SAP-C02$^{Q\&As}$

AWS Certified Solutions Architect - Professional

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QUESTION 1

An online e-commerce business is running a workload on AWS. The application architecture includes a web tier, an application tier for business logic, and a database tier for user and transactional data management. The database server has a 100 GB memory requirement. The business requires cost-efficient disaster recovery for the application with an RTO of 5 minutes and an RPO of 1 hour. The business also has a regulatory requirement for out-of-region disaster recovery with a minimum distance between the primary and alternate sites of 250 miles.

Which of the following options can the solutions architect design to create a comprehensive solution for this customer that meets the disaster recovery requirements?

A. Back up the application and database data frequently and copy them to Amazon S3. Replicate the backups using S3 cross-region replication, and use AWS Cloud Formation to instantiate infrastructure for disaster recovery and restore data from Amazon S3.

B. Employ a pilot light environment in which the primary database is configured with mirroring to build a standby database on m4.large in Ihe alternate region. Use AWS Cloud Formation to instantiate the web servers, application servers, and load balancers in case of a disaster to bring the application up in the alternate region. Vertically resize the database to meet the full production demands, and use Amazon Route 53 to switch traffic to the alternate region.

C. Use a scaled-down version of the fully functional production environment in the alternate region that includes one instance of the web server, one instance of the application server, and a replicated instance of the database server in standby mode. Place the web and the application tiers in an Auto Scaling group behind a load balancer, which can automatically scale when the load arrives to the application. Use Amazon Route 53 to switch traffic to the alternate region,

D. Employ a multi-region solution with fully functional web. application, and database tiers in both regions with equivalent capacity. Activate the primary database in one region only and the standby database in the other region. Use Amazon Route 53 to automatically switch traffic from one region to another using health check routing policies.

Correct Answer: C

As RTO is in minutes (https://docs.aws.amazon.com/wellarchitected/latest/reliability-pillar/plan-for-disaster- recovery-dr.html) Warm standby (RPO in seconds, RTO in minutes): Maintain a scaled- down version of a fully functional environment always running in the DR Region. Business- critical systems are fully duplicated and are always on, but with a scaled down fleet. When the time comes for recovery, the system is scaled up quickly to handle the production load.

QUESTION 2

A research company is running daily simulations in the AWS Cloud to meet high demand. The simulations run on several hundred Amazon EC2 instances that are based on Amazon Linux 2. Occasionally, a simulation gets stuck and requires a cloud operations engineer to solve the problem by connecting to an EC2 instance through SSH.

Company policy states that no EC2 instance can use the same SSH key and that all connections must be logged in AWS CloudTrail.

How can a solutions architect meet these requirements?

A. Launch new EC2 instances, and generate an individual SSH key for each instance. Store the SSH key in AWS Secrets Manager. Create a new IAM policy, and attach it to the engineers\\' IAM role with an Allow statement for the GetSecretValue action. Instruct the engineers to fetch the SSH key from Secrets Manager when they connect through any SSH client.

B. Create an AWS Systems Manager document to run commands on EC2 instances to set a new unique SSH key. Create a new IAM policy, and attach it to the engineers\\' IAM role with an Allow statement to run Systems Manager documents. Instruct the engineers to run the document to set an SSH key and to connect through any SSH client.

C. Launch new EC2 instances without setting up any SSH key for the instances. Set up EC2 Instance Connect on each instance. Create a new IAM policy, and attach it to the engineers\\' IAM role with an Allow statement for the SendSSHPublicKey action. Instruct the engineers to connect to the instance by using a browser-based SSH client from the EC2 console.

D. Set up AWS Secrets Manager to store the EC2 SSH key. Create a new AWS Lambda function to create a new SSH key and to call AWS Systems Manager Session Manager to set the SSH key on the EC2 instance. Configure Secrets Manager to use the Lambda function for automatic rotation once daily. Instruct the engineers to fetch the SSH key from Secrets Manager when they connect through any SSH client.

Correct Answer: C

QUESTION 3

A company has registered 10 new domain names. The company uses the domains for online marketing. The company needs a solution that will redirect online visitors to a specific URL for each domain. All domains and target URLs are defined in a JSON document. All DNS records are managed by Amazon Route 53.

A solutions architect must implement a redirect service that accepts HTTP and HTTPS requests.

Which combination of steps should the solutions architect take to meet these requirements with the LEAST amount of operational effort? (Choose three.)

A. Create a dynamic webpage that runs on an Amazon EC2 instance. Configure the webpage to use the JSON document in combination with the event message to look up and respond with a redirect URL.

B. Create an Application Load Balancer that includes HTTP and HTTPS listeners.

C. Create an AWS Lambda function that uses the JSON document in combination with the event message to look up and respond with a redirect URL.

D. Use an Amazon API Gateway API with a custom domain to publish an AWS Lambda function.

E. Create an Amazon CloudFront distribution. Deploy a Lambda@Edge function.

F. Create an SSL certificate by using AWS Certificate Manager (ACM). Include the domains as Subject Alternative Names.

Correct Answer: CEF

https://docs.aws.amazon.com/AmazonCloudFront/latest/DeveloperGuide/lambda-edge-how-it-works-tutorial.html

QUESTION 4

A company is running a critical application that uses an Amazon RDS for MySQL database to store data. The RDS DB instance is deployed in Multi-AZ mode.

A recent RDS database failover test caused a 40-second outage to the application A solutions architect needs to design a solution to reduce the outage time to less than 20 seconds.

Which combination of steps should the solutions architect take to meet these requirements? (Select THREE.)

A. Use Amazon ElastiCache for Memcached in front of the database

B. Use Amazon ElastiCache for Redis in front of the database.

C. Use RDS Proxy in front of the database

D. Migrate the database to Amazon Aurora MySQL

E. Create an Amazon Aurora Replica

F. Create an RDS for MySQL read replica

Correct Answer: CDE

Migrate the database to Amazon Aurora MySQL.

-Create an Amazon Aurora Replica.

-Use RDS Proxy in front of the database.

-These options are correct because they address the requirement of reducing the failover time to less than 20 seconds.

Migrating to Amazon Aurora MySQL and creating an Aurora replica can reduce the failover time to less than 20 seconds. Aurora has a built-in, fault-tolerant storage system that can automatically detect and repair failures. Additionally, Aurora has a feature called "Aurora Global Database" which allows you to create read-only replicas across multiple AWS regions which can further help to reduce the failover time.

Creating an Aurora replica can also help to reduce the failover time as it can take over as the primary DB instance in case of a failure.

Using RDS proxy can also help to reduce the failover time as it can route the queries to the healthy DB instance, it also helps to balance the load across multiple DB instances.

QUESTION 5

A web application is hosted in a dedicated VPC that is connected to a company\\'s on- premises data center over a Site-to-Site VPN connection. The application is accessible from the company network only. This is a temporary non-production application that is used during business hours. The workload is generally low with occasional surges.

The application has an Amazon Aurora MySQL provisioned database cluster on the backend. The VPC has an internet gateway and a NAT gateways attached. The web servers are in private subnets in an Auto Scaling group behind an Elastic Load Balancer. The web servers also upload data to an Amazon S3 bucket through the internet.

A solutions architect needs to reduce operational costs and simplify the architecture.

Which strategy should the solutions architect use?

A. Review the Auto Scaling group settings and ensure the scheduled actions are specified to operate the Amazon EC2 instances during business hours only. Use 3-year scheduled Reserved Instances for the web server EC2 instances. Detach the internet gateway and remove the NAT gateways from the VPC. Use an Aurora Servertess database and set up a VPC endpoint for the S3 bucket.

B. Review the Auto Scaling group settings and ensure the scheduled actions are specified to operate the Amazon EC2

instances during business hours only. Detach the internet gateway and remove the NAT gateways from the VPC. Use an Aurora Servertess database and set up a VPC endpoint for the S3 bucket, then update the network routing and security rules and policies related to the changes.

C. Review the Auto Scaling group settings and ensure the scheduled actions are specified to operate the Amazon EC2 instances during business hours only. Detach the internet gateway from the VPC, and use an Aurora Servertess database. Set up a VPC endpoint for the S3 bucket, then update the network routing and security rules and policies related to the changes.

D. Use 3-year scheduled Reserved Instances for the web server Amazon EC2 instances. Remove the NAT gateways from the VPC, and set up a VPC endpoint for the S3 bucket. Use Amazon

E. CloudWatch and AWS Lambda to stop and start the Aurora DB cluster so it operates during business hours only. Update the network routing and security rules and policies related to the changes.

Correct Answer: B

The application is accessible from the company network only remove NAT and IGW, application - S3 with VPC endpoint. Non-Production application no need to go for Reserved instances To build site-to-site vpn, you don\\'t need internet gateway. Instead, customer gateway is needed.https://docs.aws.amazon.com/vpn/latest/s2svpn/SetUpVPNConnections.html#vpn- create-cgw