**1. What are the various types of EBS volumes?**

**Answer**: There are five types of EBS volumes available as below:

General Purpose SSD (gp2)

SSD (Solid State Drive) is the volume with which EC2 chooses as the root volume of your instance by default. For small input/output operations, SSD is many times faster than HDD (Hard Disk Drive). It gives a balance between price and performance (measured in IOPS - Input-Output Operations per second).

Provisioned IOPS SSD (io1)

This is the most expensive and fastest EBS volume. They are intended for I/O-intensive applications like large Relational or NoSQL databases.

Throughput Optimized HDD (st1)

These are low-cost magnetic storage volumes whose performance is measured in terms of throughput.

Cold HDD (sc1)

These are even less expensive magnetic storage options than Throughput Optimized. They are intended for large, sequential cold workloads, such as those found on a file server.

Magnetic (standard)

These are older generation magnetic drives that are best suited for workloads with infrequent data access.

**2. What is Amazon Machine Images (AMI) in AWS?**

**Answer**: An Amazon Machine Image (AMI) contains all of the information needed to launch an instance. When you launch an instance, you must specify an AMI.

**3. What is EBS block device?**

**Answer**: A block device mapping specifies which block devices (instance store volumes and EBS volumes) should be associated with an instance. When creating an AMI, you can specify a block device mapping will be used by all instances launched from the AMI.

**4. What is the maximum size of an EBS storage device?**

**Answer**: 16 TiB

The maximum volume size supported by EBS at the moment is 16 TiB. This implies how you can create an EBS volume with a capacity of up to 16 TiB, but whether the OS recognises all of that capacity is dependent on the OS's own design characteristics and how the volume is partitioned.

**5. How to allow an EBS volume available with no downtime and attach it to an EC2 instance when the EBS volume fails?**

**Answer**: You can add a load balancer and auto scaling, which will allow an EBS volume available with no downtime, and if the ec2 instance goes down due to autoscaling, a new instance will be created, and you can add commands to map to the EBS in the shell script. And when the EBS volume fails, we can take regular backups and replace the EBS with the most recent backup or snapshot if it fails.

**6. How to list information about AWS volumes?**

**Answer**: You can use below command to list information about AWS volumes

aws ec2 describe-volumes --query "Volumes[\*].Tags[?Key=='Name'].Value"

**7. How to attaching external disk to aws cluster Kubernetes?**

**Answer**: volumeID: This is the identifier for the AWS volume that will be used.

Obtain the volume ID assigned to our instance using the AWS CLI.

Command:

aws ec2 describe-volumes

If the pod creation with the volume attached was successful (the state of the ebs volume will change from "available" to "in-use" in the AWS console), we could simply run kubectl describe pod and it should appear in Volumes with a VolumeID similar to what you have in AWS.

Example:

apiVersion: "v1"

kind: "PersistentVolume"

metadata:

name: "pv0001"

spec:

capacity:

storage: "5Gi"

accessModes:

- "ReadWriteOnce"

awsElasticBlockStore:

fsType: "ext4"

volumeID: "vol-f37a03aa"

**8. What is Amazon Elastic Block Store (EBS)?**

**Answer**: Amazon Elastic Block Store (EBS) is a block level storage volume provided by AWS platform for use with Amazon Elastic Cloud Compute (EC2) instances.

Once Amazon Elastic Block Store (EBS) is mounted on to an EC2 instance, you can use it for a wide variety of purposes such as - for file systems, relational databases, non-relational databases, containerized applications, big data analytics etc.

**9. What are the different volume types provide by Amazon Elastic Block Store (EBS)?**

**Answer**: Amazon Elastic Block Store (EBS) provides multiple volume types that you can choose based on your storage, performance and cost needs.

The volume types fall into two broad categories

1. SSD-backed storage - suitable for transactional, high-performant workloads

2. HHD-backed storage suitable for throughput intensive workloads such as bid-data analysis.

**10. What is Elastic Block Store?**

**Answer**: Amazon Elastic Block Store (EBS) is a block storage system used to store persistent data. Amazon EBS is suitable for EC2 instances by providing highly available block level storage volumes. It has three types of volume, i.e. General Purpose (SSD), Provisioned IOPS (SSD), and Magnetic. These three volume types differ in performance, characteristics, and cost. Amazon Elastic Block Store (EBS) provides block level storage volumes for use with Amazon EC2 instances. Amazon EBS volumes are off-instance storage that persists independently from the life of an instance. Amazon Elastic Block Store (EBS) is an easy to use, high-performance, block-storage service designed for use with Amazon Elastic Compute Cloud (EC2) for both throughput and transaction intensive workloads at any scale. Amazon EBS is used to provide block level storage volumes for use with AWS EC2 instances, EBS volumes are off instance storage that persists independently from the life of an instance. It is easy to use gives high performance, block storage service designed in using with AWS EC2 for throughput and transaction intensive workloads at any scale.

Elastic Block Store is used for storing persistent data and providing highly available block level storage volumes. It has three types of volume:

General Purpose (SSD)

Provisioned IOPS (SSD)

Magnetic

**11. What are the benefits of Amazon EBS?**

**Answer**: Reliable and secure storage - Each of the EBS volume will automatically respond to its Availability Zone to protect from component failure. Secure - Amazon's flexible access control policies allow to specify who can access which EBS volumes. Access control plus encryption offers a strong defense-in-depth security strategy for data. Higher performance - Amazon EBS uses SSD technology to deliver data results with consistent I/O performance of application. Easy data backup - Data backup can be saved by taking point-in-time snapshots of Amazon EBS volumes. Benefits of Amazon EBS are as follows:

Reliable and Secure Storage - It automatically respond to its availability zone protecting from component failure.

Secure - It allows us to specify access EBS volumes.

Higher Performance - Delivers data results with consistent performance.

Easy Data Backup - Takes taking point-in-time snapshots of Amazon EBS volumes.

**12. What are the types of EBS Volume?**

**Answer**: EBS General Purpose (SSD) This volume type is suitable for small and medium workloads like Root disk EC2 volumes, small and medium database workloads, frequently logs accessing workloads, etc. By default, SSD supports 3 IOPS (Input Output Operations per Second)/GB means 1 GB volume will give 3 IOPS, and 10 GB volume will give 30 IOPS. Its storage capacity of one volume ranges from 1 GB to 1 TB. The cost of one volume is $0.10 per GB for one month. Provisioned IOPS (SSD) This volume type is suitable for the most demanding I/O intensive, transactional workloads and large relational, EMR and Hadoop workloads, etc. By default, IOPS SSD supports 30 IOPS/GB means 10GB volume will give 300 IOPS. Its storage capacity of one volume ranges from 10GB to 1TB. The cost of one volume is $0.125 per GB for one month for provisioned storage and $0.10 per provisioned IOPS for one month. EBS Magnetic Volumes It was formerly known as standard volumes. This volume type is suitable for ideal workloads like infrequently accessing data, i.e. data backups for recovery, logs storage, etc. Its storage capacity of one volume ranges from 10GB to 1TB. The cost of one volume is $0.05 per GB for one month for provisioned storage and $0. 05 per million I/O requests. There are 3 types of EBS Volume:

EBS General Purpose (SSD) volume works for small and medium workloads like Root disc EC2.

Provisioned IOPS (SSD) volume works for the most demanding I/O intensive and large workloads like Hadoop workload.

EBS Magnetic Volumes also known as standard volumes. It works for ideal workloads like data backups and log storage.

**13. How can we change default root EBS size in CloudFormation?**

Answer: Use BlockDeviceMappings to approach

"BlockDeviceMappings": [

{

"DeviceName": "/dev/xvda",

"Ebs": {

"VolumeType": "io1",

"Iops": "300",

"DeleteOnTermination": "false",

"VolumeSize": "30"

}

}

],

**14. How to Set Up Amazon EBS?**

Ans: Use the following steps for setting up Amazon EBS:

STEP 1 - Create Amazon EBS volume.

STEP 2 - Store EBS Volume from a snapshot.

STEP 3 - Attach EBS Volume to an Instance.

STEP 4 - Detach a volume from Instance.

**15. How to Copy files from one EBS to Another EBS?**

Ans: For copying files from one EBS to another EBS we need to attach to an instance and allow storing the files on a third storage option by assuming the volumes not attaching to instances.

Follow the following steps for doing the same:

Start a temporary instance.

Use a larger size for higher IO bandwidth.

Attach both EBS volumes to the instance and mount them as, say, /vol1 and /vol2.

Copy the files from /vol1 to /vol2.

Unmount the volumes, detach the EBS volumes, terminate the temporary instance.

**16. How can we transfer data from an EBS volume to a S3 bucket?**

Ans: To select Users and create an Administrator we can use this code:

aws configure

We have to enter our Access key ID and Secret access key.

aws s3 sync /ebs-directory/ s3://your-bucket