AWS re:Invent

NOV. 29 – DEC. 3, 2021 | LAS VEGAS, NV

STG219

Introducing Amazon FSx for OpenZFS

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FSx = *File System x*

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What does *x* represent?



Your choice
for
your workload

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What do we mean by *your choice*?



Launch, run, and scale . . .



feature-rich, high-performance, cost-effective, and fully-managed storage . . .

NetApp ONTAP

Windows File Server

Lustre

powered by **your choice** of the world's most popular file systems

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What are some example *workloads*?



Corporate IT applications



Database applications



Home directories



Software build environments



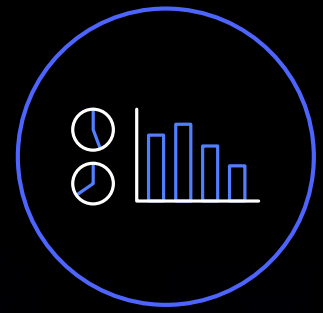
High-performance computing



Machine learning



Media rendering and transcoding



Big data analytics

aws

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Introducing Amazon FSx for OpenZFS

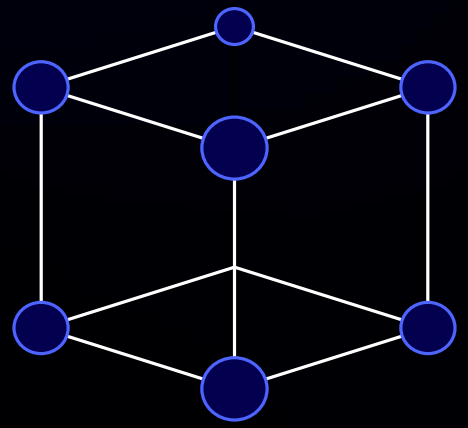
Simple and powerful shared file storage that delivers **ultra-high speeds at a low cost**, accessible via NFS



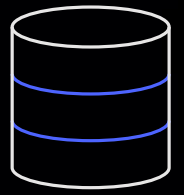
Built on the **AWS Graviton** family of processors and the popular open-source **OpenZFS** file system

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What is OpenZFS?



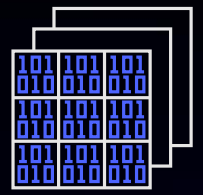
Advanced, powerful file system that is purpose-built for **high performance and scale**



Copy-on-write architecture



Integrated data resiliency



Dedicated and efficient caching

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Things you might have heard about the ZFS file system

It’s **complicated** to set up and configure

It’s **difficult to tune** for the best performance

It’s **hard to maintain** and operate on an ongoing basis

You **need to be a ZFS expert** to even get started

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All of the power of ZFS without the complexity

~~complicated~~

~~difficult to tune~~

~~hard to maintain~~

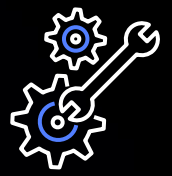
~~need to be a ZFS expert~~



Launch and scale a ZFS file system in minutes that provides . . .



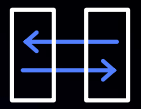
Pre-tuned configurations



Performance scaling on demand



Automatic backups and maintenance



Automatic replication and recovery

FSx ZFS

A simple, fully managed, highly-available NFS endpoint

aws

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Amazon FSx for OpenZFS is designed to help you with two objectives



Moving or extending existing apps and storage to the cloud

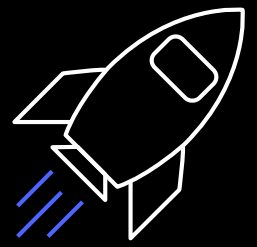


Building data-intensive workloads

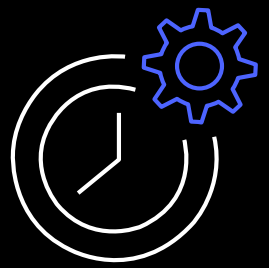
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What does that mean for you?

With familiar capabilities and the same or better performance you get on-premises today

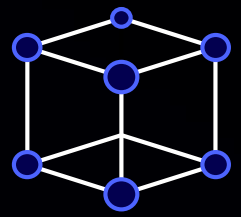


Migrate to AWS **without changing your applications** or how you manage data

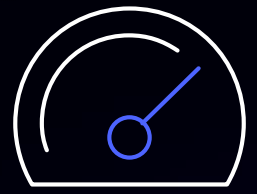


Eliminate the need to re-architect apps, processes, or workflows

With high-performance storage that provides advanced capabilities for working with data



Test and **build new data-intensive applications faster**

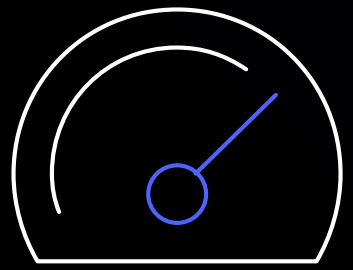


Power your **latency-sensitive and IOPS-intensive workloads** without worrying about managing storage

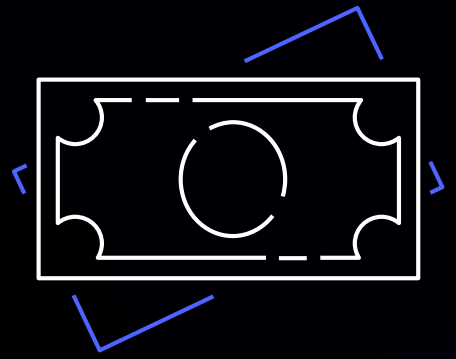
aws

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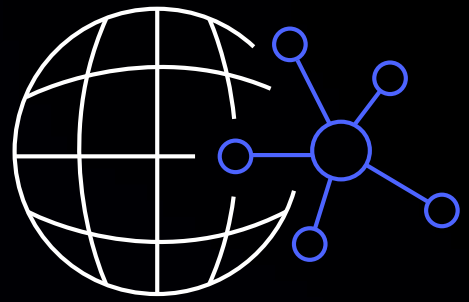
Deep dive into four core aspects of the Amazon FSx for OpenZFS offering



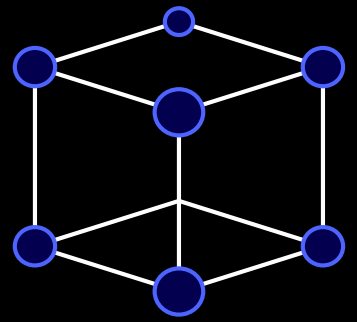
Ultra-high speeds



Low cost



Flexible and secure access



Advanced ZFS capabilities for working with data

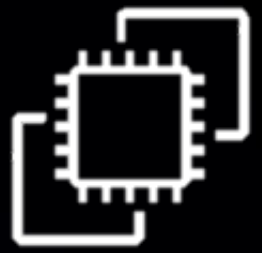
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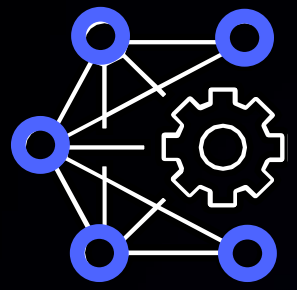
High-performance storage powered by the latest AWS technologies



AWS Graviton processors



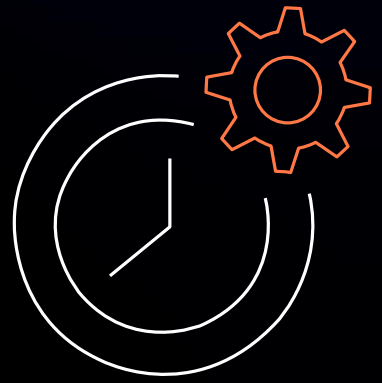
AWS Nitro system



Scalable
Reliable
Datagram

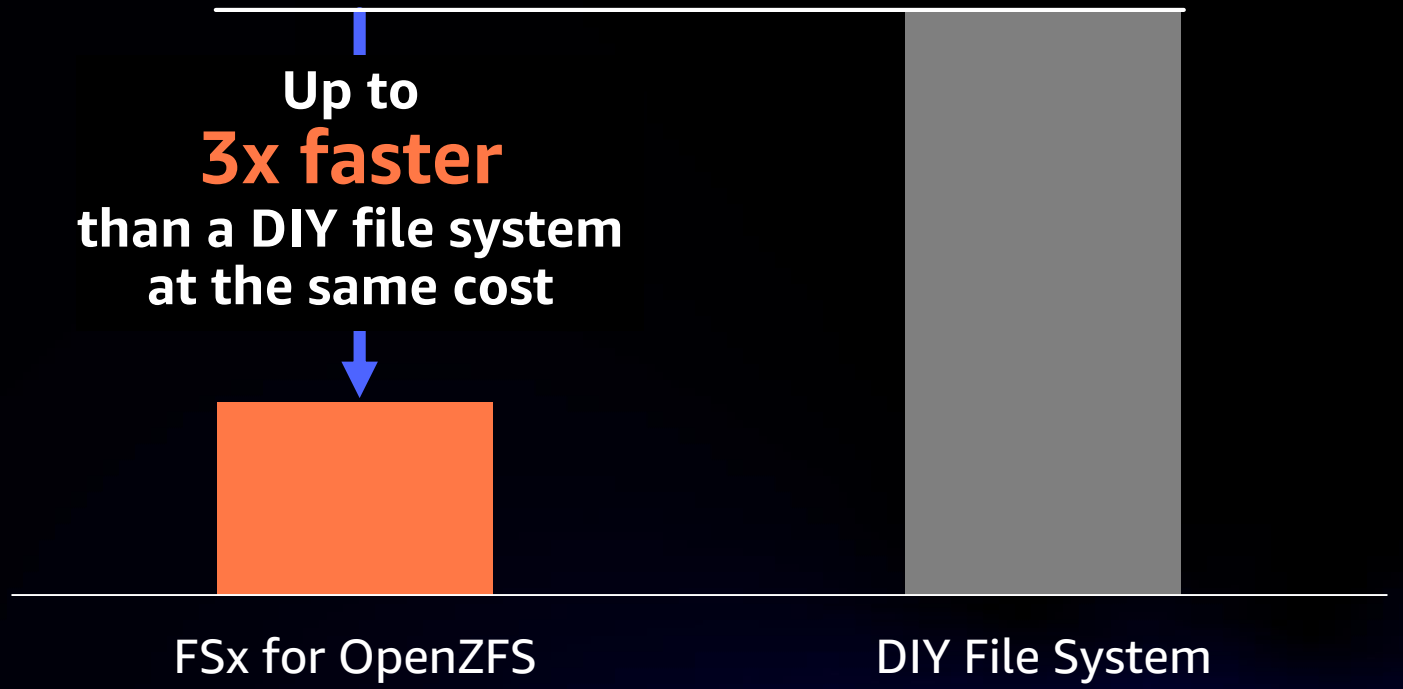
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Deliver results faster with ultra-low latencies . . .



Latencies of a
few hundred microseconds

Time required to untar the latest Linux kernel

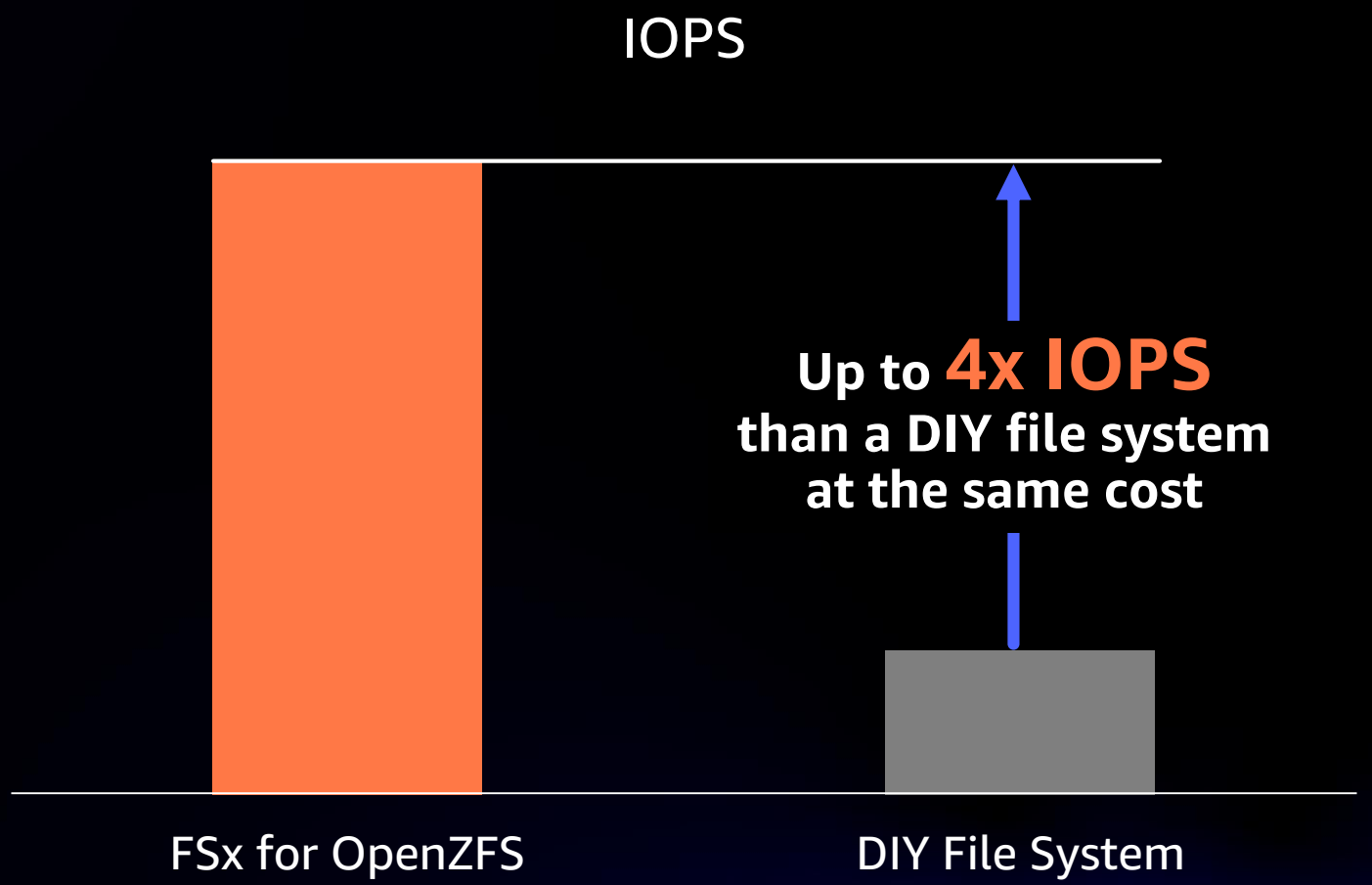


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. . . and scalable IOPS and throughput

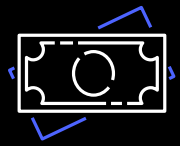


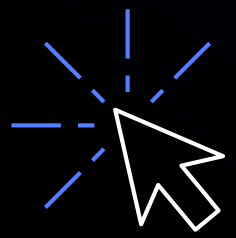
Up to
1M IOPS and
12.5 GB/s
throughput



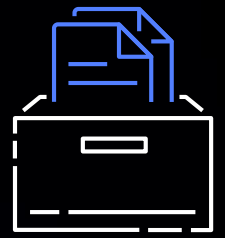
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Do more with less and adapt faster to changing business needs

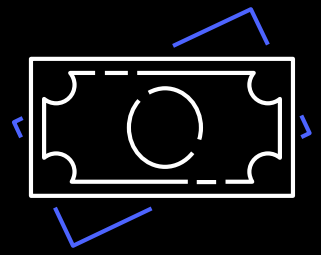




Performance scaling with the click of a button



SSD storage
$0.045/GB-mo
(Effective pricing w/ compression*)



Z-Standard compression enabled by default (reduce storage usage by up to ~50%)



Throughput
$0.13/MBps-mo
(Effective pricing w/ compression*)

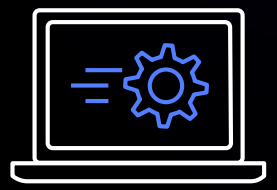
*Effective pricing assumes average compression savings of ~50%. Pricing w/o compression: $0.09/GB-mo SSD storage, $0.26/MBps-mo throughput

aws

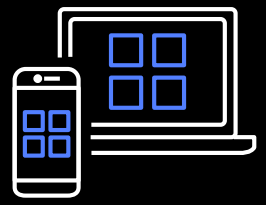
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Access your data with familiar protocols and from virtually any environment





NFS v3



NFS v4, v4.1, v4.2

Protocol



Microsoft Windows

Linux

macOS

Operating System



Amazon EC2



Amazon WorkSpaces



Amazon ECS



Amazon AppStream 2.0



Amazon EKS



VMware Cloud

Compute instance



In-VPC access, VPC Peering, and Transit Gateway



Direct Connect



VPN

Network configuration

aws

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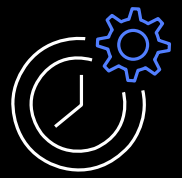
Protect your applications and data with robust security features



Automatic data encryption at rest and in transit



Automatic backups and maintenance



Automatic replication and recovery



Admin API access control & monitoring
(IAM, CloudTrail)



Network traffic access control
(VPC security groups)



File-level permissions
(POSIX permissions and ACLs)



Industry-standard compliances
(PCI-DSS, ISO, SOC, IRAP, HIPAA)

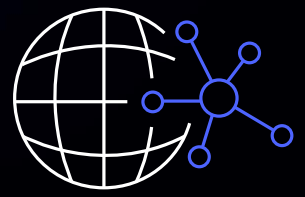
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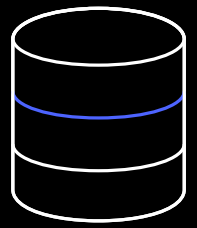
Leverage powerful ZFS capabilities for working with data



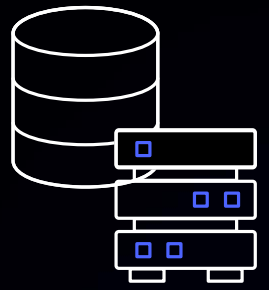
Instant point-in-time snapshots



In-place data cloning



Multiple independent data containers per file system



Thin provisioning and usage quotas

Example use cases

Rapid testing of new features and changes

Efficient multi-tenanted SaaS applications

Parallel isolated experiments on a common dataset

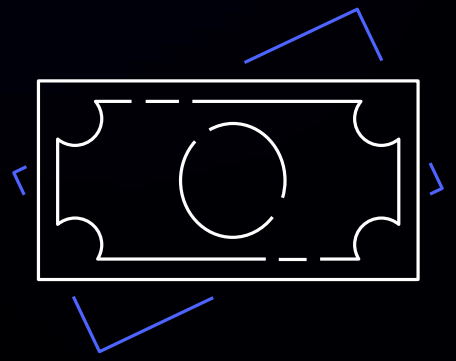
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Recap: Four core aspects of the Amazon FSx for OpenZFS offering



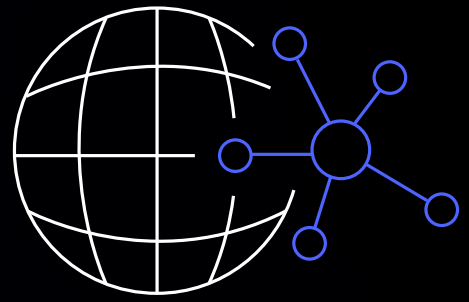
Ultra-high speeds

The latest AWS technologies help deliver results up to 4x faster



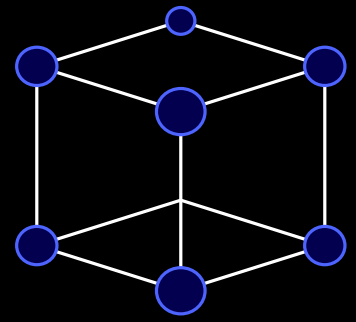
Low cost

High-performance SSD storage for less than $0.05/GB-mo



Flexible and secure access

NFSv3, v4 support and built-in security



Advanced ZFS capabilities for working with data

The power of ZFS in a simple, fully managed service

aws

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Amazon FSx for OpenZFS use cases



Migrate your workloads to AWS seamlessly

Move workloads running on ZFS or other Linux-based servers to AWS without modifying application code or how you manage data.



Increase dev/test velocity

Test changes efficiently by cloning application data in seconds, and reduce build times with fast storage for repositories and DevOps solutions like Git, Bitbucket, and Jenkins



Deliver insights faster for data analytics workloads

Power machine learning (ML), financial analytics, and other data-intensive applications with high-IOPS storage.



Accelerate content management

Deliver the low latency needed to scale file-based web serving and content management applications like WordPress, Drupal, and Magento

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Thank you!

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