MODULE 7: Storage

1. Elastic Block Storage (EBS)
2. Simple Storage Service (S3)
3. Elastic File System (EFS)
4. S3 Glacier

Object storage: The entire file must be updated.
Block storage: We can change or update.

1. Elastic Block Storage (EBS)

➔ Enables you to create individual storage volumes and attach them to EC2 Instances.
➔ Offers block level storage.
➔ Volumes are automatically replicated within its availability zones and it can be backed up automatically to S3 through Snapshot.
➔ Solid State Drive (SSD).
➔ Hard Disk Drive (HDD).

Features
➔ Snapshot
➔ Elasticity
➔ Encryption

EBS Volume
➔ Create a volume for an instance

2. Simple Storage Service (S3)

➔ Data is stored as objects in buckets.
➔ You have virtually unlimited storage but a single object is limited to 5 TB.
➔ Granular access to buckets and objects.

Classes of S3
➔ S3 Standard
➔ S3 Intelligent Tiering
➔ Standard Infrequent Access
➔ S3 OneZone Infrequent Access
➔ S3 Glacier
➔ S3 Glacier Deep Archive

Upload
➔ Create a bucket in the AWS region.
➔ Upload almost any number of objects to the buckets.
➔ Access the data anywhere through AWS management console, AWS CLI, SDK.

Common use case
➔ Storing application assets
➔ Static web hosting
➔ Backup and disaster recovering
➔ Staging area for Big data

Pricing
➔ Pay for only what you use
➔ GB per month
➔ **5 request:** put, copy, post, list , get

3. Elastic File System

➔ File storage in AWS cloud
➔ Shared storage
➔ Elastic capacity
➔ Supports Network File System (NFS)
➔ Compatible with all linux based Amazon Machine Images (AMI)

Implementation
➔ Create an EC2 resource and launch an EC2 instance.
➔ Create EFS.
➔ Create mount targets in appropriate subnets.
➔ Connect your instance to mount target.
➔ Verify the resource and the protection of your AWS account.

4. S3 Glacier

➔ Data archiving service that is designed for security, durability, an extremely low cost data back up.
➔ After 30 days, all data in S3 buckets transfers in this.
➔ After 5 years, the data will be deleted.

3 Retrieval
➔ **Standard:** 3 hours to 5 hours
➔ **Bulk:** 5 hours to 12 hours
➔ **Expedited:** 1 minute to 5 minutes

S3 lifecycle policies enable the user to delete or move objects based on age.
S3 standard: after 30 days, it moves to Standard Infrequent Access, after 60 days, it moves to S3 glacier, in 365 days, data is deleted.

Security with S3 Glacier
➔ Control access with IAM.
➔ S3 Glacier encrypts your data with AES-256.
➔ Manage your keys for you.