AWS Storage

AWS Storage Types

- Elastic Block Store (EBS)
- Simple Storage Service (S3)
- Elastic File System (EFS)
- S3 Glacier
- Snowball

Block Store

- Block Storage is suitable for transactional databases, random read/write loads and structured database storage.
- Block storage divides the data to be stored in evenly sized blocks (data chunk) for instance, a file can be split into evenly sized blocks before it is stored
- Data blocks stored in block storage would not contain metadata (data created, data modified, content type etc.)
- Block storage only keeps the address (where the data blocks are stored, it does not care what is in that block, just how to retrieve it when required.

Object Storage

- Object storage stores the files as a whole and does not divide them.
- In Object Storage, an object is
  - The file/data itself
  - Its metadata
  - object Global Unique ID
- The Object Global Unique ID, is a Unique Identifier for the Object (can be the Object name itself) and it must be unique such that it can be retrieved disregarding where its physical storage location is.
- Object Storage cannot be mounted as a drive.

Example of Object Storage solutions - Dropbox, AWS S3, facebook.

Simple Storage Service (S3)

- S3 is a storage for the internet it has a simple Web services interface for simple storing & retrieving of any amount of data, anytime from anywhere on the internet
- S3 is Object based storage
- You cannot install Operating System on S3.
- S3 has a distributed data store architecture where objects are redundantly stored in multiple locations
- Data is stored in bucket
- A Bucket is a flat container of Objects i.e., we cannot create nested buckets
- Max capacity of a Bucket is 5TB
- You can create folders in your Bucket
- Bucket ownership is non-transferrable
- You can have upto 100 Buckets per account (may expand on request)

S3 Buckets- Naming Rules

- S3 Bucket names (Keys) are globally unique across all AWS Regions
- Bucket names cannot be change after they are created
- If a bucket is deleted, its name becomes available again to your other account to use.
- Bucket names must be atleast 3 and no more than 63 Characters long.
- Bucket names are part of the URL used to access a bucket.
- Bucket name must be a series of one or more labels
- Bucket names can contain lowercase, numbers and hyphen, cannot use uppercase letter
- Bucket name should not be an IP address (Ex: 10.10.20.20)
- Each label must start and end with a lowercase letter or a number.
- By default, buckets and its objects are private by default, only owner can access the bucket

S3 Buckets- Subresources

- Sub- resources for S3 bucket includes
  - Lifecycle - To decide on objects Lifecycle management
  - Website - To hold configurations related to Static Website hosted in S3 Buckets
  - Versioning - Keep Object Versions as it changes
  - Access Control List - Bucket Policies

The bucket name is simply two parts - Bucket Region's Endpoint / Bucket name

Example for S3 bucket named **newbucket18jan645** in Europe West Region:
https://newbucket18jan645.s3.ap-south-1.amazonaws.com/ImportantDoc.txt

S3 Objects

- Object size stored in an S3 Bucket can be 0 Byte to 5TB.
- Each object is stored and retrieved by a unique key (ID or name)
- An Object in AWS S3 is Uniquely identified and addressed
  - Service endpoint
  - Bucket name
  - Object key (name)
  - Optionally Object Version
- Object stored in a S3-bucket in a Region will never leave that Region unless you specifically move them to another Region
- A Bucket Owner can grant cross-account permissions to another AWS account (or users in another account) to upload objects
- You can grant S3 bucket/Object permission to:
  - Individual Users
  - AWS Account
  - Make the resource public
  - or to all authenticate user