

CCC Information Services

rackspace
technology™

TM

Solving
Together™

On-premises file-based applications

- Migrate file storage **without disruptions and changes** to your on-premises applications and users
- **Maintain** existing workflows (post-migration)
- Experience benefits of **AWS services** for your on-premises and in-cloud file-based applications
- Regardless of your **cloud adoption strategy** or **stage** – leverage the AWS portfolio of file services for your file-based applications
- AWS makes it easy to test file services options and find the right solution for your applications before making deployment decisions

CCC Notes & Requirement

Two Types of Images Stored

- Images that the applications grab
- Images stored raw (PDF, TIF) before being pulled into the applications

Short-Term Requirements for Storage (Next 1-2 Months)

- Have the ability to access images/data in a consistent way across both data centers.
- Latency equivalent or better than today (from user browser to data store)

Long-Term Requirements for Storage (3-4 Months Out)

- All images/data moved out of Rackspace
- Following the agreement on 2 years retention, older images/data moved to the lower cost storage
- Create a mechanism (I.e. service) that both new and old applications can use to pull images (file mapping across two platforms)

Options to Consider (Favorite Option Listed 1st)

- S3 with proxy that looks like a NAS that navigates to legacy and new
- Native S3 without proxy
- NAS in cloud with a full copy
- Legacy Medflow accesses NAS, RBR accesses S3 & both must be kept in sync

AWS portfolio of file and hybrid cloud storage services



Amazon FSx for Windows File Server

Fully managed native Windows file systems

Deeply integrated with AWS

Highly available and highly durable

High performance

Enterprise-ready security and compliance

Cost effective



AWS Storage Gateway

NFS / SMB access to objects in Amazon S3

Low latency access with local caching

Integration with AWS for tools

VMware ESXi, Microsoft Hyper-V, Amazon EC2, KVM, and hardware appliance options

HA (VMware with shared storage)



Amazon FSx for Lustre

Fully managed high-performance file system integrated with Amazon S3 and optimized for compute-intensive workloads



Amazon EFS

Fully managed NFS file system for Linux-based general-purpose file workloads



AWS Transfer Family

Fully managed SFTP, FTPS, and FTP service for Amazon S3

Amazon FSx for user file shares migration



"With Amazon FSx, there was **no disruption** to our user experience. We were able to free up resources to focus on our core business."

William Weigle
Sr. Manager
Expedia Group

- | Problem | Solution | Outcome |
|--|--|--|
| <ul style="list-style-type: none">• Scale 20+ regional offices that had their own file storage to store and share files, avoid costly hardware refreshes | <ul style="list-style-type: none">• Using fully managed SMB file shares, Expedia was able to consolidate multiple file servers and reduce their hardware footprint | <ul style="list-style-type: none">• Lowered TCO with HDD storage and data dedupe• Improved performance and durability |



Epiq reduced their eDiscovery platform cloud storage costs by 30% utilizing Amazon FSx for Windows File Server deduplication

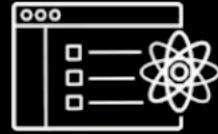
"Amazon FSx really helped us achieve some lofty cost optimization goals. We no longer have to worry about managing file storage; it was a drop-in replacement and just works. We get the performance we need but with higher availability than we can achieve on our own."

Tina Kennedy
Director, Engineering Operations
Epiq

What is Amazon FSx?

Feature-rich and highly-performant file systems fully managed by AWS

Amazon FSx for Windows File Server



Fully managed file storage
built on **Windows Server**



Deeply **integrated**
with AWS

Simple and seamless migration



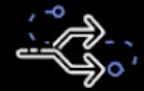
Link your file system to
your existing AD user
identities



Migrate existing security (ACLs),
DNS names, DFS Namespaces,
file share configuration, file
versioning settings, and storage
quotas



Migrate files using
AWS DataSync or
Windows-native
tools like RoboCopy

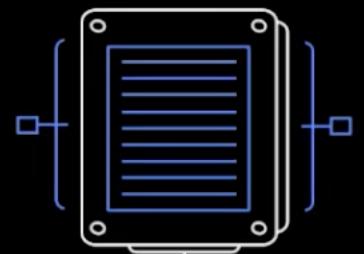


Simple and seamless migration

Things you won't need to change when moving to AWS

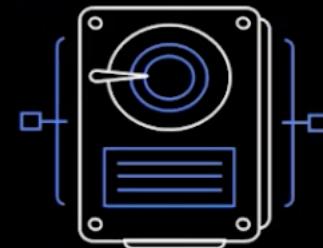
- Active Directory
- Permissions / Access Control Lists (ACLs)
- DNS names New
- DFS namespace names
- File share configuration
- Shadow copies settings
- Storage quotas settings

Choosing the right storage option



SSD

Analytics, SQL,
high IOPS workloads



HDD

General purpose
applications, user shares

Flexibility to choose throughput independently of file system size

Designed for a wide spectrum of use cases



General-purpose
NAS migration



Line-of-business
applications



Content
management



Persistent storage for
virtual desktops and
application streaming



Backup and
disaster recovery



Highly available SQL
Server deployments

Performance and scale

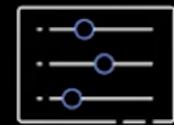
Fast and flexible performance



Multiple GB/s
throughput per fs



Hundreds of thousands
of IOPS per fs



Scale storage and
throughput dynamically



Consistent
sub-ms latencies



SMB Multichannel



Select throughput
independently from storage

Fully featured, secure, reliable, and scalable

Accessibility
✓ Full SMB protocol support
✓ Windows Server 2008+, Windows 7+, Linux, and MacOS
✓ EC2, WorkSpaces and AppStream 2.0
✓ VMware Cloud on AWS
✓ ECS and EKS containers
✓ Cross-VPC/Account/Region access
✓ On-premises access (DirectConnect/VPN)

Availability and durability
✓ High availability: automatic recovery
✓ High durability: automatic replication
✓ Multi-AZ deployment option
✓ SMB continuous availability (CA)

Cost optimization
✓ Storage type flex. (SSD/HDD)
✓ Deployment type flex. (single-AZ/multi-AZ)
✓ Live scaling of storage capacity
✓ Data deduplication and compression

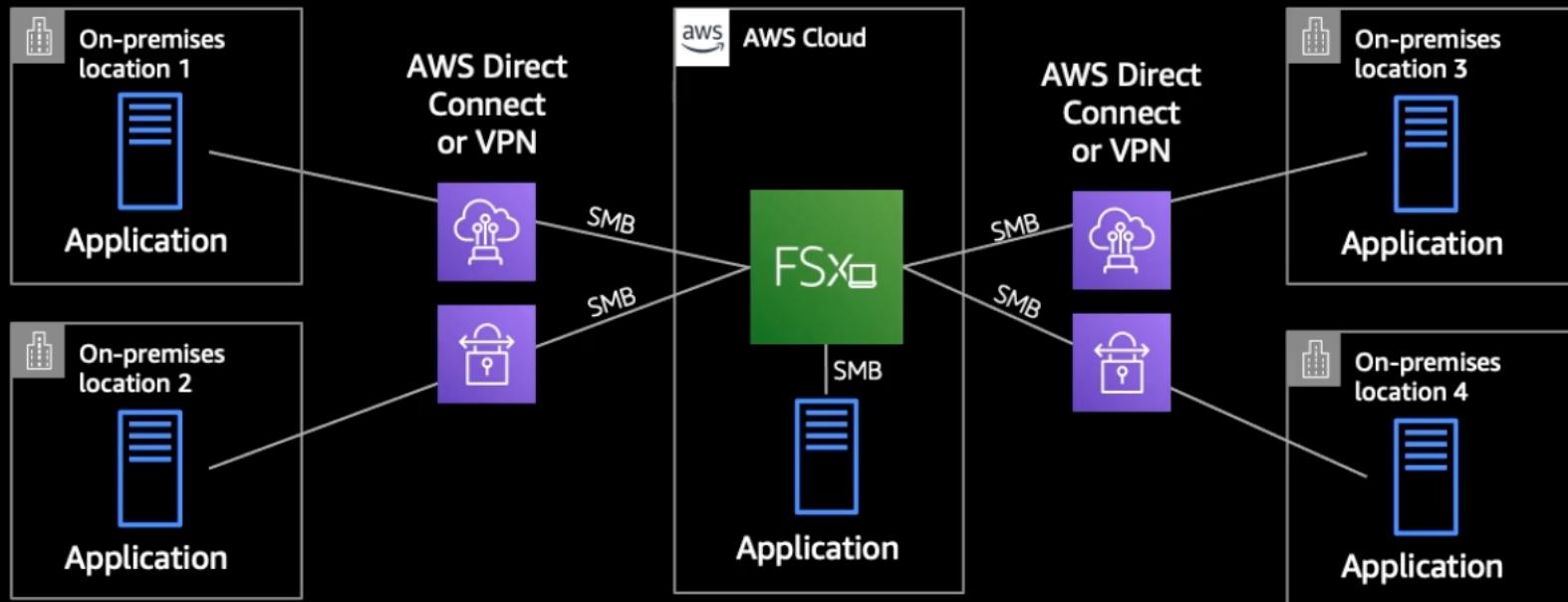
Administration
✓ Active directory integration
✓ Managing file shares
✓ Monitoring user sessions and open files
✓ Restoring locked files
✓ User storage quotas
✓ Monitoring actions via CloudTrail

Performance and scale
✓ Consistent, sub-millisecond latencies
✓ PB-scale storage scalability
✓ Tens of GB/s throughput scalability
✓ Millions of IOPS scalability
✓ Select throughput and storage independently
✓ Server-side and client-side caching
✓ SMB Multichannel
✓ Perf. monitoring via CloudWatch
✓ Live scaling of throughput capacity

Data protection
✓ Snapshots (with end-user file restore)
✓ Backups

Security and compliances
✓ Encryption at rest and in transit
✓ Kerberos authentication
✓ Access controls via NTFS ACLs, share ACLs, VPC, and IAM
✓ PCI DSS, ISO, SOC, GDPR, IRAP, and HIPAA compliances

Hybrid business-critical applications

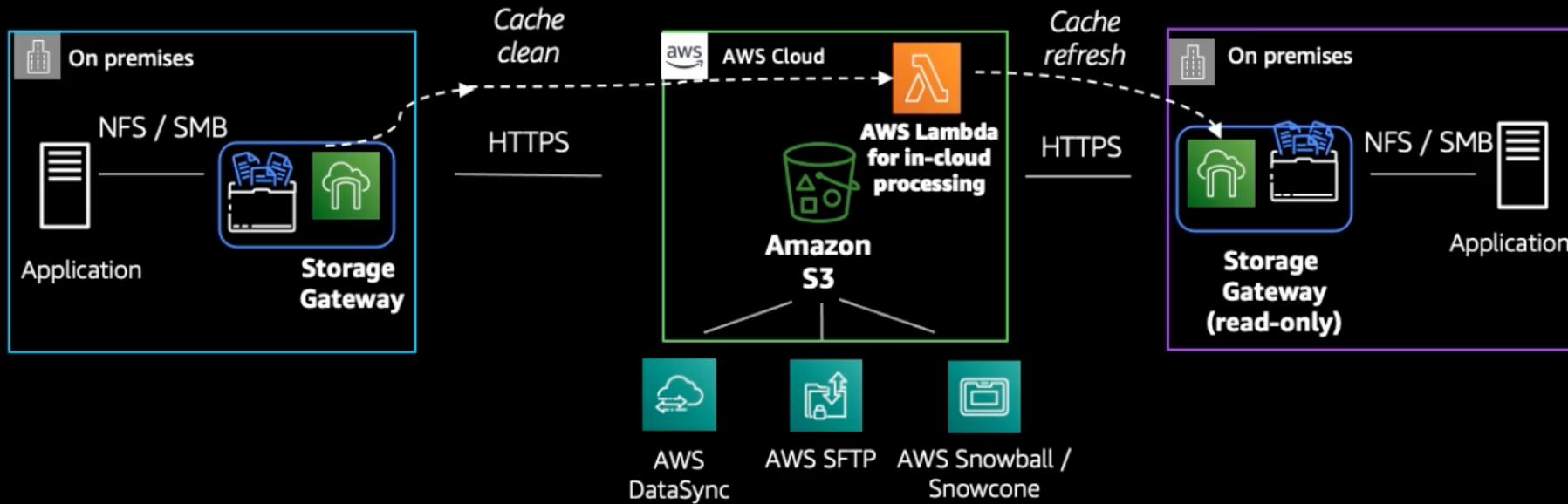


Benefits

- Provide highly available shared file storage for hybrid business-critical apps (e.g., ERP / CRM)
- Continue to offer compatibility and rich features for apps – file locking, file leasing for local caching
- Provide high throughput and IOPS to enable highly concurrent access
- Optimize TCO and eliminate ongoing infrastructure management overhead

In-cloud content repositories

PROCESS, ANALYZE, AND ACCESS FILES QUICKLY FROM DISTRIBUTED LOCATIONS AND SCALE CAPACITY AS NEEDED



Benefits

- Leverage the broadest and deepest data processing, analytics, and machine learning capabilities in AWS
- Globally access data from any on-premises location using multiple file gateways
- Centrally store and access both raw and processed data cost-effectively



When to use Amazon FSx and Storage Gateway for S3

Lift-and-shift your file data to the cloud



Amazon FSx for Windows File Server

- ✓ Fully managed service
- ✓ Native file system (full NTFS / SMB compatibility and fully featured)
- ✓ Highly available (Single-AZ and Multi-AZ)
- ✓ Performance – up to 10+ GB/s throughput and millions of IOPS
- ✓ Cost effective
- ✓ On-premises access (multiple writers / readers)

Store and access Amazon S3 objects as files



AWS Storage Gateway (File Gateway)

- ✓ NFS / SMB access to objects in Amazon S3
- ✓ Low-latency access to S3 data with local caching
- ✓ Deployment options (VM and hardware)
- ✓ Highly available (VMware with shared storage)
- ✓ Performance – up to 863 MB/s local (cached) and up to 2.1 Gb/s network throughput (cache miss)
- ✓ Cost effective
- ✓ On-premises access (single writer and multiple readers to same data)



Simple and seamless migration

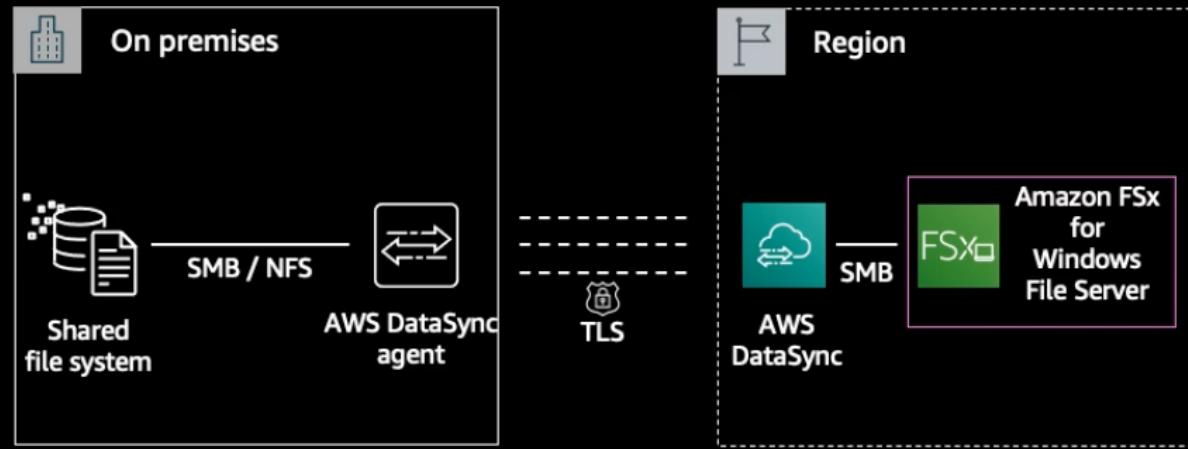


Migrate files using
AWS DataSync or
Windows-native tools
like **RoboCopy**



Preserve existing
ACL security configurations,
DFS namespaces,
DNS names, and
AD user identities

New



SMB to SMB, same protocol as on premises
No need to re-factor or re-architect

