access control via IAM

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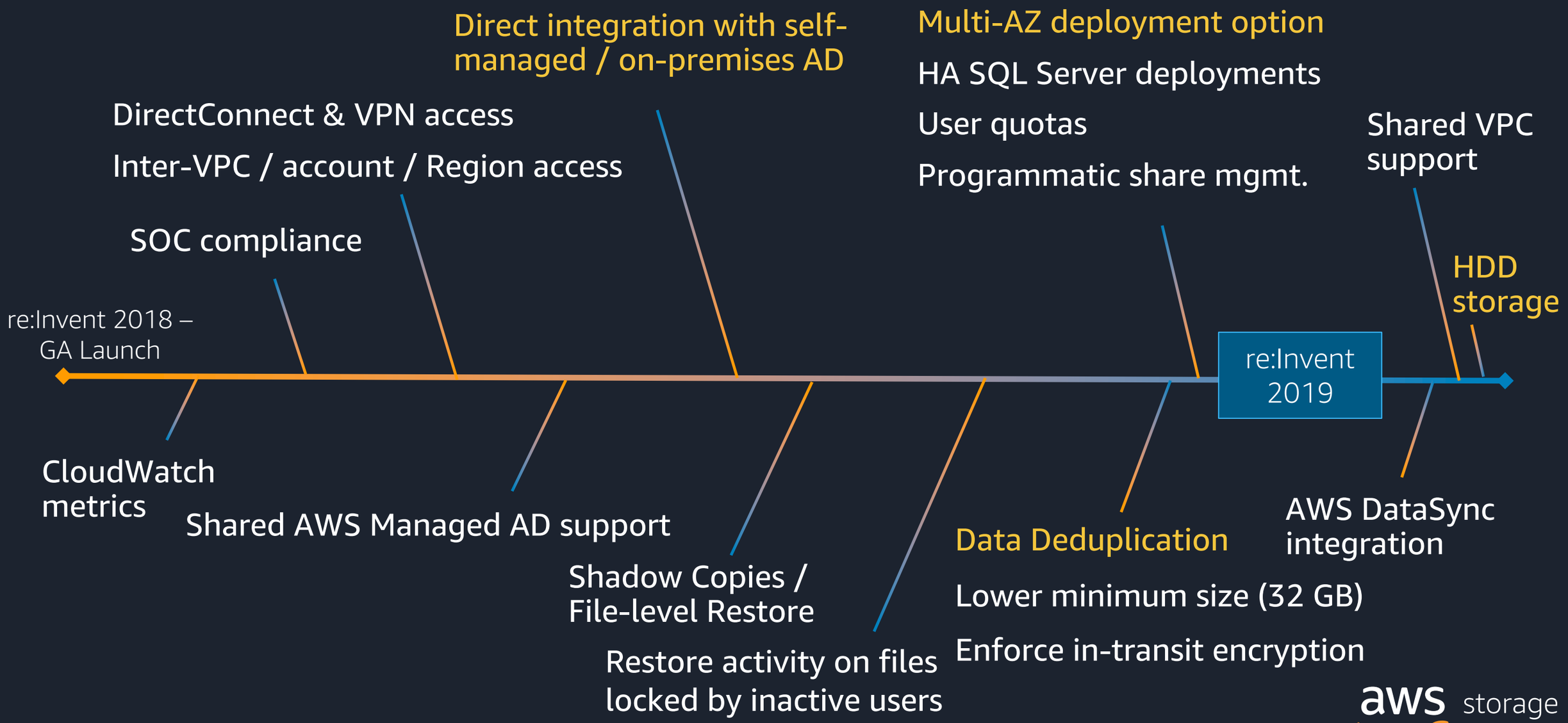
FSx for Windows File Server Pace of Innovation



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Seamless migration

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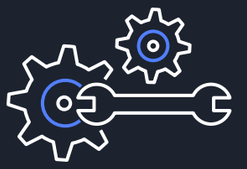
Migration

Simple and seamless migration

Migrate files using AWS DataSync

Preserve existing security (ACLs) and DFS Namespaces, and continue to use existing AD user identities



SMB share migration tooling

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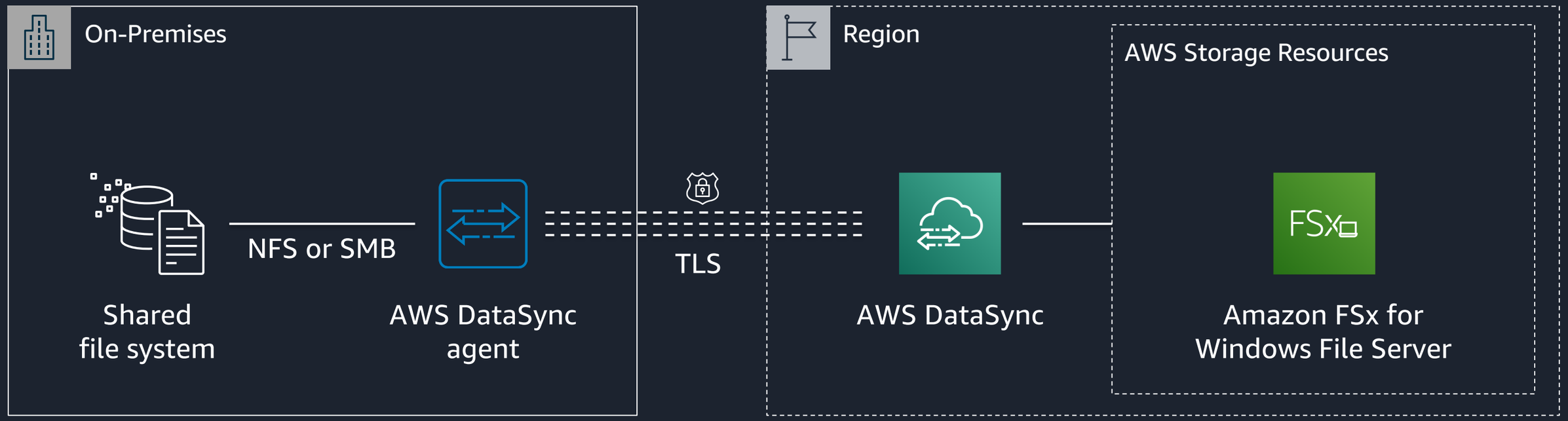
Migrating file storage with AWS DataSync



Deploy agent on VMware or EC2 for efficient access to local NFS or SMB server → Secure highly parallel transfers using optimized network protocol → Fully managed service scales to send or receive data from agent → Optimized reads and writes to Amazon FSx for Windows File Server

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Demo

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Resources

Setup a test using our deployment guide:
https://aws.amazon.com/blogs/storage/using-amazon-fsx-for-windows-file-server-with-an-on-premises-active-directory/

Watch our re:Invent deep dive and on-demand tech talks:
https://www.youtube.com/watch?v=_x_Geur93oc

Explore Amazon FSx blogs and video tutorials
https://aws.amazon.com/fsx/windows/resources

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Thank You!

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