

AMAZON WEB SERVICES

By – Mr. Ram Rawat





CHAPTER-2

Storage Services in AWS

What is Cloud Storage

- Cloud storage is a way to save your files and data on the internet instead of on your computer's hard drive.
- Think of it like renting a digital locker in a secure warehouse. You can put your files in it and access them from anywhere, as long as you have an internet connection.

Types of Cloud Storage

1. **Object Storage:** Best for large amounts of unstructured data, like images, videos, and backups.
 - Object storage is a way to **store files and data in the cloud** where each file (called an *object*) is stored along with information about it (called *metadata*) and a unique ID.
 - Instead of storing files in **folders** like your computer does, object storage puts everything into a big **flat storage pool** and uses IDs + metadata to keep track of them.
 - Example: Amazon S3 (Simple Storage Service), Google Cloud Storage

Types of Cloud Storage

Example:

Think of a **library**:

- In a normal library (like your laptop's file system), books are arranged in **sections, shelves, folders**.
- In object storage (like cloud), every book is put into **one big hall**, and each book has a **barcode + card** with details (author, title, genre).
- When you need the book, you don't search shelves; you just scan the **barcode** and the system gives it to you instantly.

That's how object storage works — no complicated folder structure, just unique IDs and metadata.

Types of Cloud Storage

2. Block Storage: Used for data that needs fast access and is structured, like the data on your computer's hard drive..

- Think of **block storage** like a **hard disk (C drive, D drive, etc.)** inside your computer.
- Data is stored in small fixed-size chunks called **blocks**.
- Each block has a unique ID, and the system can read/write data quickly from any block.
- Example: For virtual machines (VMs) → when you create a VM in the cloud, its OS and apps are stored on block storage.

Types of Cloud Storage

Example:

- Imagine you have a **notebook** :
- Each page of the notebook = a **block**.
- You can write on any page, erase, or update it.
- The notebook doesn't care what you write — text, numbers, drawings — it just stores it.
- Similarly, block storage doesn't care about file type, it just stores raw data in blocks.



Types of Cloud Storage

3. **File Storage:** Works just like the file system on your computer, with folders and files organized in a hierarchy.
- File storage in cloud computing means saving your files (like photos, videos, documents, PDFs, etc.) on the **internet (cloud servers)** instead of just your computer or phone.
 - Think of it as a **digital cupboard** where you can keep all your files safe, and open that cupboard anytime from any device, anywhere in the world — as long as you have internet.
 - Example: Google Drive, OneDrive, Dropbox

Types of Cloud Storage

Example:

Imagine you keep your important documents in a **locker at a bank**:

- You can go anytime to take them out or put new ones in.
- You can even give access to your family/friends if needed.
- The bank takes care of **security and backup**.

Cloud file storage works the same way, but digitally.



AWS Storage Services

1. **Amazon S3:** Amazon S3 is an object storage service. It's used to store and protect any amount of data. You can use it for websites, backups, and data for applications.
 - It's scalable → No matter if you store 1 file or 1 billion files.
 - It's secure → Your data is protected and can be restricted with permissions.
 - It's accessible → You can access your files from anywhere in the world through the internet.
 - It's durable → AWS claims 99.999999999% (11 nines) durability, meaning your files are almost never lost.



AWS Storage Services

Various Storage Classes of S3

1. S3 Standard

- For frequently accessed data (daily-use files). Fastest access speed.
- Higher cost compared to others.
- Example: Hosting images for a website or videos that users stream daily.

2. S3 Intelligent-Tiering

- **Smart locker** → Automatically moves data between “frequent access” and “infrequent access” based on usage.
- Saves money without manual effort.
- Example: If you upload office reports, some are opened daily and some rarely → S3 auto-shifts rarely used reports to cheaper storage.

AWS Storage Services

3. S3 Glacier

- For archival (very rarely accessed data).
- Very cheap storage, but retrieval takes minutes to hours.
- Example: Old tax records, old project files.

AWS Storage Services

2. Amazon EFS (Elastic File System):

- Amazon EFS is a file storage service that's used with EC2 instances. It's a scalable, shared file system that multiple virtual machines can access at the same time.
- Imagine having a shared network folder that everyone in your team can use, and it automatically gets bigger or smaller as you add or remove files.

AWS Storage Services

2. Amazon EBS (Elastic Block Store): Amazon EBS is a block storage service that provides storage volumes for your EC2 instances. Think of it as a virtual hard drive that you can attach to an EC2 instance.

Key Features:

- It's persistent, meaning your data stays even if the EC2 instance is stopped.
- You can create a snapshot (a backup) of your volume.
- It's used for the main storage of your operating system and application data on an EC2 instance.



PRACTICAL

How to Create An amazon EBS volume?



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. Hosting a Static Website using S3

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