**QUESTIONS?**

1. What is EBS?
2. What is Security in EBS and its purpose?
3. What are the problems in Security Group?
4. What is AMI?
5. Different types of AMI?
6. How to Attach and Detach …….
7. What is Elastic Ip?
8. Why we provide elastic ip to EC2?
9. What’s the difference between public and Private IP?
10. What’s the importance of IP that we assign to EP2?
11. What are the use of cases?
12. Where we provide public ip, private ip and elastic ip to EC2?
13. Can we provide public ip to EC2 machine?
14. What is subnet?
15. How to create subnet?
16. What is NACL?
17. Difference between NACL and Security Group?
18. What is Route Table?
19. What is CIDR?
20. What is IP Range in Subnet?
21. What are the IP Range Available?
22. Classes in Network
23. How to overall skip EC2 scalable?
24. What’s the difference between stack and Template?
25. What is drift, template, stack, changeset?

**EBS**

Elastic Block Store (EBS) is a block storage service based in the AWS cloud. EBS stores huge amounts of data in blocks, which work like hard drives (called volumes). You can use it to store any type of data, including file systems, transactional data, NoSQL and relational databases, backup instances, containers, and applications.

EBS is offered through the AWS platform, and requires an AWS account. The platform enables you to optimize performance and pricing. For example, you can change the volume size and type, and delete redundant volumes. From the platform, you can configure backup and recovery options for your data.

What Is an EBS Volume?

An EBS volume is a device that works like a hard drive. You can use EBS volumes for creating file systems, storing databases, or running applications. Here are the most common use cases for EBS volumes:

* **Frequent updates** — storage of data that needs frequent updates. For example: database applications, and instances’ system drives.
* **Throughput-intensive applications** — that need to perform continuous disk scans.
* **EC2 instances** — once you attach an EBS volume to an EC2 instance, the EBS volume serves the function of a physical hard drive.

Types of EBS Volumes

The performance and pricing of your EBS storage will be determined by the type of volumes you choose. Amazon EBS offers four types of volumes, which serve different functions. Here are the key features you should know before choosing a volume type:

**Solid State Drives (SSD)-based volumes**

* **General Purpose SSD (gp2)** — the default EBS volume, configured to provide the highest possible performance for the lowest price. Recommended for low-latency interactive apps, and dev and test operations.
* **Provisioned IOPS SSD (io1)** — configured to provide high performance for mission-critical applications. Ideal for NoSQL databases, I/O-intensive relational loads, and application workloads.

**Hard Disk Drives (HDD)-based volumes**

* **Throughput Optimized HDD (st1)** — provides low-cost magnetic storage. Recommended for large, sequential workloads that define performance in throughput.
* **Cold HDD (sc1)** — uses a burst model to adjust capacity, thus offering the cheapest magnetic storage. Ideal for cold large sequential workloads.

**SOURCE-** <https://medium.com/@eddies_47682/what-is-ebs-b6b2a8e33442>

**Security in EBS –**

When a volume is defined as an encrypted volume, EBS sends a request to KMS asking for a Data Encryption Key. The DEK is generated AND encrypted by the Customer Master Key, which by default will be a unique, regional CMK provided by AWS unless otherwise specified. The encrypted DEK is then stored with the metadata on the EBS volume.

It’s important to point out that no data has been encrypted up to this point. So far only the Data Encryption Key has been encrypted. The data encryption process is driven from the EC2 instance, not the EBS volume, so your data will be encrypted when it is connected to an associated EC2 instance.

Source - <https://cloudacademy.com/blog/how-to-encrypt-an-ebs-volume-the-new-amazon-ebs-encryption/>

AMI

An Amazon Machine Image (AMI) is a [master image](https://searchservervirtualization.techtarget.com/definition/golden-image) for the creation of virtual servers -- known as [EC2](https://searchaws.techtarget.com/definition/Amazon-Elastic-Compute-Cloud-Amazon-EC2) instances -- in the Amazon Web Services ([AWS](https://searchaws.techtarget.com/definition/Amazon-Web-Services)) environment.

The machine images are like templates that are configured with an operating system and other software that determine the user's operating environment. AMI types are categorized according to region, operating system, system [architecture](https://whatis.techtarget.com/definition/architecture) -- 32- or 64-bit -- launch permissions and whether they are backed by Amazon Elastic Block Store ([EBS](https://searchaws.techtarget.com/definition/Amazon-EBS-Amazon-Elastic-Block-Store)) or backed by the instance store.

Each AMI includes a template for the root [volume](https://searchstorage.techtarget.com/definition/volume) required for a particular type of instance. A typical example might contain an operating system, an application server and applications. Permissions are also controlled to ensure that AMI launches are restricted to the appropriate AWS accounts. [Block](https://searchsqlserver.techtarget.com/definition/block) device mapping ensures that the correct volumes are attached to the launched instance.

**Diff between Public IP and Private IP**

**Public IP**

* Public IP means the machine can be identified on the internet(WWW)
* Must be unique across the whole web (not two machines can have the same public IP)
* Can be geo-located easily

**Private IP**

* Private IP means the machine can only be identified on a private network only
* The IP must be unique across the private network
* But two different private networks (two companies) can have the same IPs
* Machines connect to WWW using an internet gateway (a proxy)
* Only specified range of IPs can be used as private IP

**Elastic IP**

* When you stop and then start an EC2 instance, it can change its public IP
* If you need to have a fixed public IP for your instance, you need an Elastic IP
* An Elastic IP is a public IPv4 IP you own as long as you don’t delete it
* You can attach it to one instance at a time
* With an Elastic IP address, you can mask the failure of an instance or software by rapidly remapping the address to another instance in your account
* You can only have 5 Elastic IP in your account (You can ask AWS to increase that)

**Purpose of Elastic IP/Static IP**

When create a new instance then AWS automatically assigns a Public IP to your Instance.

So whenever we restart our instance, the Public IP automatically changes every time we relaunch.

So to overcome this, AWS has a service of Elastic IP in which We create our own Elastic IP to our AWS account and then assign it to our instance and if we restart our instance, it remains fixed.

An Elastic IP address is allocated to your AWS account, and is yours until you release it. By using an Elastic IP address, you **can mask the failure of an instance or software by rapidly remapping the address to another instance in your account**.