AWS Storage: Overview, Types & Benefits

Cloud Storage Overview

Cloud storage is a cloud computing model that stores data on the Internet through a cloud computing provider that manages and operates data storage as a service. It's delivered on-demand with just-in-time capacity and costs and eliminates buying and managing your own data storage infrastructure.

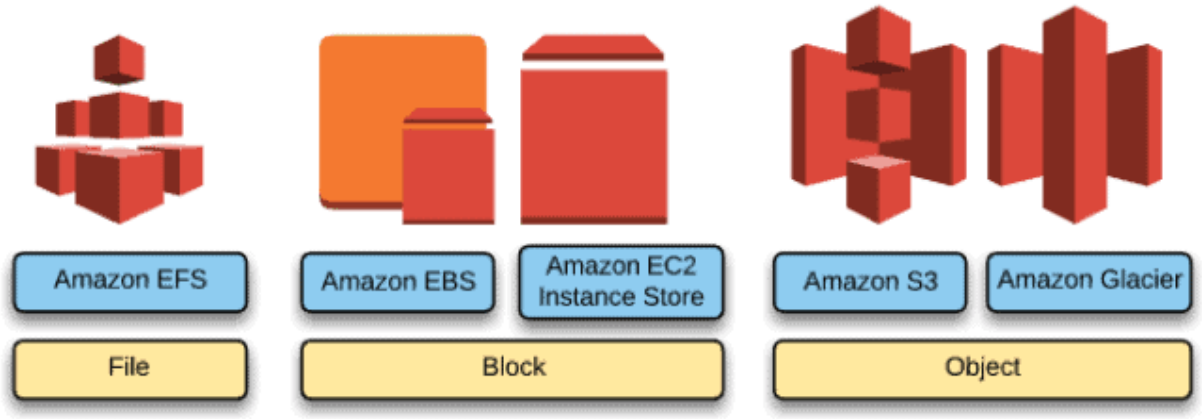
There Are 3 Types of Cloud Storage

1. Object Storage – Applications developed within the cloud often cash in on object storage's vast scalability and metadata characteristics. Object storage solutions like **Simple Storage Service (Amazon S3)** and **Amazon Glacier** are ideal for building modern applications from scratch that need scale and adaptability, and may even be wont to import existing data stores for analytics, backup, or archive.

2. File Storage – Many applications got to access shared files and need a filing system. this sort of storage is usually supported with a Network Attached Storage (NAS) server. File storage solutions like **Elastic File System (Amazon EFS)**are ideal to be used in cases like large content repositories, development environments, media stores, or user home directories.

3. Block Storage – Other enterprise applications like databases or ERP systems often require dedicated, low-latency storage for every host. this is often analogous to direct-attached storage (DAS) or a cargo area Network (SAN). Block-based cloud storage solutions like **Elastic Block Store (Amazon EBS)** and **EC2 Instance Storage**

Storage Offered By Amazon Web Services (AWS)



Security

Initially, Glacial data can only be accessed by the account owner/admin, however, access control can be set up for other people by defining access rules in AWS Identity and Access Management (IAM) service. Glacier uses server-side encryption to encrypt all data. Lockable policies can be defined to lock vaults for long-term records retention.

	S3 Standard	S3 Standard IA	S3 One Zone-IA	S3 Glacier
Designed for durability	99.99999999%	99.99999999%	99.99999999%	99.99999999%
Designed for availability	99.99%	99.9%	99.5%	N/A
Availability SLA	99.9%	99%	99%	N/A
Availability zones	>=3	>=3	1	>=3
Minimum capacity charge per object	N/A	128KB	128KB	40KB
Minimum storage duration charge	N/A	30 days	30 days	90 days
Retrieval fee	N/A	per GB retrieved	per GB retrieved	per GB retrieved
First byte latency	milliseconds	milliseconds	milliseconds	Select minutes or hours
Storage type	Object	Object	Object	Object
Lifecycle transitions	Yes	Yes	Yes	Yes

Elastic Block Store (Amazon EBS)

imilar to EFS, EBS volumes are network file systems. Volumes get automatically replicated within Availability Zones for high availability and durability.

Usage

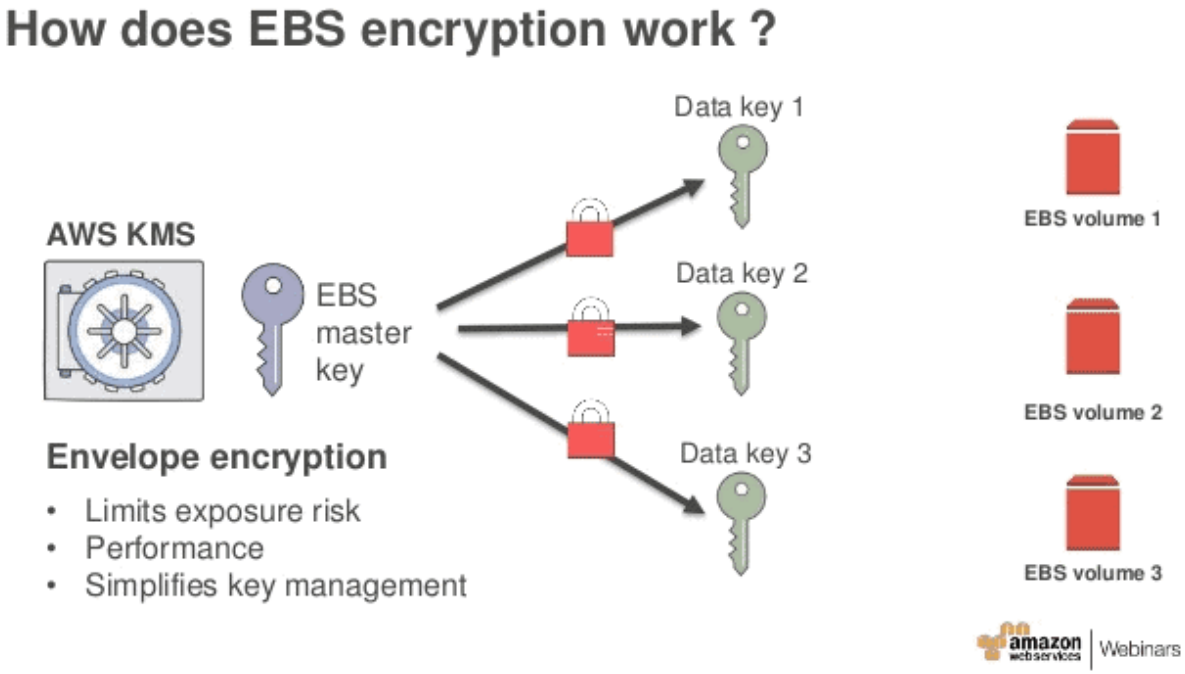
It is durable block-level storage to be used with EC2 instances in the AWS cloud. EBS Volumes are used by mounting them onto an EC2 instance as you will do with a physical hard drive on-premise and then formate the EBS volume to the desired file system. EBS allows for dynamically increasing capacity, and performance tuning and you can even change the type of volume with any downtime or performance impact.

Features

EBS allows for saving point-in-time snapshots of volumes to increase the durability of the data stored. Each separate volume can be configured as EBS General Purpose (SSD), Provisioned IOPS (SSD), Throughput Optimized (HDD), or Cold (HDD) as needed.EBS Volumes have a very low failure rate of about 0.1 to 0.2 percent.

Security

IAM policy is needed to be defined to allow access to EBS volumes. Coupled with encryption for data-at-rest and data-in-motion security it offers a strong defense-in-depth security strategy for your data.



EC2 Instance Storage

EC2 Instance storage provides temporary block-level storage for EC2 instances.

Usage

Instance storage volumes are ideal for the temporary storage of data that changes frequently like buffers, queue caches, and scratch data. It can only be employed by one EC2 instance meaning volumes can't be detached and attached to a different instance.

Features

Uses SSDs to deliver high random I/O performance, not intended to be used as durable disk storage. Data durability is provided through replication, or by periodically copying data to durable storageData on EC2 volume and only persists during the lifetime of the EC2 instance that it's been related to

Security

IAM policy is required to be defined to permit secure control to users for performing operations like the launch and termination of EC2 instances. When you stop or terminate an instance, the applications and data are erased and thus making the info inaccessible to a different instance in the future.

Amazon FSx

Amazon FSx is a completely managed third-party file system solution. Amazon FSx utilizes SSD storage to provide fast performance with low latency.

It provides two file systems to choose from:

- Amazon FSx for Windows File Server
- Amazon FSx for Lustre

Usage

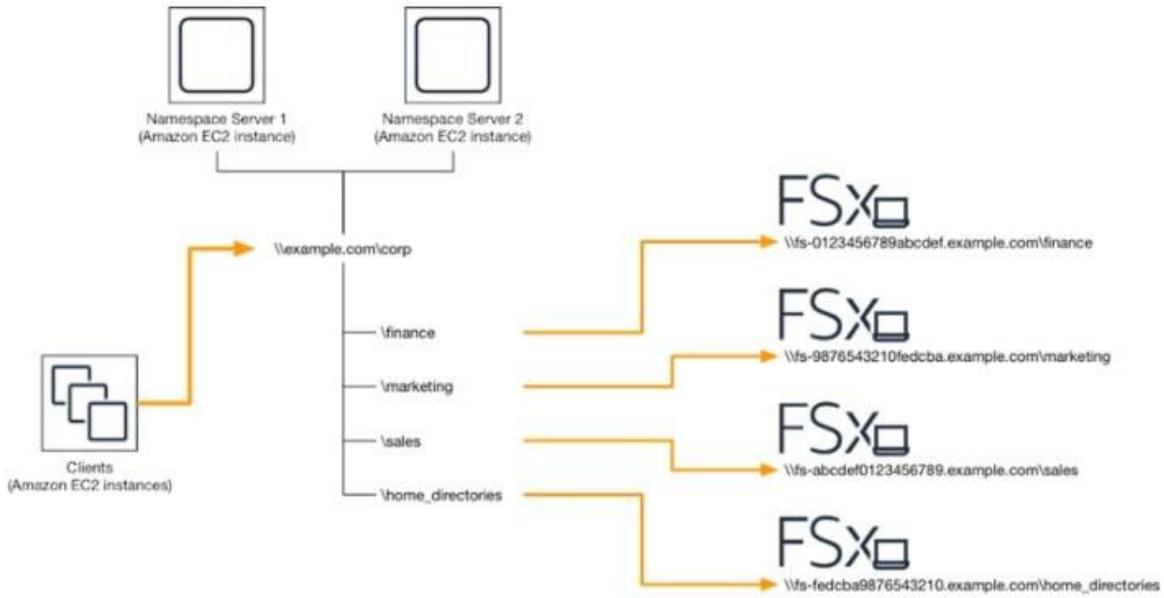
With the use of Amazon FSx, you can utilize the rich feature sets and fast performance of widely-used open source and commercially licensed file systems, while avoiding time-consuming administrative tasks like hardware provisioning, software configuration, patching, and backups. FSx provides cost-efficient capacity with high levels of reliability and integrates with a broad portfolio of AWS services to enable faster innovation.

Features

Amazon FSx provides a wide range of Solid-State Disk (SSD) and Hard Disk Drive (HDD) storage options enabling you to optimize storage price and performance for your workload requirements. It delivers sustained high read and writes speeds and consistent low-latency data access.

Security

It automatically encrypts your data at rest using AWS KMS and in transit using SMB Kerberos session keys. It is designed to meet the highest security standards and has been assessed to comply with ISO, PCI-DSS, and SOC compliance, and is HIPAA eligible.



Benefits Of AWS Storage

- No upfront cost it is a pay-as-you-go model.
- Worldwide access: You can access all your data worldwide just by using an internet connection
- Storage can be increased or decreased with changes in data size.
- Low-cost data storage with high durability and high availability
- Plenty of choices for backing/archiving data in case of disaster recovery.