

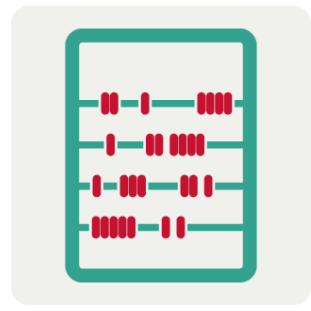
FSx_{ZFS}

Amazon FSx for OpenZFS



Introduction

- 1 An advanced file system and logical volume manager
- 2 ZFS was created by Sun Microsystems, with work starting in 2001
- 3 The idea was to make a new kind of file system that could handle large amounts of data and ensure data integrity.
- 4 Sun Microsystems released ZFS for their Solaris Operating System in 2005
- 5 In 2008, a part of ZFS was made open-source as part of the OpenSolaris project, also led by Sun Microsystems.ubtopic
- 6 When Oracle acquired Sun Microsystems in 2010, they stopped open-sourcing new ZFS developments, focusing on closed-source solutions within their own products.
- 7 Because of this, the community around ZFS decided to continue the open-source work separately, leading to the start of OpenZFS.
- 8 OpenZFS is not a product of a single company but a community effort. Developers from different places and companies contribute to its development.



Features Of OpenZFS

- 1 Data Health
 - 1 Data Integrity Ensures files are not corrupted
 - 2 Error Correction Detects and corrects data corruption
 - 3 Copy-on-write Prevents data corruption by writing copies without overwriting original data.
- 2 Capacity for Managing Large Data
 - 1 Scalability Can handle vast amounts of data efficiently.
 - 2 Storage Pools Groups devices into storage areas, improving space use.
 - 3 Snapshot and Cloning Can create point-in-time copies and efficient data
- 3 Prevention of Data Corruption
 - 1 Checksums Verifies the integrity of data during transactions.
 - 2 RAID-Z Protection against data loss
 - 3 Atomic Transactions Ensures complete operations, reducing risks of corruption.
- 4 Compatibility and Portability
 - 1 Cross-Platform Works on UNIX-like systems such as FreeBSD, Linux, etc
 - 2 Community Support Open-source with active community contributions.
 - 3 Continuous Development Regular updates and improvements.
- 5 Advanced Features
 - 1 Compression Reduces storage spaceic
 - 2 Deduplication Eliminates duplicate data, saving space
 - 3 Tiered Storage Allows for data organization based on usage/accessibility needs.

OpenZFS vs. NetApp ONTAP

- 1 Overview
 - 1 OpenZFS Open-source file system and volume manager with robust data protection features, now also available for cloud deployments.
 - 2 NetApp ONTAP Standalone proprietary operating system focused on data management and storage solutions.
- 2 Operating System Requirements and Nature
 - 1 OpenZFS
 - 1 Not an operating system
 - 2 Requires a host operating system
 - 3 Installed on various systems through the host OS.
 - 2 NetApp ONTAP
 - 1 Is a proprietary operating system itself
 - 2 Doesn't require a separate OS
 - 3 Specifically tailored for storage and data management tasks.
- 3 Use Cases
 - 1 OpenZFS Ideal For
 - 1 Small to medium enterprise storage
 - 2 Personal cloud storage
 - 3 Data archival systems
 - 2 NetApp ONTAP Ideal For
 - 1 Large enterprise data management
 - 2 Hybrid cloud deployments
 - 3 Virtualized storage environments

OpenZFS Vs NetApp ONTAP In FSx

- 1 Latency
 - 1 FSx for NetApp ONTAP <1 ms
 - 2 FSx for OpenZFS <0.5 ms
- 2 Max. throughput per file system
 - 1 FSx for NetApp ONTAP 4-6 GB/s
 - 2 FSx for OpenZFS 10-21 GB/s
- 3 Maximum file system size
 - 1 FSx for NetApp ONTAP Virtually unlimited
 - 2 FSx for OpenZFS 512 TiB
- 4 Client compatibility
 - 1 FSx for NetApp ONTAP
 - 1 Windows
 - 2 Linux
 - 3 macOS
 - 2 FSx for OpenZFS
 - 1 Windows
 - 2 Linux
 - 3 macOS
- 5 Protocol support
 - 1 FSx for NetApp ONTAP
 - 1 SMB
 - 2 NFS
 - 3 iSCSI
 - 2 FSx for OpenZFS
 - 1 NFS
- 6 AWS Compute
 - 1 FSx for NetApp ONTAP
 - 1 EC2
 - 2 ECS
 - 3 EKS
 - 2 FSx for OpenZFS
 - 1 EC2
 - 2 ECS
 - 3 EKS
- 7 Active Directory support
 - 1 FSx for NetApp ONTAP
 - 1 Yes
 - 2 FSx for OpenZFS
 - 1 No
- 8 Anti-virus integration
 - 1 FSx for NetApp ONTAP
 - 1 Yes
 - 2 FSx for OpenZFS
 - 1 No
- 9 Deployment options
 - 1 FSx for NetApp ONTAP
 - 1 Single-AZ
 - 2 Multi-AZ
 - 2 FSx for OpenZFS
 - 1 Single-AZ
 - 2 Multi-AZ
- 10 Availability SLA
 - 1 FSx for NetApp ONTAP
 - 1 Single-AZ: 99.9%
 - 2 Multi-AZ: 99.99%
 - 2 FSx for OpenZFS
 - 1 Single-AZ: 99.5%
 - 2 Multi-AZ: 99.99%