**What is an Amazon EBS Volume?**

Amazon EBS Volume

* Elastic Block Store volume is a **block level storage device** that can be associated with an EC2 instance
* EBS Volumes can be used as both **primary storage** and **secondary storage**
* The **primary EBS volume** acts as **root volume** and should be created and attached to the **instance at the time of instance launch.**Storage can be increased in the future if needed. This primary EBS volume cannot be detached from the instance.
* The **secondary volume** can be **attached, detached and modified at any time.**
* An **instance** can have **one primary EBS** volume and **n number of secondary volumes**
* **One EBS Volume** can be only associated with **one instance**
* There are 5 types of EBS volumes:
  + **General Purpose SSD (gp2)**- Provides **balance of both price and performance** and is generally chosen by default
  + **Provisioned IOPS SSD (io1)**-- Most expensive of the volume types with **highest performance** and well-suited for tasks with **heavy workloads**
  + **Throughput Optimized HDD (st1)**- A low-cost volume that focuses on optimizing throughput and is generally used for**large sequential workloads** dealing with big data warehouses. These volumes**cannot be used as root volumes** for EC2 instances.
  + **Cold HDD (sc1)**- least expensive of the volume types and specifically designed for **workloads** which are **accessed less frequently.**These volumes also**cannot be used as root volumes** for EC2 instances.
  + Magnetic (Standard) Previous generation magnetic volumes which **cannot be used as root volumes** for EC2 instances

Resizing EBS Volumes

* In this digital world of **ever enlarging data** it’s not enough to build solutions with hard-coded amount of storage that cannot scale.
* If the volume associated with the EC2 instance fills up, we have to increase the side of the volume.

Advantages of using EBS Volumes

* **High availability** and **flexibility**
* **Data** can be kept **persistently on a file system** even after shut downing the instance
* Enables **snapshots,** which capture the data stored at a point in time and can be restored at any time.
* The snapshots enables us to **create a volume and attach it** to another instance if needed.
* Can be**resized** at any time as and when required
* Comes equipped with encryption (and encryption-at-rest).
* EBS Volumes can be **attached, detached and associated** with other instances at any point in time (exception the primary volume)