Arch Questions - set 1

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Q01

A company uses AWS Organizations to manage multiple AWS accounts for different departments. The management account has an Amazon S3 bucket that contains project reports. The company wants to limit access to this S3 bucket to only users of accounts within the organization in AWS Organizations. Which solution meets these requirements with the LEAST amount of operational overhead?

A. Add the aws PrincipalOrgID global condition key with a reference to the organization ID to the S3 bucket policy.
B. Create an organizational unit (OU) for each department. Add the aws:PrincipalOrgPaths global condition key to the S3 bucket policy.
C. Use AWS CloudTrail to monitor the CreateAccount, InviteAccountToOrganization, LeaveOrganization, and RemoveAccountFromOrganization events. Update the S3 bucket policy accordingly.
D. Tag each user that needs access to the S3 bucket. Add the aws:PrincipalTag global condition key to the S3 bucket policy.

Q02

A solutions architect is managing an application that runs on a Windows EC2 instance with an attached Amazon FSx for Windows File Server. To save cost, management has decided to stop the instance during off-hours and restart it only when needed. It has been observed that the application takes several minutes to become fully operational which impacts productivity.

How can the solutions architect speed up the instance's loading time without driving the cost up?

1. Disable the Instance Metadata Service to reduce the things that need to be loaded at startup.
2. Migrate the application to a Linux-based EC2 instance.
3. Migrate the application to an EC2 instance with hibernation enabled.
4. Enable the hibernation mode on the EC2 instance.

Q03

A new DevOps engineer has just joined a development team and wants to understand the replication capabilities for RDS Multi-AZ as well as RDS Read-replicas.

Which of the following correctly summarizes these capabilities for the given database?

- ◯ **Multi-AZ follows synchronous replication and spans at least two Availability Zones within a single region. Read replicas follow asynchronous replication and can be within an Availability Zone, Cross-AZ, or Cross-Region**
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Q04

Upon a security review of your AWS account, an AWS consultant has found that a few RDS databases are un-encrypted. As a Solutions Architect, what steps must be taken to encrypt the RDS databases?

- **Enable encryption on the RDS database using the AWS Console**
- **Create a Read Replica of the database, and encrypt the read replica. Promote the read replica as a standalone database, and terminate the previous database**
- **Take a snapshot of the database, copy it as an encrypted snapshot, and restore a database from the encrypted snapshot. Terminate the previous database**
- **Enable Multi-AZ for the database, and make sure the standby instance is encrypted. Stop the main database to that the standby database kicks in, then disable Multi-AZ**

Q05

A company is in the process of migrating its on-premises SMB file shares to AWS so the company can get out of the business of managing multiple file servers across dozens of offices. The company has 200TB of data in its file servers. The existing on-premises applications and native Windows workloads should continue to have low latency access to this data without any disruptions after the migration. The company also wants any new applications deployed on AWS to have access to this migrated data.

Which of the following is the best solution to meet this requirement?

- ○ **Use Amazon FSx File Gateway to provide low-latency, on-premises access to fully managed file shares in Amazon FSx for Windows File Server. The applications deployed on AWS can access this data directly from Amazon FSx in AWS**
- ○ **Use Amazon Storage Gateway's File Gateway to provide low-latency, on-premises access to fully managed file shares in Amazon S3. The applications deployed on AWS can access this data directly from Amazon S3**
- ○ **Use Amazon FSx File Gateway to provide low-latency, on-premises access to fully managed file shares in Amazon EFS. The applications deployed on AWS can access this data directly from Amazon EFS**
- ○ **Use Amazon Storage Gateway's File Gateway to provide low-latency, on-premises access to fully managed file shares in Amazon FSx for Windows File Server. The applications deployed on AWS can access this data directly from Amazon FSx in AWS**

Q06

A company runs a data processing workflow that takes about 60 minutes to complete. The workflow can withstand disruptions and it can be started and stopped multiple times.

Which is the most cost-effective solution to build a solution for the workflow?

- ○ **Use EC2 reserved instances to run the workflow processes**
- ○ **Use AWS Lambda function to run the workflow processes**
- ○ **Use EC2 on-demand instances to run the workflow processes**
- ○ **Use EC2 spot instances to run the workflow processes**

Q07

An ivy-league university is assisting NASA to find potential landing sites for exploration vehicles of unmanned missions to our neighboring planets. The university uses High Performance Computing (HPC) driven application architecture to identify these landing sites.

Which of the following EC2 instance topologies should this application be deployed on?

- ○ **The EC2 instances should be deployed in a spread placement group so that there are no correlated failures**
- ○ **The EC2 instances should be deployed in an Auto Scaling group so that application meets high availability requirements**
- ○ **The EC2 instances should be deployed in a cluster placement group so that the underlying workload can benefit from low network latency and high network throughput**
- ○ **The EC2 instances should be deployed in a partition placement group so that distributed workloads can be handled effectively**

Q08

A company has an On-Demand EC2 instance with an attached EBS volume. There is a scheduled job that creates a snapshot of this EBS volume every midnight at 12 AM when the instance is not used. One night, there has been a production incident where you need to perform a change on both the instance and on the EBS volume at the same time when the snapshot is currently taking place.

Which of the following scenario is true when it comes to the usage of an EBS volume while the snapshot is in progress?

1. The EBS volume cannot be detached or attached to an EC2 instance until the snapshot completes
2. The EBS volume cannot be used until the snapshot completes.
3. The EBS volume can be used while the snapshot is in progress.
4. The EBS volume can be used in read-only mode while the snapshot is in progress.

Q09

A company is hosting a web application on AWS using a single Amazon EC2 instance that stores user-uploaded documents in an Amazon EBS volume. For better scalability and availability, the company duplicated the architecture and created a second EC2 instance and EBS volume in another Availability Zone, placing both behind an Application Load Balancer. After completing this change, users reported that, each time they refreshed the website, they could see one subset of their documents or the other, but never all of the documents at the same time.

What should a solutions architect propose to ensure users see all of their documents at once?

A. Copy the data so both EBS volumes contain all the documents
B. Configure the Application Load Balancer to direct a user to the server with the documents
C. Copy the data from both EBS volumes to Amazon EFS. Modify the application to save new documents to Amazon EFS

D. Configure the Application Load Balancer to send the request to both servers. Return each document from the correct server

Q10

A company troubleshoots the operational issues of their cloud architecture by logging the AWS API call history of all AWS resources. The Solutions Architect must implement a solution to quickly identify the most recent changes made to resources in their environment, including creation, modification, and deletion of AWS resources. One of the requirements is that the generated log files should be encrypted to avoid any security issues.

Which of the following is the provides the most secure solution?

1. Use CloudTrail and configure the destination S3 bucket to use Server Side Encryption (SSE) with AES-128 encryption algorithm.
2. Use CloudTrail and configure the destination Amazon Glacier archive to use Server-Side Encryption (SSE).
3. Use CloudTrail and configure the destination S3 bucket to use Server-Side Encryption (SSE).
4. Use CloudTrail with its default settings.

Answers

Q01 - A
Q02 - 3
Q03 - 1
Q04 - C
Q05 - A
Q06 - 4
Q07 - 3
Q08 - 3
Q09 - C
Q10 - 3