Interview questions on EBS

1. What is Amazon EBS and how does it differ from instance store volumes?

Imagine EC2 as a laptop.

- EBS (Elastic Block Store) = External hard drive. You can plug/unplug it, and it keeps data even when the laptop is shut down.
- Instance Store = Laptop's RAM. It works fast, but when you shut down or restart, all data is gone.

- EBS = durable block storage attached to EC2.
- Data persists even after instance stops.

Use case:

- Use **EBS** to store important files like databases, documents, media.
- Use **Instance Store** for temporary files, cache, buffer, or processing intermediate data.

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2. What are the different types of EBS volumes (gp2, gp3, io1, io2, st1, sc1)? When would you use each?

Volume Type		Analogy/ like	Use Case
gp3	General SSD	Newer, efficient USB drive	Default for most workloads: apps, dev/test, general use
gp2	Older General SSD	Older USB drive that speeds up when used often	Still used but being replaced by gp3
io1/io2	Provisioned SSD	High-end SSD for gaming or video editing	High-performance DBs like Oracle, MS SQL
st1	Throughput HDD	External hard drive used for large file transfers	Logs, big data, streaming workloads
sc1	Cold HDD	Cheap, slow archival disk	Infrequent access, backups, archive

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3. What happens to EBS volumes when an EC2 instance is terminated?

- If "Delete on termination" is **enabled**, EBS volume is deleted.

- If **disabled**, volume persists and can be reattached.
- Root volumes often deleted; data volumes usually retained.

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3. How do EBS snapshots work and what are their benefits?

Snapshots = photocopies of your pen drive (EBS) saved in cloud storage (S3).

- First snapshot = full copy.
- Next ones = just the changes (like only copying new pages in a book).

- Snapshots = backups of EBS volumes to S3.
- First is full backup; others are incremental.
- Use for backup, restore, cloning, and AMI creation.
- Stored in S3; can copy across regions.

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5. How can you encrypt an EBS volume? What happens to its snapshots?

- Enable encryption at volume creation or copy an unencrypted snapshot.
- Uses AWS KMS keys.
- Snapshots of encrypted volumes are also encrypted.
- Cannot directly share encrypted snapshots across accounts without permissions.

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6. How do you monitor EBS performance using CloudWatch? What metrics do you track?

- Use CloudWatch metrics:
  - **VolumeReadOps / VolumeWriteOps** → IOPS
  - **VolumeThroughput** → Read/Write bytes/sec
  - **VolumeQueueLength** → pending I/O
  - **VolumeIdleTime / Latency** → delays
- Set alarms for thresholds.

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7. What's the difference between EBS and instance store in terms of durability and persistence?

- **EBS**: Persistent, durable, survives stop/start.
- **Instance store**: Ephemeral, lost on stop/reboot/terminate.
- EBS replicated within AZ for durability; instance store is not.

1. Which of the following best describes Amazon EBS?

A. Temporary storage tied to EC2 that is lost on reboot
B. Durable block storage that persists across stop/start
C. AWS object storage used for backups
D. File-level storage shared between instances
Answer: **B**

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2. What happens to data in instance store volumes when an EC2 instance is stopped or terminated?

A. It is saved in an S3 bucket
B. It is automatically backed up
C. It is lost permanently
D. It is copied to EBS
Answer: **C**

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3. Which EBS volume type is best for high-performance databases that require consistent IOPS?

A. gp2
B. io1/io2
C. sc1
D. st1
Answer: **B**