Day 9 - AWS Storage Services: EBS & S3

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What is Amazon EBS?

- Block-level storage for EC2 instances
- Acts like a virtual hard disk
- Used for databases, logs, and apps

EBS Volume Types

- gp3 – General purpose (default)
- io1/io2 – High-performance IOPS
- st1 – Throughput-optimized HDD
- sc1 – Cold HDD (low cost)

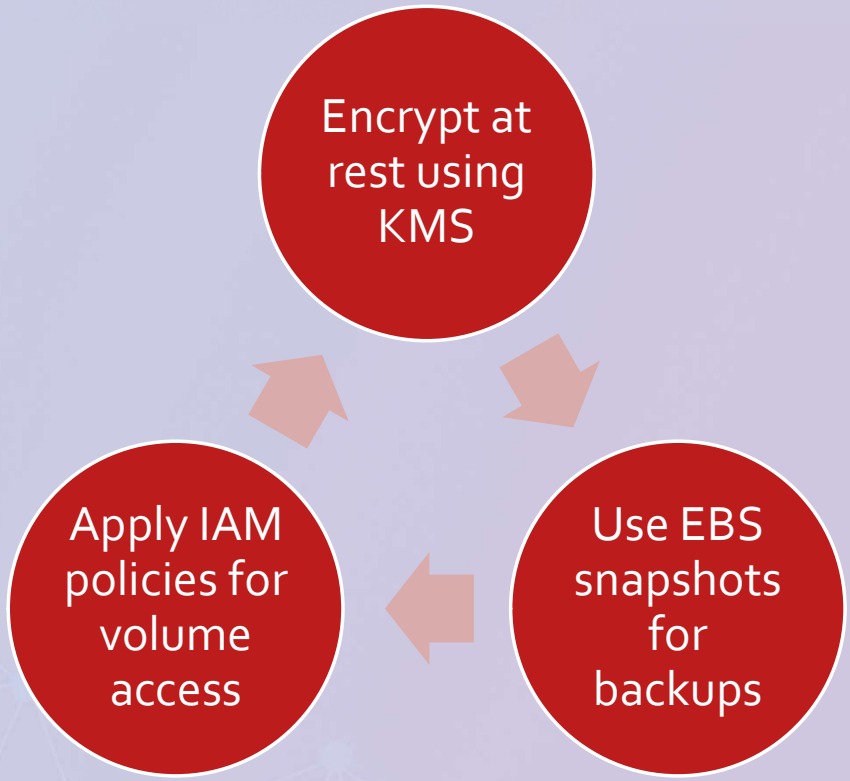
EBS Hands-On (CLI)

Create volume: aws ec2 create-volume

Attach to EC2: aws ec2 attach-volume

Format & mount inside EC2 instance

EBS Security Best Practices



What is Amazon S3?

Object storage for any data	Stores objects in buckets	Access data from anywhere

S3 Key Features

- Durable (99.999999999%) and scalable
- Secure with IAM and bucket policies
- Supports static website hosting
- Event notifications and triggers

S3 Storage Class

Volume Type	Description	Ideal Use Case
gp3 (General SSD)	Balanced performance/cost. Configurable IOPS.	Boot volumes, dev/test, general workloads.
io2/io1 (Provisioned)	High IOPS & durability	Databases, mission-critical apps.
st1 (Throughput HDD)	High throughput, low IOPS	Big data, data lakes, log processing.
sc1 (Cold HDD)	Lowest-cost HDD, low throughput & IOPS	Archival, rarely accessed data.
magnetic (Legacy)	Previous-gen HDD (deprecated)	Rarely used.

S3 Hands-On (CLI)

- Create bucket: aws s3api create-bucket
- Upload: aws s3 cp
- Sync: aws s3 sync ./localdir s3://bucket

S3 Security Best Practices

- Keep buckets private
- Enable encryption (SSE-S3 or SSE-KMS)
- Use versioning and logging
- Apply lifecycle rules for storage class transitions

Real-World Scenarios

- Store logs in S3 for analysis
- Use EBS for PostgreSQL database storage
- Host static website with S3 + CloudFront
- Terraform backend: S3 with versioning + DynamoDB