SAP-C02 Q&As

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QUESTION 1

A solutions architect needs to define a reference architecture for a solution for three-tier applications with web. application, and NoSQL data layers. The reference architecture must meet the following requirements:

1.

High availability within an AWS Region

2.

Able to fail over in 1 minute to another AWS Region for disaster recovery

3.

Provide the most efficient solution while minimizing the impact on the user experience

Which combination of steps will meet these requirements? (Select THREE.)

A. Use an Amazon Route 53 weighted routing policy set to 100/0 across the two selected Regions. Set Time to Live (TTL) to 1 hour.

B. Use an Amazon Route 53 failover routing policy for failover from the primary Region to the disaster recovery Region. Set Time to Live (TTL) to 30 seconds.

C. Use a global table within Amazon DynamoDB so data can be accessed in the two selected Regions.

D. Back up data from an Amazon DynamoDB table in the primary Region every 60 minutes and then write the data to Amazon S3. Use S3 Cross-Region replication to copy the data from the primary Region to the disaster recovery Region. Have a script import the data into DynamoDB in a disaster recovery scenario.

E. Implement a hot standby model using Auto Scaling groups for the web and application layers across multiple Availability Zones in the Regions. Use zonal Reserved Instances for the minimum number of servers and On-Demand Instances for any additional resources.

F. Use Auto Scaling groups for the web and application layers across multiple Availability Zones in the Regions. Use Spot Instances for the required resources.

Correct Answer: BCE

The requirements can be achieved by using an Amazon DynamoDB database with a global table. DynamoDB is a NoSQL database so it fits the requirements. A global table also allows both reads and writes to occur in both Regions. For the web and application tiers Auto Scaling groups should be configured. Due to the 1-minute RTO these must be configured in an active/passive state. The best pricing model to lower price but ensure resources are available when needed is to use a combination of zonal reserved instances and on-demand instances. To failover between the Regions, a Route 53 failover routing policy can be configured with a TTL configured on the record of 30 seconds. This will mean clients must resolve against Route 53 every 30 seconds to get the latest record. In a failover scenario the clients would be redirected to the secondary site if the primary site is unhealthy.

QUESTION 2

A live-events company is designing a scaling solution for its ticket application on AWS. The application has high peaks of utilization during sale events. Each sale event is a one-time event that is scheduled. The application runs on Amazon

EC2 instances that are in an Auto Scaling group.

The application uses PostgreSQL for the database layer.

The company needs a scaling solution to maximize availability during the sale events.

Which solution will meet these requirements?

A. Use a predictive scaling policy for the EC2 instances. Host the database on an Amazon Aurora PostgreSQL Serverless v2 Multi-AZ DB instance with automatically scaling read replicas. Create an AWS Step Functions state machine to run parallel AWS Lambda functions to pre-warm the database before a sale event. Create an Amazon EventBridge rule to invoke the state machine.

B. Use a scheduled scaling policy for the EC2 instances. Host the database on an Amazon RDS for PostgreSQL Multi-AZ DB instance with automatically scaling read replicas. Create an Amazon EventBridge rule that invokes an AWS Lambda function to create a larger read replica before a sale event. Fail over to the larger read replica. Create another EventBridge rule that invokes another Lambda function to scale down the read replica after the sale event.

C. Use a predictive scaling policy for the EC2 instances. Host the database on an Amazon RDS for PostgreSQL Multi-AZ DB instance with automatically scaling read replicas. Create an AWS Step Functions state machine to run parallel AWS Lambda functions to pre-warm the database before a sale event. Create an Amazon EventBridge rule to invoke the state machine.

D. Use a scheduled scaling policy for the EC2 instances. Host the database on an Amazon Aurora PostgreSQL Multi-AZ DB cluster. Create an Amazon EventBridge rule that invokes an AWS Lambda function to create a larger Aurora Replica before a sale event. Fail over to the larger Aurora Replica. Create another EventBridge rule that invokes another Lambda function to scale down the Aurora Replica after the sale event.

Correct Answer: D

: The correct answer is D.

D. This solution meets the requirements because it uses a scheduled scaling policy for the EC2 instances, which can adjust the capacity according to the known sale events. It also uses Amazon Aurora PostgreSQL Multi-AZ DB cluster, which provides high availability and durability for the database. It uses Amazon EventBridge rules and AWS Lambda functions to create a larger Aurora Replica before a sale event and fail over to it, which can improve the performance and handle the increased traffic. It also uses another EventBridge rule and Lambda function to scale down the Aurora Replica after the sale event, which can save costs123 A. This solution is incorrect because it uses predictive scaling policy for the EC2 instances, which is not suitable for one-time events that are scheduled. Predictive scaling is based on historical data and machine learning, which may not accurately forecast the demand for sale events. It also uses Amazon Aurora PostgreSQL Serverless v2 Multi-AZ DB instance, which does not support read replicas. The use of AWS Step Functions state machine and Lambda functions to pre- warm the database is unnecessary and adds complexity45 B. This solution is incorrect because it uses Amazon RDS for PostgreSQL Multi-AZ DB instance with automatically scaling read replicas, which may not provide enough performance improvement for the sale events. The use of EventBridge rules and Lambda functions to create a larger read replica and fail over to it is risky and may cause downtime or data loss. The use of another EventBridge rule and Lambda function to scale down the read replica is also risky and may cause inconsistency or data loss67 C. This solution is incorrect because it uses predictive scaling policy for the EC2 instances, which is not suitable for one-time events that are scheduled. Predictive scaling is based on historical data and machine learning, which may not accurately forecast the demand for sale events. The use of AWS Step Functions state machine and Lambda functions to pre- warm the database is unnecessary and adds complexity45 References:

1: Scheduled scaling for Amazon EC2 Auto Scaling 2: Amazon Aurora PostgreSQL features 3: Amazon EventBridge rules 4: Predictive scaling for Amazon EC2 Auto Scaling

5: Amazon Aurora Serverless v2 6: Multi-AZ DB instance deployments - Amazon Relational Database Service 7: Working with PostgreSQL read replicas - Amazon Relational Database Service

QUESTION 3

A team collects and routes behavioral data for an entire company. The company runs a Multi-AZ VPC environment with public subnets, private subnets, and in internet gateway Each public subnet also contains a NAT gateway Most of the company\\'s applications read from and write to Amazon Kinesis Data Streams. Most of the workloads run in private subnets.

A solutions architect must review the infrastructure. The solutions architect needs to reduce costs and maintain the function of the applications. The solutions architect uses Cost Explorer and notices that the cost in the EC2-Other category is consistently high A further review shows that NatGateway-Bytes charges are increasing the cost in the EC2-Other category.

What should the solutions architect do to meet these requirements?

A. Enable VPC Flow Logs. Use Amazon Athena to analyze the logs for traffic that can be removed. Ensure that security groups are blocking traffic that is responsible for high costs.

B. Add an interface VPC endpoint for Kinesis Data Streams to the VPC. Ensure that applications have the correct IAM permissions to use the interface VPC endpoint.

C. Enable VPC Flow Logs and Amazon Detective. Review Detective findings for traffic that is not related to Kinesis Data Streams Configure security groups to block that traffic

D. Add an interface VPC endpoint for Kinesis Data Streams to the VPC Ensure that the VPC endpoint policy allows traffic from the applications

Correct Answer: D

https://docs.aws.amazon.com/vpc/latest/privatelink/vpc-endpoints-access.html
https://aws.amazon.com/premiumsupport/knowledge-center/vpc-reduce-nat-gateway-transfer-costs/

VPC endpoint policies enable you to control access by either attaching a policy to a VPC endpoint or by using additional fields in a policy that is attached to an IAM user, group, or role to restrict access to only occur via the specified VPC endpoint

QUESTION 4

A company is running an application distributed over several Amazon EC2 instances in an Auto Scaling group behind an Application Load Balancer The security team requires that all application access attempts be made available for analysis Information about the client IP address, connection type, and user agent must be included.

Which solution will meet these requirements?

A. Enable EC2 detailed monitoring, and include network logs Send all logs through Amazon Kinesis Data Firehose to an Amazon ElasDcsearch Service (Amazon ES) cluster that the security team uses for analysis.

B. Enable VPC Flow Logs for all EC2 instance network interfaces Publish VPC Flow Logs to an Amazon S3 bucket Have the security team use Amazon Athena to query and analyze the logs

C. Enable access logs for the Application Load Balancer, and publish the logs to an Amazon S3 bucket Have the security team use Amazon Athena to query and analyze the logs

D. Enable Traffic Mirroring and specify all EC2 instance network interfaces as the source. Send all traffic information

through Amazon Kinesis Data Firehose to an Amazon Elastic search Service (Amazon ES) cluster that the security team uses for analysis.

Correct Answer: C

https://docs.aws.amazon.com/elasticloadbalancing/latest/application/load-balancer-access- logs.html

QUESTION 5

A company is migrating its infrastructure to the AWS Cloud. The company must comply with a variety of regulatory standards for different projects. The company needs a multi- account environment.

A solutions architect needs to prepare the baseline infrastructure. The solution must provide a consistent baseline of management and security, but it must allow flexibility for different compliance requirements within various AWS accounts.

The solution also needs to integrate with the existing on-premises Active Directory Federation Services (AD FS) server.

Which solution meets these requirements with the LEAST amount of operational overhead?

A. Create an organization in AWS Organizations. Create a single SCP for least privilege access across all accounts. Create a single OU for all accounts. Configure an IAM identity provider for federation with the on-premises AD FS server. Configure a central logging account with a defined process for log generating services to send log events to the central account. Enable AWS Config in the central account with conformance packs for all accounts.

B. Create an organization in AWS Organizations. Enable AWS Control Tower on the organization. Review included controls (guardrails) for SCPs. Check AWS Config for areas that require additions. Add OUS as necessary. Connect AWS IAM Identity Center (AWS Single Sign-On) to the on-premises AD FS server.

C. Create an organization in AWS Organizations. Create SCPs for least privilege access. Create an OU structure, and use it to group AWS accounts. Connect AWS IAM Identity Center (AWS Single Sign-On) to the on-premises AD FS server. Configure a central logging account with a defined process for log generating services to send log events to the central account. Enable AWS Config in the central account with aggregators and conformance packs.

D. Create an organization in AWS Organizations. Enable AWS Control Tower on the organization. Review included controls (guardrails) for SCPs. Check AWS Config for areas that require additions. Configure an IAM identity provider for federation with the on- premises AD FS server.

Correct Answer: B