**EBS**

1. In addition to choosing the correct EBS volume type for your specific task, what else can be done to increase the performance of your volume? [Select 3]
   1. Never use HDD volumes, always ensure that SSDs are used.
   2. Ensure that your EC2 instances are types that can be optimized for the use of EBS
   3. Schedule snapshots of HDD based volumes for period of low use.
   4. Stripe volumes together in a RAID 0 configuration.
2. Your EBS volumes do not seem to be performing as expected and your team leader has requested you look into improving their performance. Which of the following is not a true statement relating to the performance of your EBS volumes?

A. Frequent snapshots provide a higher level of data durability and they will not degrade the performance of your application while the snapshot is in progress.

B. General Purpose (SSD) and Provisioned IOPS (SSD) volumes have a throughput limit of 128 MB/s per volume.

C. There is a relationship between the maximum performance of your EBS volumes, the amount of I/O you are drMng to them, and the amount of time it takes for each transaction to complete.

D. There is a 5 to 50 percent reduction in IOPS when you first access each block of data on a newly created or restored EBS volume

3. You need to measure the performance of your EBS volumes as they seem to be under performing. You have come up with a measurement of 1,024 KB I/O but

your colleague tells you that EBS volume performance is measured in IOPS. How many IOPS is equal to 1,024 KB I/O?

A. 16

B. 256

C. 8

D. 4

1. An accountant asks you to design a small VPC network for him and, due to the nature of his business, just needs something where the workload on the network will be low, and dynamic data will be accessed infrequently. Being an accountant, low cost is also a major factor. Which EBS volume type would best suit his requirements?

A. Magnetic

B. Any, as they all perform the same and cost the same.

C. General Purpose (SSD)

D. Magnetic or Provisioned IOPS (SSD)

1. Can a single EBS volume be attached to multiple EC2 instances at the same time?

A. Yes

B. No

C. Only for high-performance EBS volumes.

D. Only when the instances are located in the US region

1. Your organization is in the business of architecting complex transactional databases. For a variety of reasons, this has been done on EBS. What is AWS's recommendation for customers who have architected databases using EBS for backups?

A. Backups to Amazon S3 be performed through the database management system.

B. Backups to AWS Storage Gateway be performed through the database management system.

C. If you take regular snapshots no further backups are required.

D. Backups to Amazon Glacier be performed through the database management system.

1. What happens to Amazon EBS root device volumes, by default, when an instance terminates?

A. Amazon EBS root device volumes are moved to IAM.

B. Amazon EBS root device volumes are copied into Amazon RDS.

C. Amazon EBS root device volumes are automatically deleted.

D. Amazon EBS root device volumes remain in the database until you delete the

1. A user has launched a large EBS backed EC2 instance in the US-East-1a region. The user wants to achieve Disaster Recovery (DR) for that instance by creating another small instance in Europe. How can the user achieve DR?

A. Copy the instance from the US East region to the EU region

B. Use the "Launch more like this" option to copy the instance from one region to another

C. Copy the running instance using the "|nstance Copy" command to the EU region

D. Create an AMI of the instance and copy the AMI to the EU region.

E. Then launch the instance from the EU AMI

1. You have been asked to set up a database in AWS that will require frequent and granular updates. You know that you will require a reasonable amount of storage space but are not sure of the best option. What is the recommended storage option when you run a database on an instance with the above criteria?

A. Amazon S3

B. Amazon EBS

C. AWS Storage Gateway

D. Amazon Glacier

1. With EBS, I can \_\_\_\_\_\_\_\_. [Select 2]
   1. Encrypt an existing volume.
   2. Create an unencrypted volume from an encrypted snapshot.
   3. Create an encrypted snapshot from an unencrypted snapshot by creating an encrypted copy of the unencrypted snapshot.
   4. Create an encrypted volume from a snapshot of another encrypted volume.
2. In Amazon EC2, if your EBS volume stays in the detaching state, you can force the detachment by clicking .

A. Force Detach

B. Detach Instance

C. AttachVoIume

D. Attachlnstance

1. Do you need to shutdown your EC2 instance when you create a snapshot of EBS volumes that serve as root devices?

A. No, you only need to shutdown an instance before deleting it.

B. Yes

C. No, the snapshot would turn off your instance automatically.

D. No

1. A user is running a batch process which runs for 1 hour every day. Which of the below mentioned options is the right instance type and costing model in this case if the user performs the same task for the whole year?

A. EBS backed instance with on-demand instance pricing.

B. EBS backed instance with heavy utilized reserved instance pricing.

C. EBS backed instance with low utilized reserved instance pricing.

D. Instance store backed instance with spot instance pricing

|  |  |  |
| --- | --- | --- |
| No | Answer | Explanation |
| 1 | B, C, D | There are a number of ways you can optimise performance above that of choosing the correct EBS type. One of the easiest options is to drive more I/O throughput than you can provision for a single EBS volume, by striping using RAID 0. You can join multiple gp2, io1, st1, or sc1 volumes together in a RAID 0 configuration to use the available bandwidth for these instances. You can also choose an EC2 instance type that supports EBS optimisation. This ensures that network traffic cannot contend with traffic between your instance and your EBS volumes. The final option is to manage your snapshot times, and this only applies to HDD based EBS volumes. When you create a snapshot of a Throughput Optimized HDD (st1) or Cold HDD (sc1) volume, performance may drop as far as the volume's baseline value while the snapshot is in progress. This behaviour is specific to these volume types. Therefore you should ensure that scheduled snapshots are carried at times of low usage. The one option on the list which is entirely incorrect is the option that states "Never use HDD volumes, always ensure that SSDs are used" as the question first states "In addition to choosing the correct EBS volume type for your specific task". HDDs may well be suitable to certain tasks and therefore they shouldn't be discounted because they may not have the highest specification on paper. |
| 2 | A | Several factors can affect the performance of Amazon EBS volumes, such as instance configuration, I/O characteristics, workload demand, and storage configuration.  Frequent snapshots provide a higher level of data durability, but they may slightly degrade the  performance of your application while the snapshot is in progress. This trade off becomes critical when you have data that changes rapidly. Whenever possible, plan for snapshots to occur during off-peak times in order to minimize workload impact. |
| 3 | D | Several factors can affect the performance of Amazon EBS volumes, such as instance configuration, I/O characteristics, workload demand, and storage configuration.  IOPS are input/output operations per second. Amazon EBS measures each I/O operation per second (that is 56 KB or smaller) as one IOPS. I/O operations that are larger than 256 KB are counted in 256 KB capacity units.  For example, a 1,024 KB I/O operation would count as 4 IOPS.  When you provision a 4,000 IOPS volume and attach it to an EBS-optimized instance that can provide the necessary bandwidth, you can transfer up to 4,000 chunks of data per second (provided that the I/O does not exceed the 128 MB/s per volume throughput limit of General Purpose (SSD) and Provisioned IOPS (SSD) volumes). |
| 4 | A | You can choose between three EBS volume types to best meet the needs of their workloads: General Purpose (SSD), Provisioned IOPS (SSD), and Magnetic. General Purpose (SSD) is the new, SSD-backed, general purpose EBS volume type that we recommend as the default choice for customers. General  Purpose (SSD) volumes are suitable for a broad range of workloads, including small to medium sized databases, development and test environments, and boot volumes. Provisioned IOPS (SSD) volumes offer storage with consistent and low-latency performance, and are designed for I/O intensive applications such as large relational or NoSQL databases. Magnetic volumes provide the lowest cost per gigabyte of all EBS volume types. Magnetic volumes are ideal for workloads  where data is accessed infrequently, and applications where the lowest storage cost is important. |
| 5 | B | You can't attach an EBS volume to multiple EC2 instances. This is because it is equivalent to using a single hard drive with many computers at the same time |
| 6 | A | Data stored in Amazon EBS volumes is redundantly stored in multiple physical locations as part of normal operation of those services and at no additional charge.  However, Amazon EBS replication is stored within the same availability zone, not across multiple zones; therefore, it is highly recommended that you conduct regular snapshots to Amazon S3 for long-term data durability.  For customers who have architected complex transactional databases using EBS, it is recommended that backups to Amazon S3 be performed through the database management system so that distributed transactions and logs can be checkpointed. AWS does not perform backups of data that are maintained on virtual disks attached to running instances on Amazon EC2. |
| 7 | C | By default, Amazon EBS root device volumes are automatically deleted when the instance terminates |
| 8 | D | To launch an EC2 instance it is required to have an AMI in that region. If the AMI is not available in that region, then create a new AMI or use the copy command to copy the AMI from one region to the other region |
| 9 | B | Amazon EBS provides durable, block-level storage volumes that you can attach to a running Amazon EC2 instance. You can use Amazon EBS as a primary storage device for data that requires frequent and granular updates. For example, Amazon EBS is the recommended storage option when you run a  database on an instance |
| 10 | C, D | You cannot create an unencrypted volume from an encrypted snapshot or encrypt an existing volume. |
| 11 | A | If your volume stays in the detaching state, you can force the detachment by clicking Force Detach. |
| 12 | B | Yes, to create a snapshot for Amazon EBS volumes that serve as root devices, you should stop the instance before taking the snapshot. |
| 13 | A | For Amazon Web Services, the reserved instance helps the user save money if the user is going to run the same instance for a longer period. Generally if the user uses the instances around 30-40% annually it is recommended to use RI. Here as the instance runs only for 1 hour daily it is not recommended to have RI as it will be costlier. The user should use on-demand with EBS in this case |