
AWS
re:Invent
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Protect unstructured data with Amazon file solutions

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Agenda

01 Protecting file services in the cloud

02 Data protection and file services

03 Whiteboarding

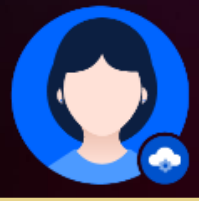
04 Q&A session

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File services: Customer personas and use cases



Storage & IT admins and app owners



Builders and data scientists



Enterprise IT applications



User shares



Line-of-business applications



Machine learning and data science



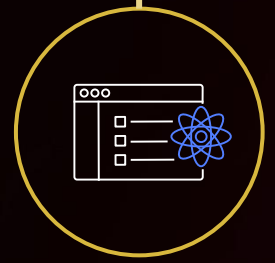
SaaS applications



Software build environments



Backup and disaster recovery



Web serving and content management



DevOps platforms



Test and development environments

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There isn’t a one-size-fits-all file system – We provide options

2016 2018 2021



Amazon EFS

Amazon FSx for Windows File Server

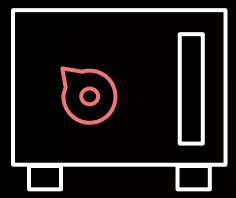
Amazon FSx for NetApp ONTAP

Amazon FSx for Lustre

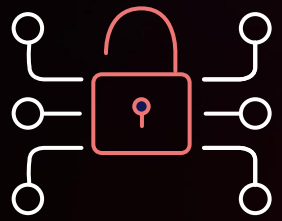
Amazon FSx for OpenZFS

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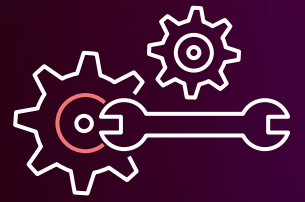
Why use data protection on AWS?



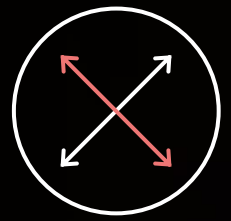
Protect intellectual property and trade secrets



Protect customer information and build a trusted brand



Automate tasks to save time and reduce risk



Scale with visibility and control as your business grows



Easily integrate with hundreds of AWS services



Inherit global security and compliance controls

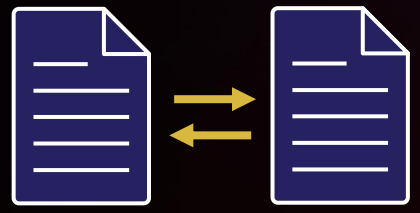
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Built-in data protection features



Replication within each AZ



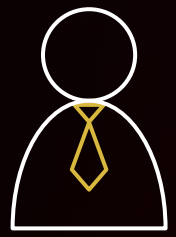
Multi-AZ deployment option



Automatic backups



Encryption at rest and in transit



Admin API access control using AWS Identity and Access Management (IAM)



Monitor and log API calls using AWS CloudTrail

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Most commonly used data protection features

	Feature	Most commonly used for	Minimum RPO (replication rate)	RTO (restore time)
1	Snapshots/ shadow copies	Instant recovery of deleted or modified files	1 minute	~Instantaneous
2	Cross-file-system replication	Disaster recovery if a file system is unavailable	5 minutes	< 10 minutes
3	Backups	Offline, secondary copies, and long-term data retention	15 minutes	Minutes to hours

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1

Snapshots/shadow copies (Windows, NetApp ONTAP, OpenZFS)



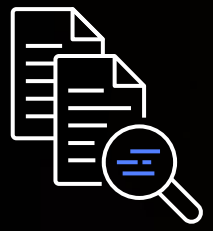
Undo changes to individual files

No need to restore the entire file system

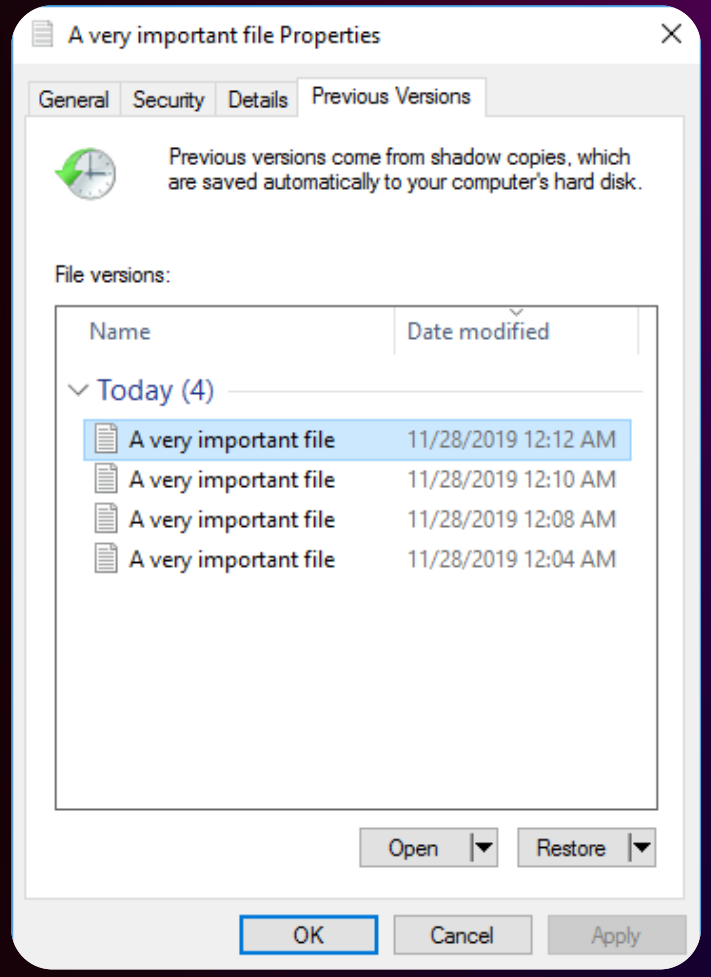


Self-service

No filing a ticket to admin



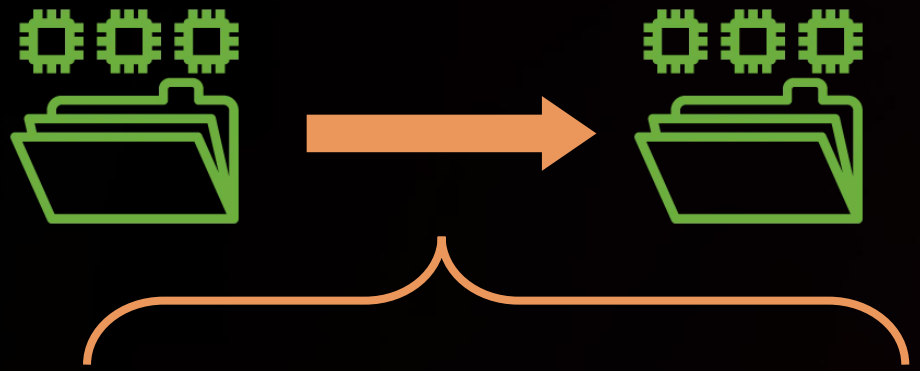
Compare previous file versions



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2 Cross-file-system replication (all file services)



Service	Replication tool
Any file service	AWS DataSync
FSx for ONTAP	SnapMirror
Amazon EFS	EFS Replication

Cross-account replication

- Protect against accidental deletion or data loss if your AWS account experiences unintended access
- Use a different AWS KMS key for second copy for additional protection

Cross-Region replication

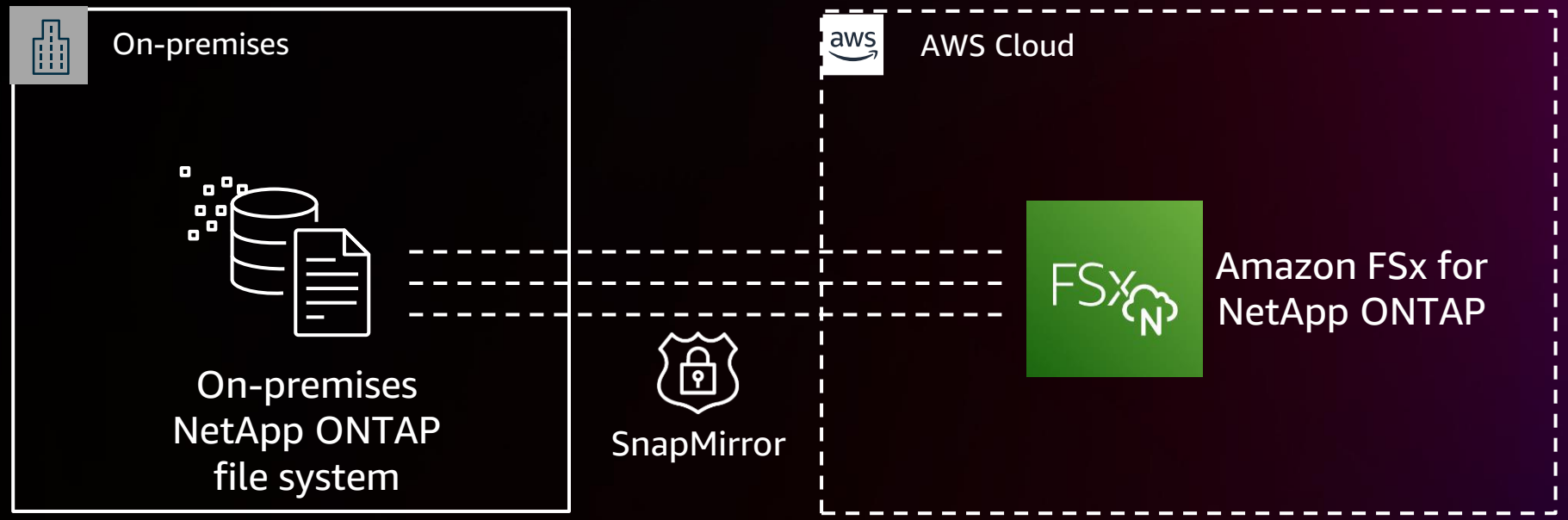
- Protect against the unavailability of an AWS Region
- Use for migration across Regions

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Example: Disaster recovery using NetApp SnapMirror



SnapMirror performs quick, efficient, incremental transfers of data
No need to refactor or re-architect

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Example: Optimize DR storage costs with Amazon EFS



EFS Standard (Multi-AZ)

$0.30/GB-mo

Typically **~75%** savings in storage costs

EFS One Zone – Infrequent Access

$0.0133/GB-mo

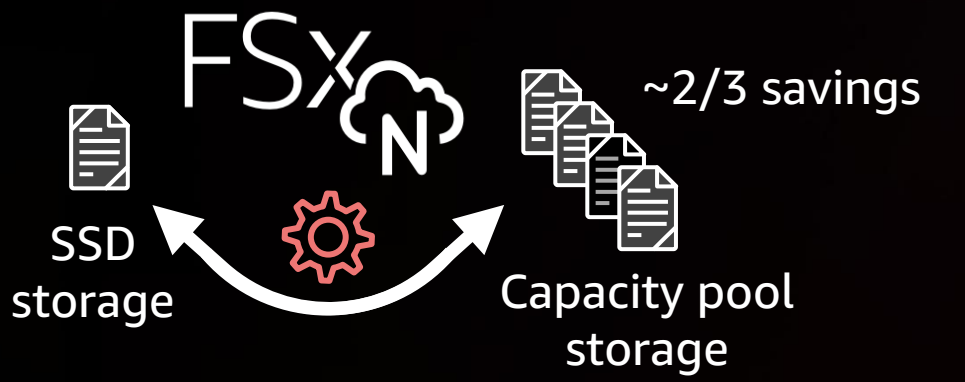
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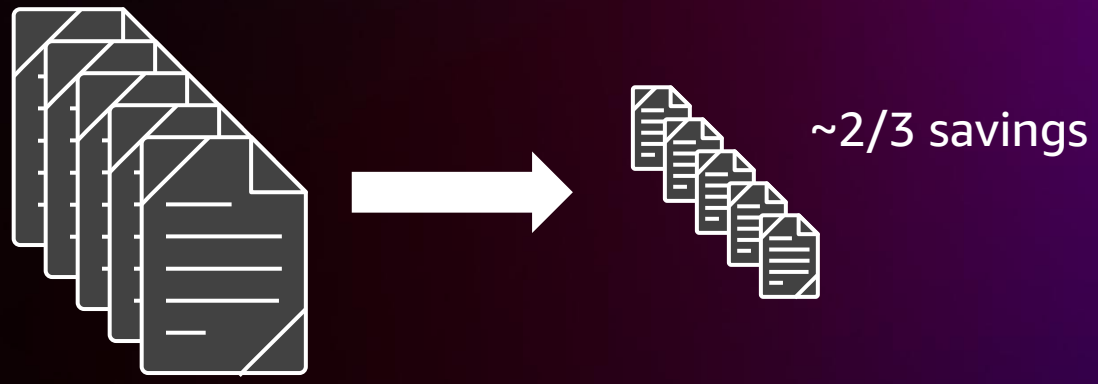
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Example: Optimize DR storage costs with Amazon FSx for NetApp Ontap

Intelligent data tiering



Data compression & deduplication



For a typical dataset:

88% cost savings

$0.030/GB-mo	$0.015/GB-mo
Multi-AZ storage cost	Single-AZ storage cost

Note: Based on FSx for ONTAP pricing in US East (N. Virginia)

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3

Backups (all file services)



Fully managed and enabled by default



Highly durable (designed to provide 11 9s) and available



Create/restore/delete with a single click



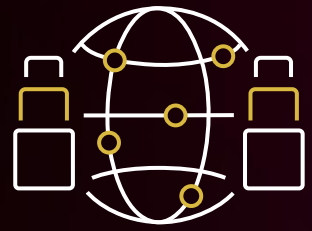
Incremental



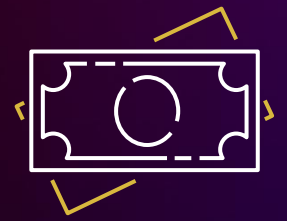
Integrated with AWS Backup



Crash-consistent



Copy across accounts/Regions

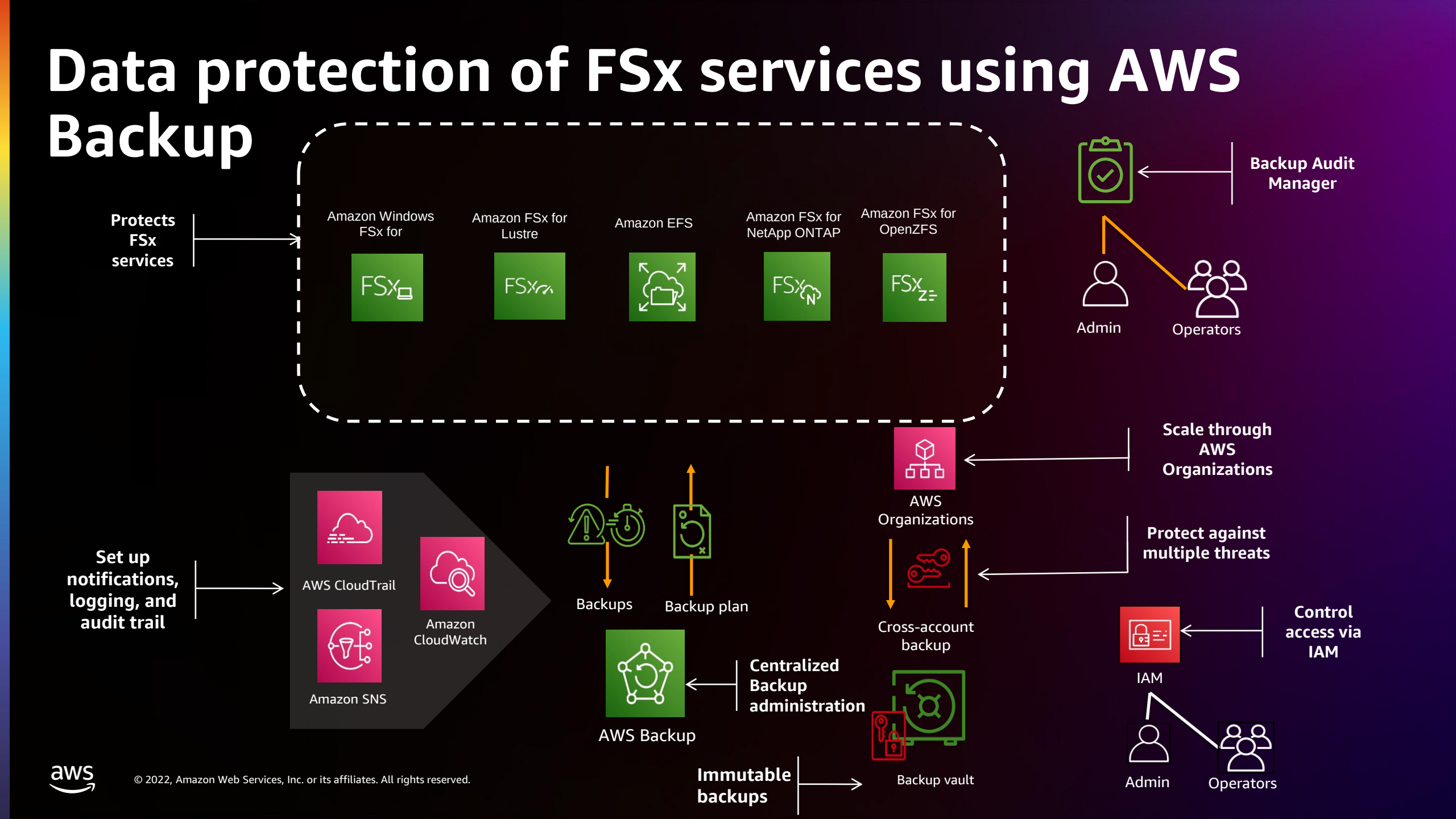


Option for lower-cost “cold” backup tier (Amazon EFS)

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Data protection of FSx services using AWS Backup



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Q&A

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Thank you!

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