

Question - 1**SCORE: 5 points****AWS: Data Storage Solution****Easy** **AWS** **Amazon DynamoDB** **Transfer Acceleration** **NoSQL** **Amazon AWS S3**

A leading e-commerce company is experiencing exponential growth in user traffic and expects the trend to continue. With their current global user base, they need to ensure that their product catalog is accessible with minimal latency regardless of the user's location. The catalog has both structured and unstructured data, including product descriptions, images, and customer reviews. The company also wants to ensure data resiliency, regional redundancy, and automatic failover in case of outages. Which data storage solution should the company consider for optimal performance and reliability?

- Use Amazon RDS with read replicas in multiple regions and use Amazon S3 with Cross-Region Replication for storing images and reviews.
- Use Amazon DynamoDB Global Tables for structured data and Amazon S3 Transfer Acceleration for faster uploads/downloads of unstructured data.
- Use Amazon Aurora Global Database for structured data and Amazon S3 with CloudFront for distributing unstructured data worldwide.
- Use Amazon Redshift for structured data and use Amazon EFS for unstructured data distributed via Direct Connect.

Question - 2**SCORE: 5 points****AWS: API Management Solution****Medium** **AWS** **Amazon API Gateway** **Elastic Kubernetes Service**

A multinational finance company is developing a suite of microservices to serve millions of users worldwide. They anticipate high levels of API calls due to mobile applications, web interfaces, and third-party integrations. The company needs a solution that can handle API traffic efficiently, provide comprehensive analytics, advanced security features like throttling, data masking, OAuth 2.0 support, and integration with existing CI/CD workflows. Which of these API management solutions is optimal?

- Set up AWS App Mesh for service mesh management, integrating with CI/CD tools.
- Set up Amazon Elastic Kubernetes Service (EKS) for container orchestration and use Amazon API Gateway for API management.
- Set up Amazon API Gateway with caching and OAuth 2.0, but manual setup for data masking.
- Set up AWS Amplify for frontend and backend integration, focusing on fast deployments and real-time data.

Question - 3**SCORE: 5 points****AWS: Multi-Regional Deployment With Automated Failover****Easy** **AWS** **Elastic Load Balancing** **Amazon RDS** **Amazon AWS EC2**

An international financial services firm is planning its infrastructure deployment in the cloud. They handle high volumes of sensitive transactional data daily and need to ensure business continuity even in the event of regional outages. Their primary requirement is to design a multi-regional deployment with automated failover mechanisms. The firm's goal is data redundancy and application availability across regions. Which approach should the company adopt for maximum resilience and minimum recovery time?

- Deploy applications in multiple regions using Amazon EC2 with Auto Scaling. Use Amazon Route 53 with latency-based routing and health checks to direct traffic and ensure availability.
- Deploy applications on Amazon EC2 across regions and distribute traffic with Elastic Load Balancing (ELB). Integrate with Amazon RDS and enable Multi-AZ deployments for high availability and failover support.
- Use AWS Elastic Beanstalk for multi-regional application deployment, along with Amazon RDS Read Replicas for database redundancy and low-latency reads.
- Use AWS Lambda with Amazon API Gateway for serverless multi-region deployments. Use Amazon Aurora Global Databases for relational data redundancy.

Question - 4

SCORE: 5 points

AWS: Ensure Encrypted Data Transfers

Medium AWS Amazon AWS EC2

A multinational corporation is set to launch a new finance application for its clients. Due to the sensitive nature of financial data, the IT team must ensure that the infrastructure is secure, compliant with global financial regulations, and can detect and respond to security threats in real time. The corporation must also ensure data is encrypted in transit and at rest. What is the most appropriate infrastructure configuration to meet these requirements?

- Host the application on Amazon EC2 instances along with AWS WAF (Web Application Firewall) for application layer protection, use AWS Secrets Manager to manage sensitive information, and enable server-side encryption for data at rest using AWS KMS.
- Using Amazon EC2 Spot Instances with Amazon GuardDuty for threat detection and AWS Certificate Manager for data encryption.
- Host the application on Amazon EC2 instances within a Virtual Private Cloud (VPC), implement Amazon Inspector for security assessments, use Amazon Macie for data classification, and use AWS KMS for data encryption.
- Host the application on Amazon EC2 instances with dedicated hosts, use AWS Shield for DDoS protection, enable TLS encryption for data in transit, and use AWS KMS for data encryption at rest.

Question - 5

SCORE: 5 points

AWS: Setting Up CI/CD Pipelines

AWS CI/CD Medium Amazon AWS EC2

A global software development company is setting up its CI/CD pipelines in the cloud. The company operates in multiple regions worldwide, each with its unique workload and demand patterns. The IT team wants to optimize the performance of their cloud-based virtual machine deployments to ensure consistent build and deployment times across all regions, regardless of the local demand peaks and is looking for configurations that balance cost, performance, and regional variability.

What is the most appropriate deployment configuration for the virtual machines to ensure consistency in CI/CD operations?

- Implement AWS EC2 Instances with T-series and use EC2 Fleet to manage variable workloads.
- Implement AWS EC2 C-series and use Placement Groups to maintain consistent high performance for CI/CD operations.
- Implement AWS EC2 M5-series and use EC2 Auto Scaling to maintain the desired number of balanced instances.
- Implement AWS EC2 R-series and use EC2 Spot Fleet to ensure managed spot capacity based on criteria.

Question - 6 Concurrency Limits

SCORE: 5 points

AWS Services AWS CLI Amazon EventBridge Medium

An Amazon EventBridge rule which originally captured 500, 502, and 504 errors is modified to include 508 errors using this AWS CLI command.

```
aws events put-rule --name "GranularErrorCapture" --event-pattern "{\"detail\":{\"appError\":{\"errorCode\": [\"500\", \"502\", \"504\", \"508\"]}}}" --state "ENABLED"
```

The system now captures 508 but misses 502 errors. Manual event logs show 502 errors still occur. Why might the rule modification cause this issue?

- Amazon EventBridge has a limit on the number of error codes that can be captured in a single rule, so 502 was dropped.
- The original rule had a more specific pattern for 502 errors which got overridden by the new generic pattern.
- The `--state "ENABLED"` flag in the `put-rule` command resets any existing targets associated with the rule.
- There is a known AWS CLI version-specific bug that does not properly register patterns with more than three error codes.

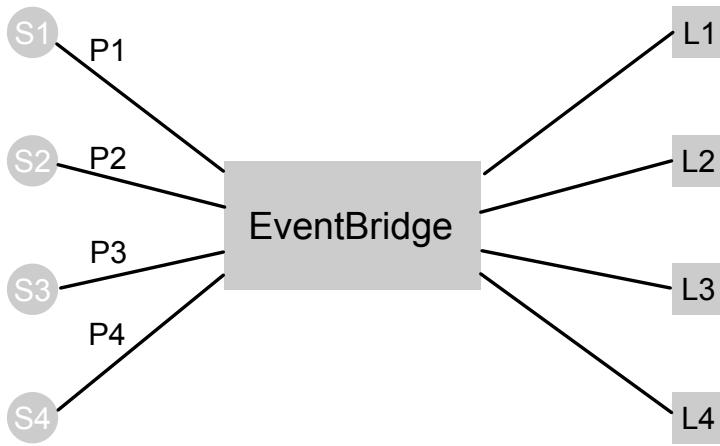
Question - 7 Throttling Cascade

SCORE: 5 points

AWS Services Event Processing Prioritization Event Pattern Matching Amazon EventBridge Medium

A microservices application uses Amazon EventBridge to direct events from services (S1 through S4) to specific AWS Lambda functions (L1 through L4) based on event patterns (P1 through P4).

The diagram below depicts this flow.



Despite correct patterns, events from S3 and S4 sometimes reach L2 instead of their designated targets L3 and L4. What could explain this behavior?

- A cascading effect caused by throttling in 'L3' is pushing 'S3' events to 'L2', and a similar effect in 'L4' is routing 'S4' events to 'L2'.
- The application events from 'S3' and 'S4' recently started to share certain attributes, and due to pattern matching intricacies, 'P2' now captures them
- Patterns 'P3' and 'P4' have higher processing priorities over 'P2', causing the sporadic rerouting of events when resources are strained.
- Due to a surge in event traffic from other services, Amazon EventBridge is processing patterns in a round-robin fashion, causing intermittent mismatches.

Question - 8 Nested Nuances

SCORE: 5 points

AWS Services Event Attributes Pattern Matching Medium Amazon EventBridge

A globally-distributed application sends nested events to AWS EventBridge. These events are processed by Lambda functions 'L1', 'L2', and 'L3' based on event patterns 'P1', 'P2', and 'P3'. After a deployment altered attributes for events meant for 'L2', some are wrongly processed by 'L3'.

What EventBridge pattern matching nuance could be causing this?

- 'P3' uses *anything-but* conditions on a third-level nested attribute which the new deployment inadvertently started to match.
- The event pattern 'P3' uses the AWS *array* condition that matches the new nested array structures introduced in the deployment, causing it to process some events meant for 'L2'.
- EventBridge's matching engine has a known limitation on deeply nested structures, causing some fifth-level attributes to be erroneously matched by 'P3'.
- The new deployment added a sequence of escape characters in the fourth-level nested attribute, causing regex conditions in 'P3' to unintentionally match them.

Question - 9 Artifact Anomaly

SCORE: 5 points

AWS Services Delta Cache Cluster Configuration Medium

In an optimized setup, a data architect observes inconsistent analytics job performance. The architecture includes a Databricks on AWS Delta table on Amazon S3, rapid cluster provisioning through instance pools, and Delta cache enabled on high-memory instances. Performance dips mainly occur during Delta cache population, unrelated to AWS throttling or instance reclamation.

What part of the Databricks configuration could be causing this?

- When rapidly provisioning new instances, the instance pools might sometimes introduce nodes with cold starts, causing an initial I/O performance dip during Delta cache population.
- Databricks' internal mechanism for Delta cache population sometimes leads to cache fragmentation causing suboptimal cache utilization during its initial fills.
- The Delta cache, while designed to expedite reads, has an undocumented behavior where its first-time population from specific partitions exhibits throttling to avoid overwhelming the underlying instance.
- The high-memory instances, though optimized for caching, periodically synchronize with Databricks' control plane, introducing sporadic latency during intense I/O operations.

Question - 10 Data Federation

SCORE: 5 points

AWS Services Redshift Serverless Federation Data Access Patterns Medium Amazon Redshift Serverless

In Amazon Redshift Serverless, an AWS specialist queries a large Parquet-based Amazon S3 table *global_metrics*. Even with optimizations, queries with window functions and cross-year aggregations show latency. Considering the data updates quarterly, which advanced optimization best boosts query performance in Amazon Redshift Serverless?

- Implement an Amazon Redshift Spectrum layer on top of '*global_metrics*' and convert data into a Amazon Redshift-optimized format (e.g., Zstandard), allowing more efficient data scans during querying.
- Partition the '*global_metrics*' table in Amazon S3 using a composite key of year and region. Adjust the query predicates to leverage both partition keys, ensuring partition pruning effectiveness.
- Establish an AWS Glue job to transform '*global_metrics*' into a star schema with separate fact and dimension tables. Adapt the federated queries to join with these tables, potentially minimizing the data that needs to be processed.
- Utilize Amazon S3 Select to pre-filter data within the '*global_metrics*' table prior to executing federated queries in Amazon Redshift Serverless, thereby reducing the data loaded into Redshift for processing.

Question - 11 SPICE Aggregation

SCORE: 5 points

AWS Services QuickSight's SPICE engine Amazon Quicksight Medium

An administrator uses AWS CLI to aggregate data from a QuickSight dataset *financial_transactions* in SPICE. Querying the total *amount* for a specific day with many micro-transactions results in a sum that does not match the source database. How should the SPICE dataset be adjusted to ensure precise aggregations?

AWS CLI Command:

```
aws quicksight describe-analysis --aws-account-id 123456789012 --analysis-id aggregate-amount --query "Analysis.DataSets.financial_transactions.amount[?transaction_date=='2023-05-05'].sum()"
```

- Convert `amount` column data type to STRING in SPICE, then cast it back to DECIMAL during aggregation in the analysis.
- Use the QuickSight console to modify the `amount` column's decimal precision settings, then rerun the AWS CLI command.
- Aggregate data at the source (e.g., in RDS or Redshift) and then ingest pre-aggregated data into SPICE for visualization.
- Implement a custom formula in the analysis to use a multiplier, aggregate, and then divide to counteract precision truncation.

Question - 12

Lambda Encryption

SCORE: 5 points

AWS Services AWS Lambda Encryption Environment Variables Medium

A developer utilizes the AWS CLI to update the configuration of an AWS Lambda function, intending to include environment variables.

Command:

```
aws lambda update-function-configuration --function-name my-function --environment Variables={key1=value1,key2=value2}
```

The developer expected the environment variables would be automatically encrypted by AWS using the *default service key*, but this did not happen. What is the cause of this unexpected behavior?

- The AWS CLI command `update-function-configuration` does not inherently support the automatic encryption of environment variables. Automatic encryption mandates explicit specification through the `--kms-key-arn` parameter.
- Unlike manual creation through the AWS Management Console, AWS solely automates the encryption of environment variables. Updates via CLI or SDK require the provision of an encryption key.
- The AWS Lambda function's execution role is deficient in the `AWSLambdaBasicExecutionRole` managed policy. This policy is necessary for AWS to automatically encrypt environment variables.
- Although the AWS CLI command executed successfully, the automatic encryption of environment variables only occurs the first time the function is invoked after the update.

Question - 13

Consumer Lag

SCORE: 5 points

AWS Services Consumer offset Kafka consumer groups Medium Amazon MSK

A distributed system uses AWS Managed Kafka (MSK) for stream processing. A vital microservice reports occasional data loss. Which strategy is best to deeply investigate consumer lag or possible topic data loss?

- Utilize the *get-bootstrap-brokers* command of AWS MSK to acquire broker endpoints, then delve into Kafka's native *kafka-consumer-groups.sh* tool for a detailed analysis of the consumer group lag.
- Revise the internal buffer configuration of the microservice's Kafka consumer, conduct a comprehensive monitoring for data anomalies, and employ third-party logging solutions for deep monitoring insights.
- Reconfigure the consumer group settings to reset offset strategies, ensuring that older data points are re-consumed and use advanced analytics tools to process patterns related to data integrity.

- Extract in-depth configurations using proprietary toolsets tailored for distributed systems, cross-referencing these with data integrity patterns drawn from other microservices.

Question - 14

Bookmark Efficiency

SCORE: 5 points

AWS Services Job Configuration Medium AWS Glue

A multinational organization utilizes AWS Glue for extract, transform, and load (ETL) processes on daily transaction logs across its regional centers. The data in the Amazon S3 bucket is structured hierarchically.

```
s3://transaction-logs-bucket/<region>/<environment>/<year>/<month>/<day>/
```

The organization wants to ensure that the Glue job processes logs only from the *prod* environment for a specific region and the current date. Currently, the job processes logs from all dates, regions, and environments, which leads to increased costs.

Which of the following modifications best solves this problem?

- Replace the current data source with:

```
`glueContext.create_dynamic_frame.from_options(path = "s3://transaction-logs-bucket/eu-central/prod/2023/09/20/")`
```

- Utilize the following push-down predicate in the `from_catalog` method:

```
`glueContext.create_dynamic_frame.from_catalog(database = "transaction_db", table_name = "daily_logs", push_down_predicate = "(year == '2023' AND month == '09' AND day == '20' AND environment == 'prod' AND region == 'eu-central'))`
```

- Activate the `Job Bookmarks` feature in the AWS Glue job configuration and use:

```
`glueContext.create_dynamic_frame.from_options(path = "s3://transaction-logs-bucket/")`
```

- Use the `.filter` method on the dynamic frame to select records only from the "prod" environment for "eu-central" on the specified date, and deactivate job bookmarks.

Question - 15

Unique Processing

SCORE: 5 points

AWS Services AWS Lambda Scaling Trigger Medium

A high-throughput e-commerce website uses AWS Lambda to process orders. Each order generates a *unique event* and is sent to an Amazon Kinesis stream. AWS Lambda is set up to process each order from the stream and store it in a Amazon DynamoDB table.

Website

Kinesis

Lambda

DynamoDB

Which AWS Lambda setting should be used to ensure each order is processed only once, even during scaling?

- Enable AWS Lambda Event Source Mapping with BatchSize set to 1 and use Kinesis as the event source.
- Set the AWS Lambda function concurrency limit to 1.
- Enable AWS Lambda Destinations and use Amazon DynamoDB stream as the source.
- Configure AWS Lambda Dead Letter Queues (DLQ) with an AWS SQS queue for failed event processing.

Question - 16

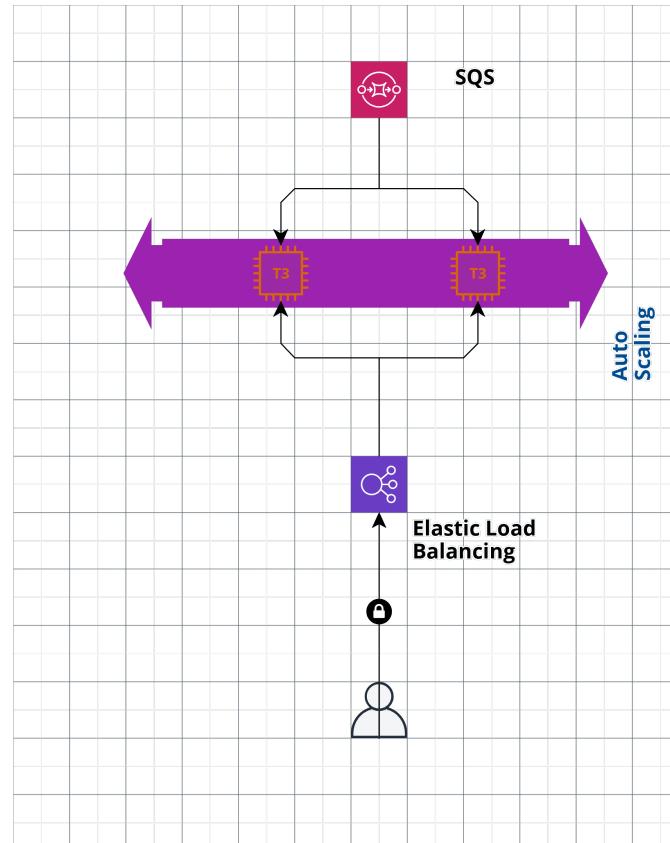
Video Encoding Application

SCORE: 5 points

SOS Queue Easy AWS Amazon AWS EC2

A video encoding application running on an Amazon EC2 instance takes about 20 seconds on average to process each raw footage file. The application picks the new job messages from an Amazon SQS queue. The development team needs to account for the use case when the video encoding process takes longer than usual so that the same raw footage is not processed by multiple consumers.

Which of the following solutions would be recommended?



- Use *DelaySeconds* action to delay a message's visibility timeout.

- Use *WaitTimeSeconds* action to short poll and extend a message's visibility timeout.
- Use *ChangeMessageVisibility* action to extend a message's visibility timeout.
- Use *WaitTimeSeconds* action to long poll and extend a message's visibility timeout.

Question - 17

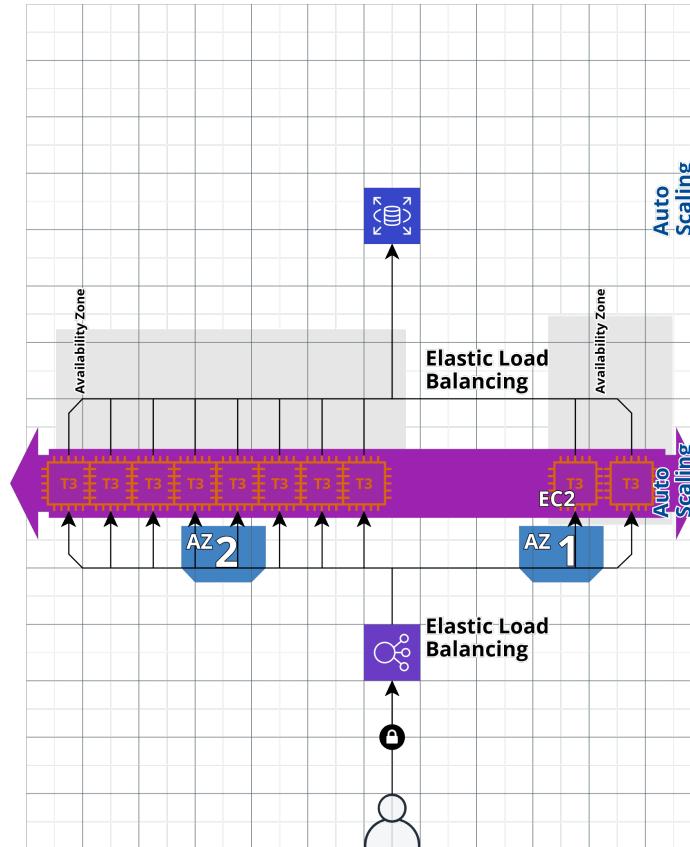
SCORE: 5 points

Elastic Load Balancer

Medium AWS Load Balancer

An organization has hosted its Amazon EC2 instances in two AWS Availability Zones (AZs). AZ1 has two instances, and AZ2 has 8 instances. The Elastic Load Balancing managing the instances in the two AZs has cross-zone load balancing enabled in its configuration.

What percentage of traffic will each of the instances in AZ1 receive?



- 10
- 15
- 20
- 25

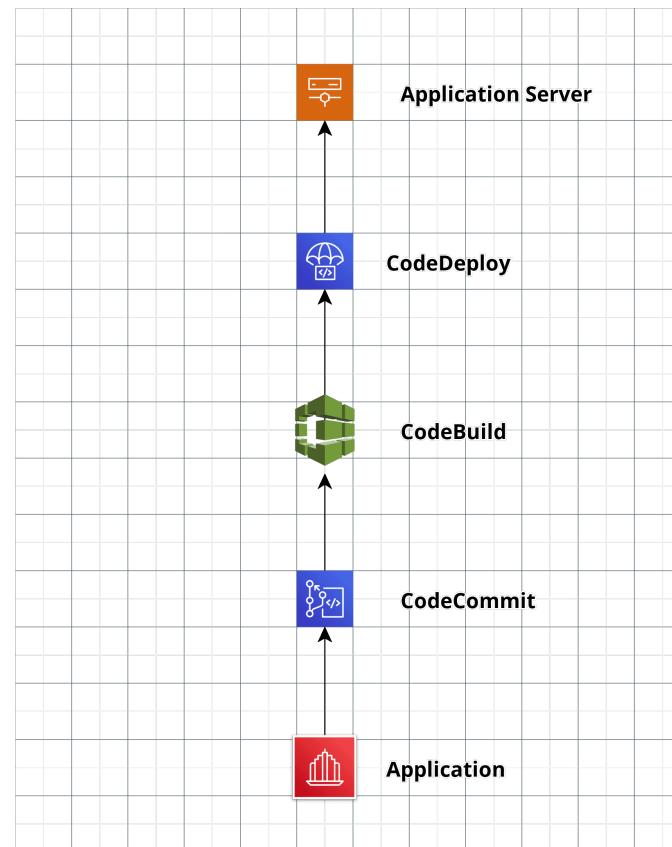
Question - 18

SCORE: 5 points

Order Processing Application

A developer is working on a large-scale order processing application. After developing the features, they commit the code to AWS CodeCommit and begin building the project with AWS CodeBuild before it gets deployed to the server. The build is taking too long and the error points to an issue resolving dependencies from a third party. They would like to prevent a build from running this long in the future.

Which of the following options is the best solution?



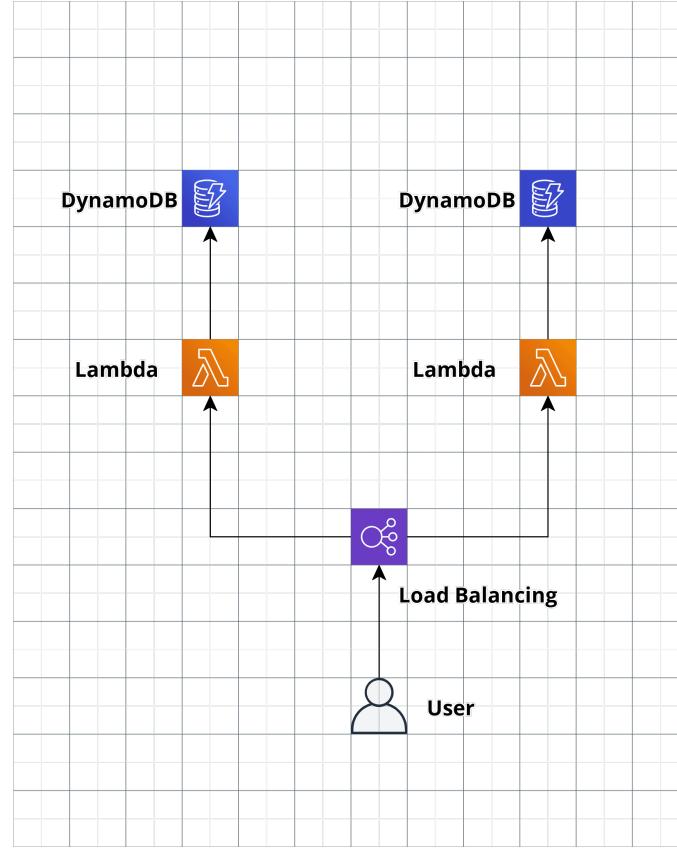
- Use AWS Lambda.
- Use AWS CloudWatch Events.
- Use Amazon VPC Flow Logs.
- Enable AWS CodeBuild timeouts.

Question - 19 Application Load Balancer Concurrency Limits

SCORE: 5 points

The development team at an IT company has configured an Amazon Application Load Balancer (ALB) with AWS Lambda function A as the target, but function A is not able to process any request from the Amazon ALB. Upon investigation, the team finds there is another AWS Lambda function B in the AWS account that is exceeding the concurrency limits.

How can the development team address this issue?



- Set up reserved concurrency for the AWS Lambda function B so that it throttles if it goes above a certain concurrency limit.
- Set up provisioned concurrency for the AWS Lambda function B so that it throttles if it goes above a certain concurrency limit.
- Use an API Gateway instead of an Amazon Application Load Balancer (ALB) for AWS Lambda function A.
- Use a Amazon Cloudfront distribution instead of an Amazon Application Load Balancer (ALB) for AWS Lambda function A.

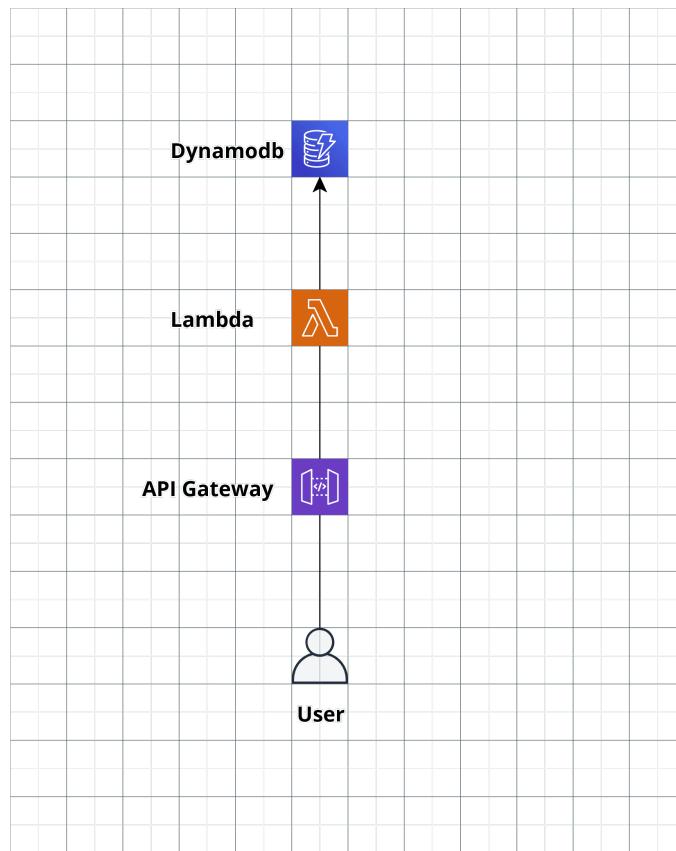
Question - 20 AWS API Gateway

SCORE: 5 points

AWS Lambda Easy

The development team at a company creates serverless solutions using AWS Lambda. Functions are invoked by clients via AWS API Gateway which anyone can access. The team lead would like to control access using a 3rd party authorization mechanism.

Which of the following is the best choice to provide this control?



- Amazon Cognito User Pools
- AWS Lambda Authorizer
- AWS IAM permissions with AWS Signature Version 4 (SigV4)
- Amazon API Gateway User Pools

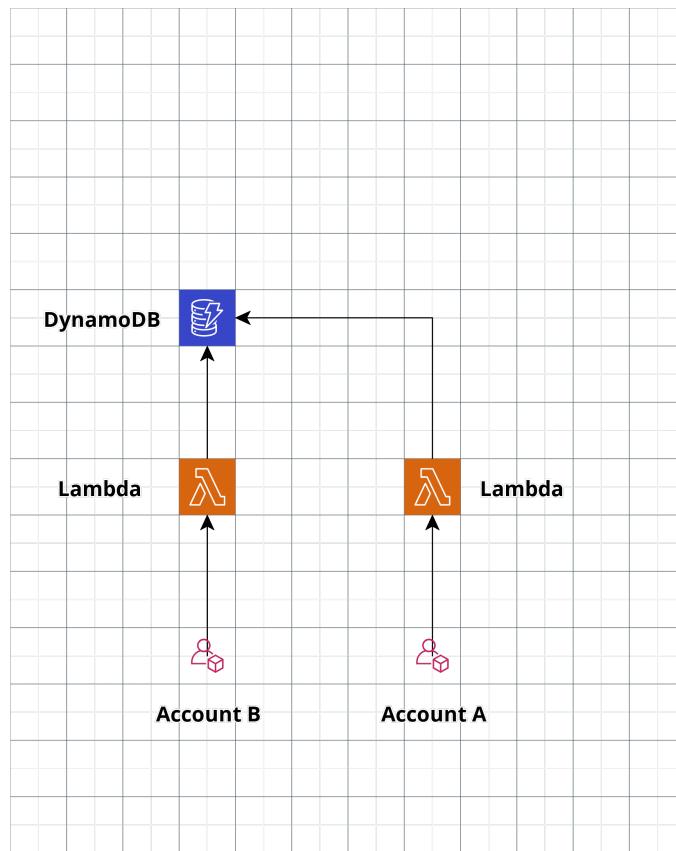
Question - 21
Developer Associate

SCORE: 5 points

[Lambda](#) [AWS](#) [Medium](#) [DynamoDB](#) [NoSQL](#)

The development team at a retail organization wants to allow a Lambda function in its AWS Account A to access an Amazon DynamoDB table in another AWS Account B.

Which of the following solutions should a Developer Associate recommend?



- Create a clone of the AWS Lambda function in AWS Account B so that it can access the Amazon DynamoDB table in the same account.
- Add a resource policy to the Amazon DynamoDB table in AWS Account B to give access to the AWS Lambda function in Account A.
- Create an AWS IAM role in Account B with access to the Amazon DynamoDB. Modify the trust policy of the execution role in Account A to allow the execution role of AWS Lambda to assume the AWS IAM role in Account B. Update the AWS Lambda function code to add the "AssumeRole" API call.
- Create an AWS IAM role in account B with access to Amazon DynamoDB. Modify the trust policy of the role in Account B to allow the execution role of AWS Lambda to assume this role. Update the AWS Lambda function code to add the "AssumeRole" API call.

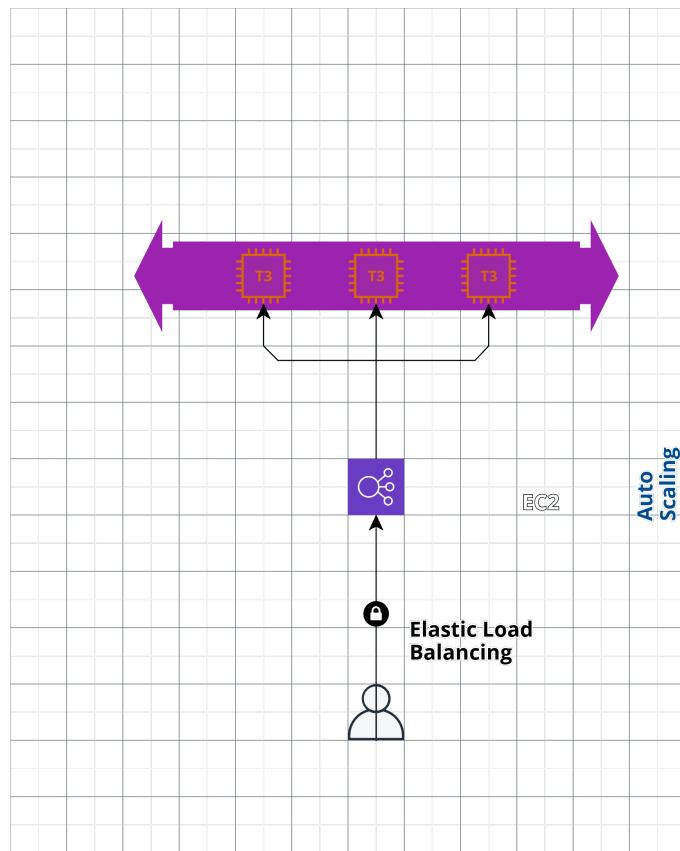
Question - 22 Application Load Balancer Latency

SCORE: 5 points

Easy AWS Load Balancer

An organization has offices across multiple locations. Their technology team has configured an application load balancer across targets in multiple availability zones. The team wants to analyze the incoming requests for latencies and the clients' IP address patterns.

Which feature of the load balancer will help collect the required information?



- Amazon ALB access logs
- Amazon CloudTrail logs
- Amazon CloudWatch metrics
- ALB request tracing

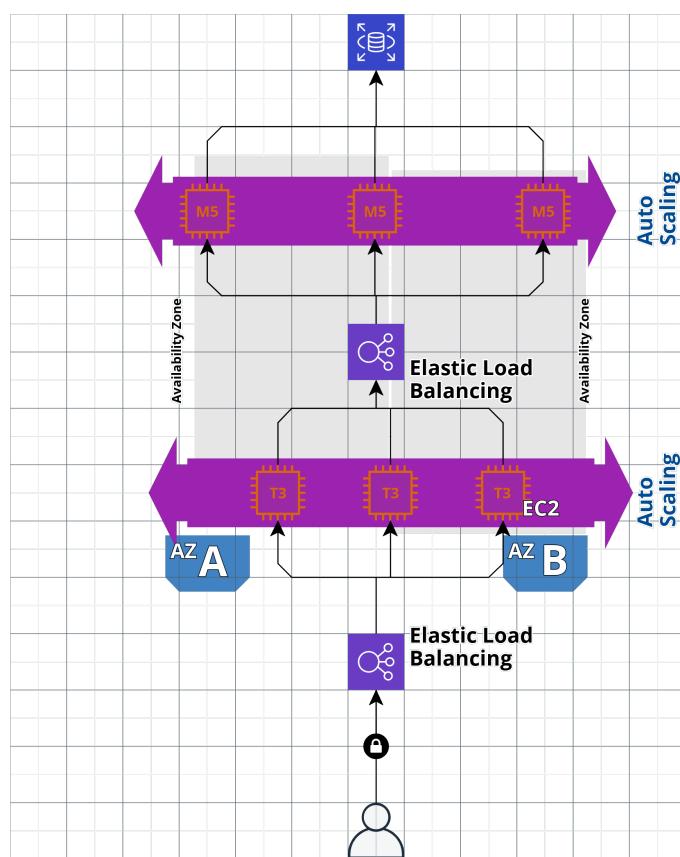
Question - 23
CPU Utilization

SCORE: 5 points

AWS Medium Load Balancer

An e-commerce company has a fleet of Amazon EC2-based web servers running into very high CPU utilization issues. The development team has determined that serving secure traffic via HTTPS is a major contributor to the high CPU load.

Which of the following steps can reduce the load on the web servers? (select two)



- Configure an SSL/TLS certificate on an Amazon Application Load Balancer via AWS Certificate Manager (ACM).
- Create an HTTPS listener on the Amazon Application Load Balancer with SSL pass-through.
- Create an HTTPS listener on the Amazon Application Load Balancer with SSL termination.
- Create an HTTP listener on the Amazon Application Load Balancer with SSL termination.
- Create an HTTP listener on the Amazon Application Load Balancer with SSL pass-through.

Question - 24

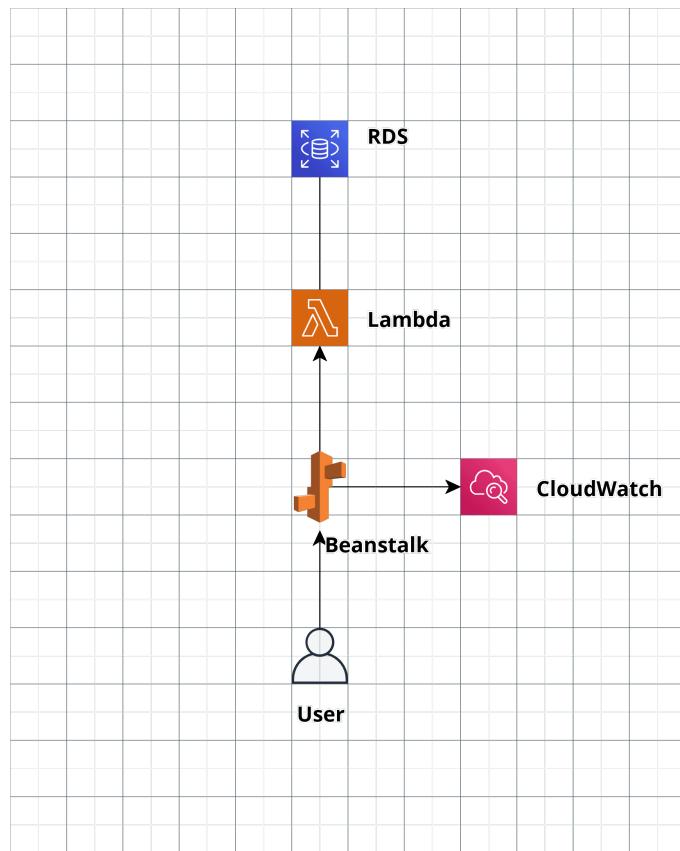
Handling Deployment

SCORE: 5 points

Elastic Beanstalk AWS Easy

An AWS Certified Developer Associate is asked to create an AWS Elastic Beanstalk environment to handle deployment for an application that has high traffic and high availability needs. They need to deploy the new version using Beanstalk while making sure that performance and availability are not affected.

Which is the best way to do this while keeping the solution cost-effective?



- Deploy using 'Immutable' deployment policy.
- Deploy using 'All at once' deployment policy.
- Deploy using 'Rolling with additional batch' deployment policy.
- Deploy using 'Rolling' deployment policy.

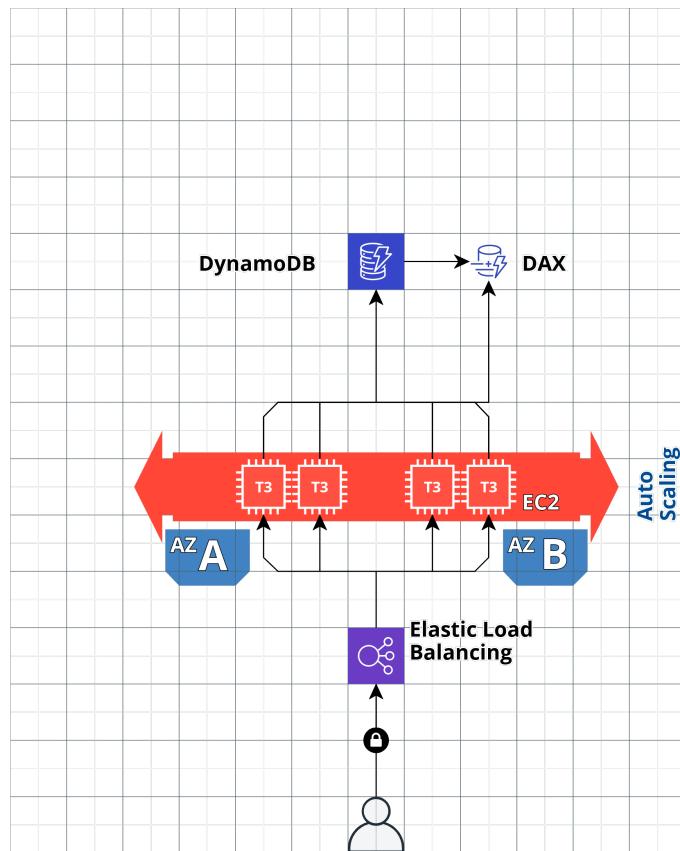
Question - 25 Elastic Load Balancer

SCORE: 5 points

Medium AWS Load Balancer

There is an Elastic Load Balancer that has marked all the Amazon EC2 instances in the target group as unhealthy. When the IP address of an unhealthy Amazon EC2 instance is entered in a web browser, the website is accessible.

What could be a reason the instances are being marked as unhealthy? (select two)



- The security group of the AMazon EC2 instance does not allow for traffic from the security group of the Amazon Application Load Balancer.
- The route for the health check is misconfigured.
- The EBS volumes have been improperly mounted.
- The web app has a runtime that is not supported by the Amazon Application Load Balancer.
- The Elastic IP is not connected to the Amazon EC2 instances.

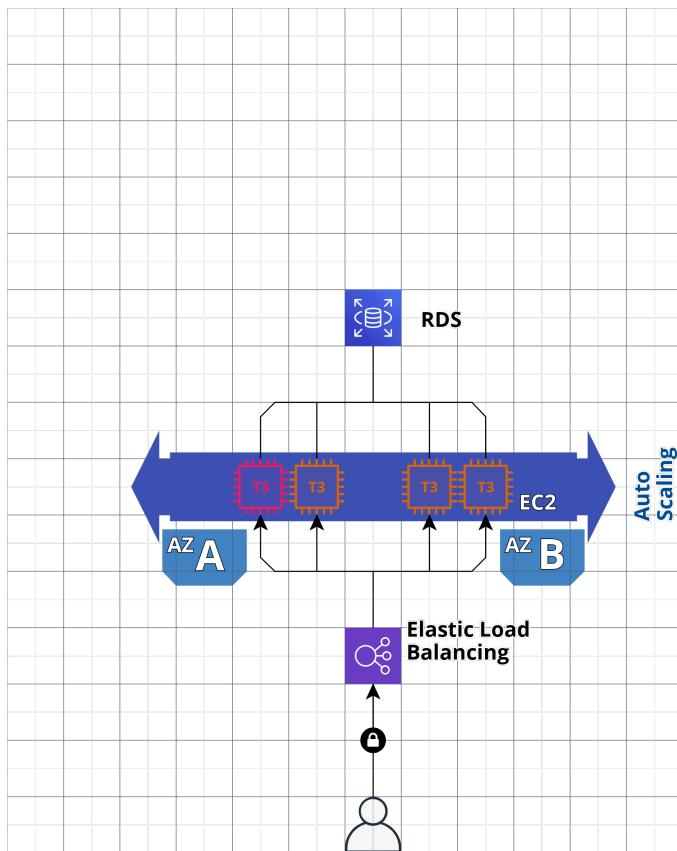
Question - 26 Workloads on AWS

SCORE: 5 points

AWS Easy Amazon RDS

There are a number of workloads running on AWS that have embedded Amazon RDS database connection strings within each web server hosting the applications. After failing a security audit, a different approach is needed to store secrets securely and automatically rotate the database credentials.

Which AWS service is most appropriate for this use case?



- AWS Systems Manager Parameter Store
- AWS Systems Manager
- AWS Key Management Service
- AWS Secrets Manager

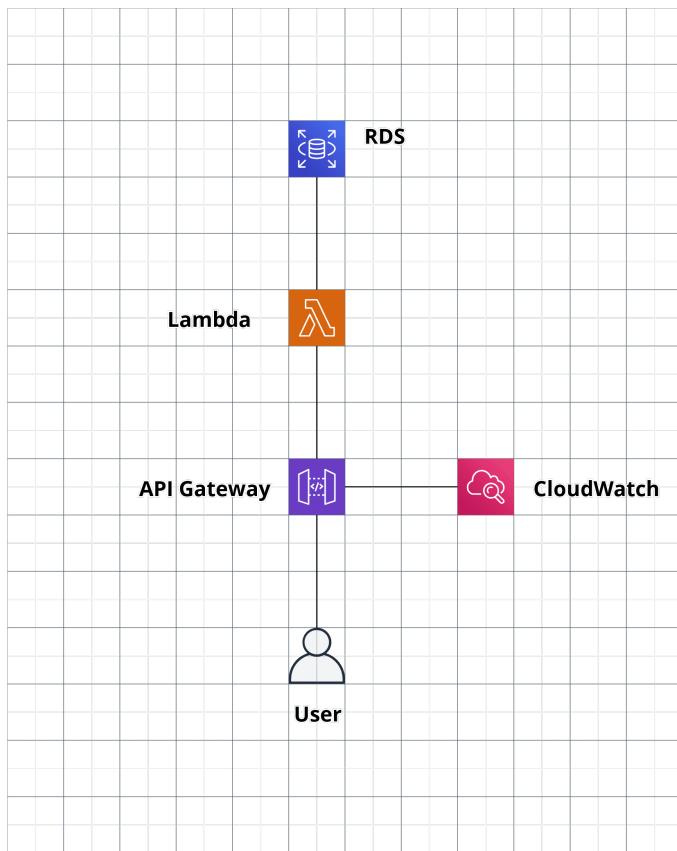
Question - 27
Amazon API Gateway

SCORE: 5 points

Easy AWS AWS Lambda

There are a number of AWS Lambda functions that are invoked via REST APIs using the Amazon API Gateway. Currently, when a GET request is invoked by the consumer, the entire dataset returned by the Lambda function is visible.

Which feature of the Amazon API Gateway can be used to format the data response?



- Use Amazon API Gateway Mapping Templates.
- Deploy an interceptor shell script.
- Use an Amazon API Gateway stage variable.
- Use an AWS Lambda custom interceptor.

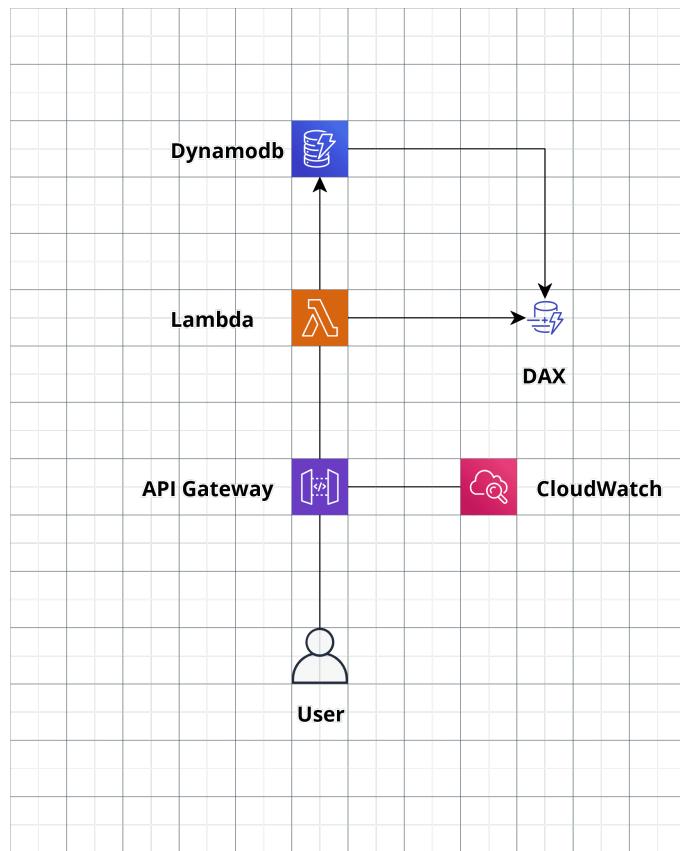
Question - 28
Minimum Downtime

SCORE: 5 points

AWS Lambda Medium

A development team at a social media company uses AWS Lambda for its serverless stack on AWS Cloud. For a new deployment, the team lead wants to send only a certain portion of the traffic to the new Lambda version. In case the deployment goes wrong, the solution should be able to roll back to a previous version of the Lambda function with minimum downtime for the application.

Which of the following options would be recommended?



- Set up the application to use an alias that points to the current version. Deploy the new version of the code and configure the alias to send all users to this new version. If the deployment goes wrong, reset the alias to point to the current version.
- Set up the application to use an alias that points to the current version. Deploy the new version of the code and configure the alias to send 10% of the users to this new version. If the deployment goes wrong, reset the alias to point all traffic to the current version.
- Set up the application to directly deploy the new Lambda version. If the deployment goes wrong, reset the application to the current version using the version number in the ARN.
- Set up the application to have multiple aliases of the Lambda function. Deploy the new version of the code. Configure a new alias that points to the current alias of the Lambda function to handle 10% of the traffic. If the deployment goes wrong, reset the new alias to point all traffic to the most recent working alias of the Lambda function.

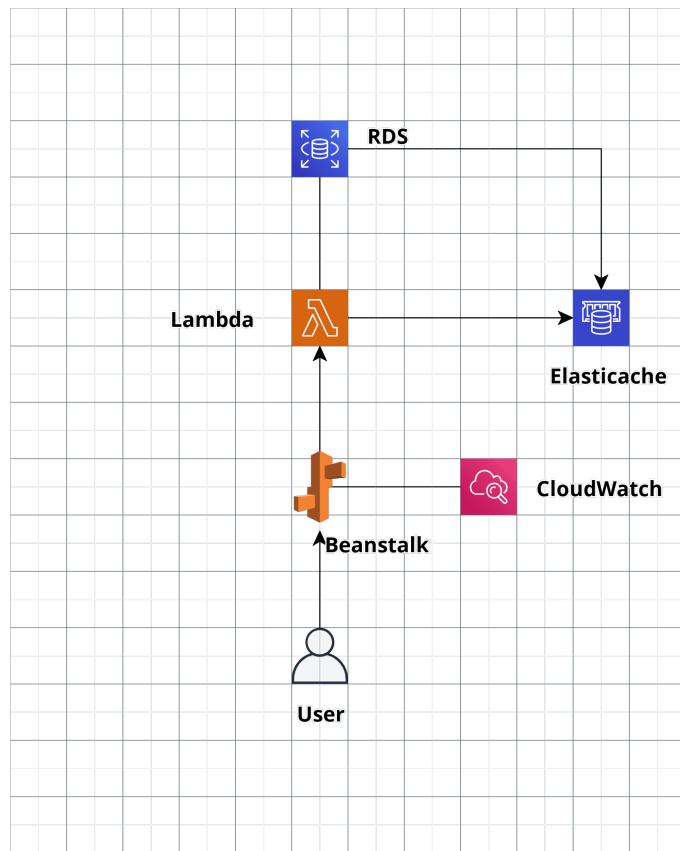
Question - 29 ElastiCache

SCORE: 5 points

Medium AWS ElastiCache

A Java application uses Amazon RDS for its main data storage and Amazon ElastiCache for user session storage. The application is deployed using AWS Elastic Beanstalk and every new deployment should allow the application servers to reuse the Amazon RDS database. On the other hand, user session data stored in Amazon ElastiCache can be recreated for every deployment.

Which of the following configurations will achieve this? (select two)



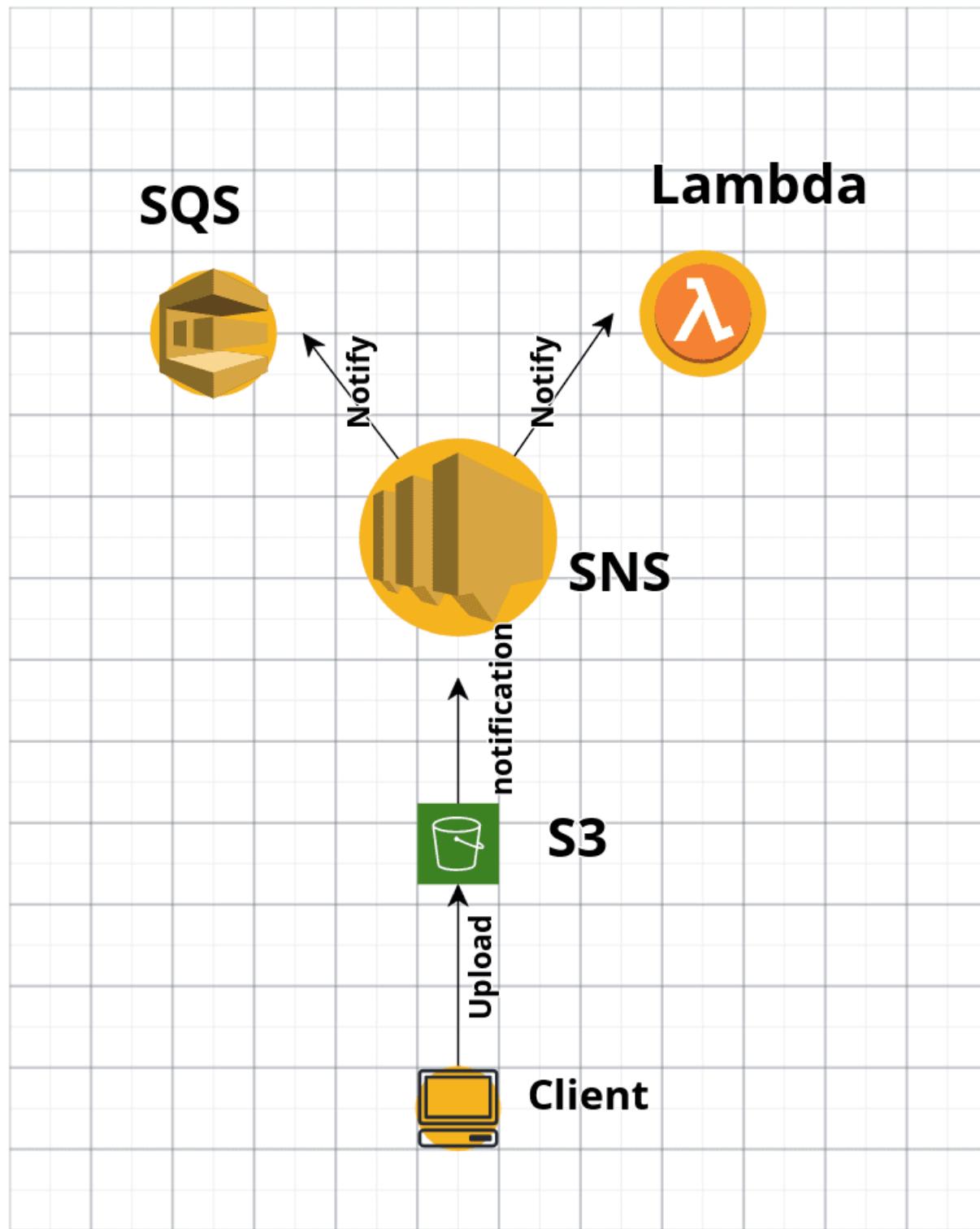
- Amazon ElastiCache bundled with the application source code
- Amazon RDS database defined in `.ebextensions/`
- Amazon ElastiCache database defined externally and referenced through environment variables
- Amazon ElastiCache defined in `.ebextensions/`
- Amazon RDS database defined externally and referenced through environment variables

Question - 30 AWS SNS

SCORE: 5 points

AWS Easy

This architectural diagram shows a typical web client using AWS services like Amazon S3 and Amazon SNS. The whole service is hosted in the Amazon cloud.

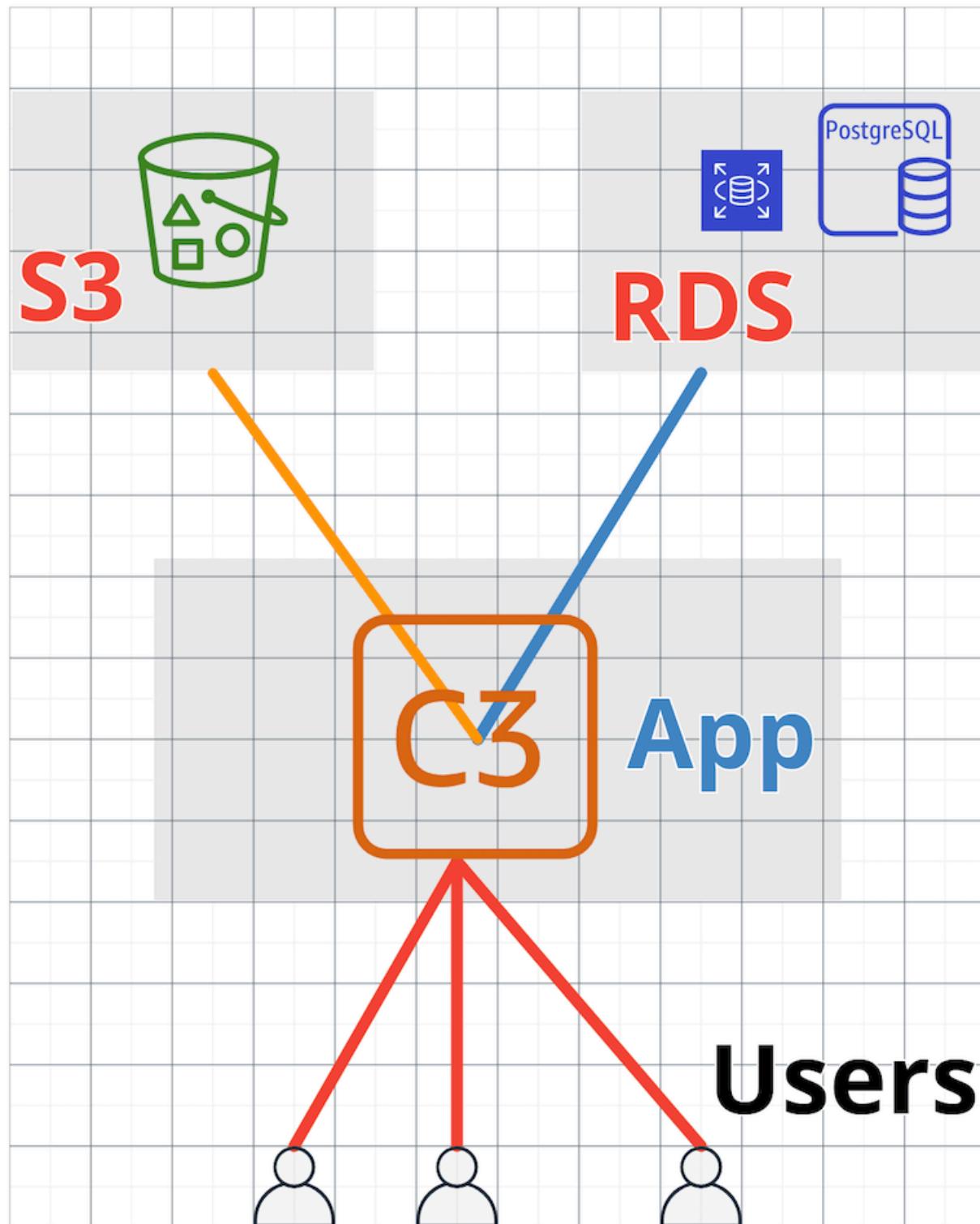


Here, the client is either a web application or a native AWS client that uploads files to Amazon S3. The Amazon S3 bucket is configured to send Amazon Simple Notification Service (Amazon SNS) upon receiving files.

What needs to be the Amazon SNS topic type if the order in which messages are published and delivered is strictly preserved?

- Standard
- Last in, first out (LIFO)
- First in, first out (FIFO)
- Strict

This is an architectural diagram of a simple web application infrastructure. The service is hosted in the Amazon cloud.



The application is an e-commerce platform where users can buy products. It stores client files like images, CSS, and JS in the Amazon S3 and product attribute details in the Amazon RDS database.

If any number of users can browse a website at any number of times, which storage class should be chosen for Amazon S3 to have a fast browsing experience?

- Amazon S3 Intelligent-Tiering
- Amazon S3 Glacier
- Amazon S3 Standard
- Amazon S3 Standard-Infrequent Access

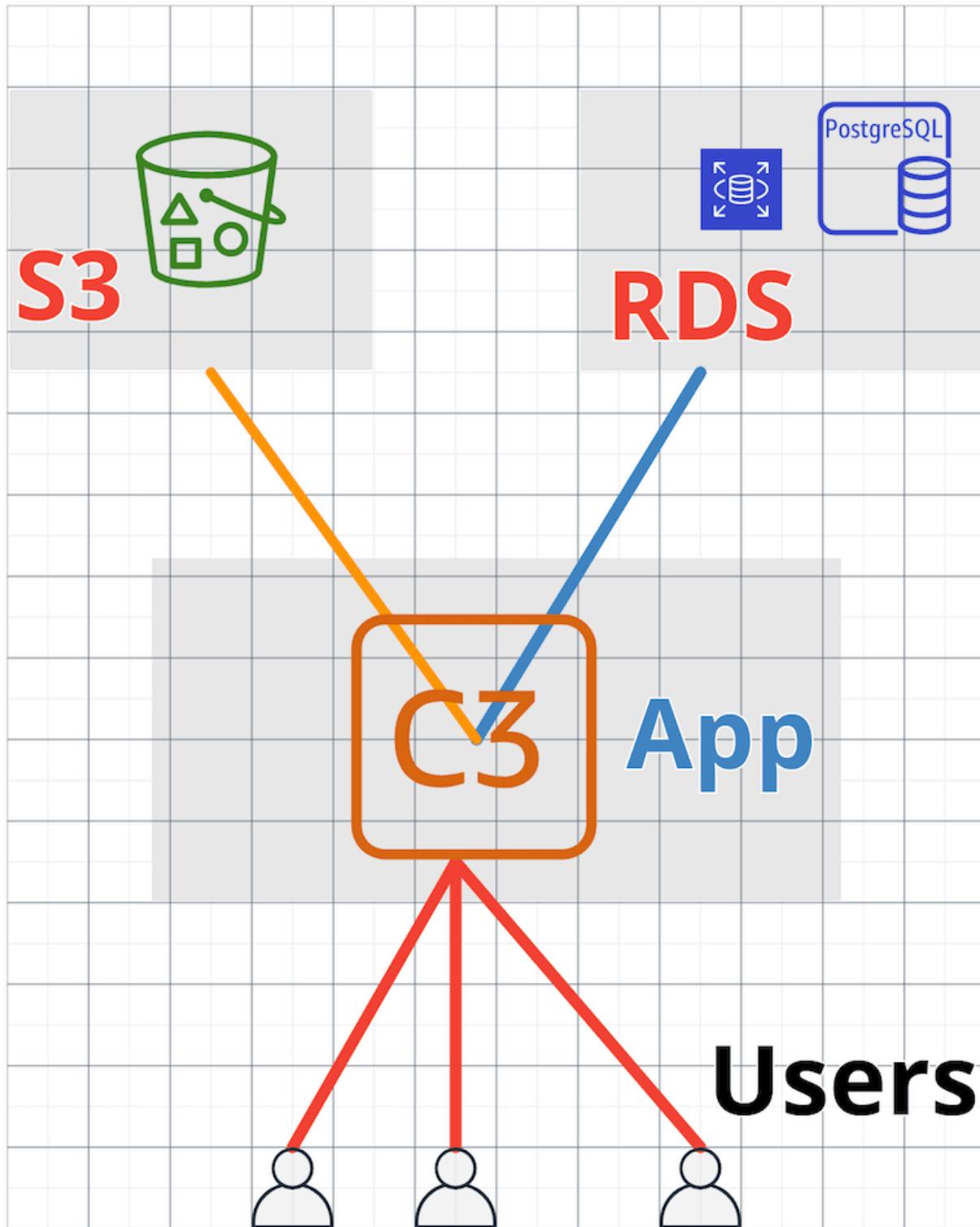
Question - 32

SCORE: 5 points

AWS S3 Backup Storage Class

AWS Easy Theme: E-commerce

This is an architectural diagram of a simple web application infrastructure. The service is hosted in the Amazon cloud.



The application is an e-commerce platform where users can buy products. It stores client files like images, CSS, and JS in the Amazon S3, and product attribute details in the Amazon RDS database. It makes an RDS database backup on a daily basis and stores it in a separate Amazon S3 bucket. The backup is needed only when the current database is lost. Assume the recovery has no time constraint.

Which storage class should be used to back up the Amazon S3 bucket at the lowest cost?

- Amazon S3 Standard-Infrequent Access
- Amazon S3 Glacier
- Amazon S3 Standard

Question - 33

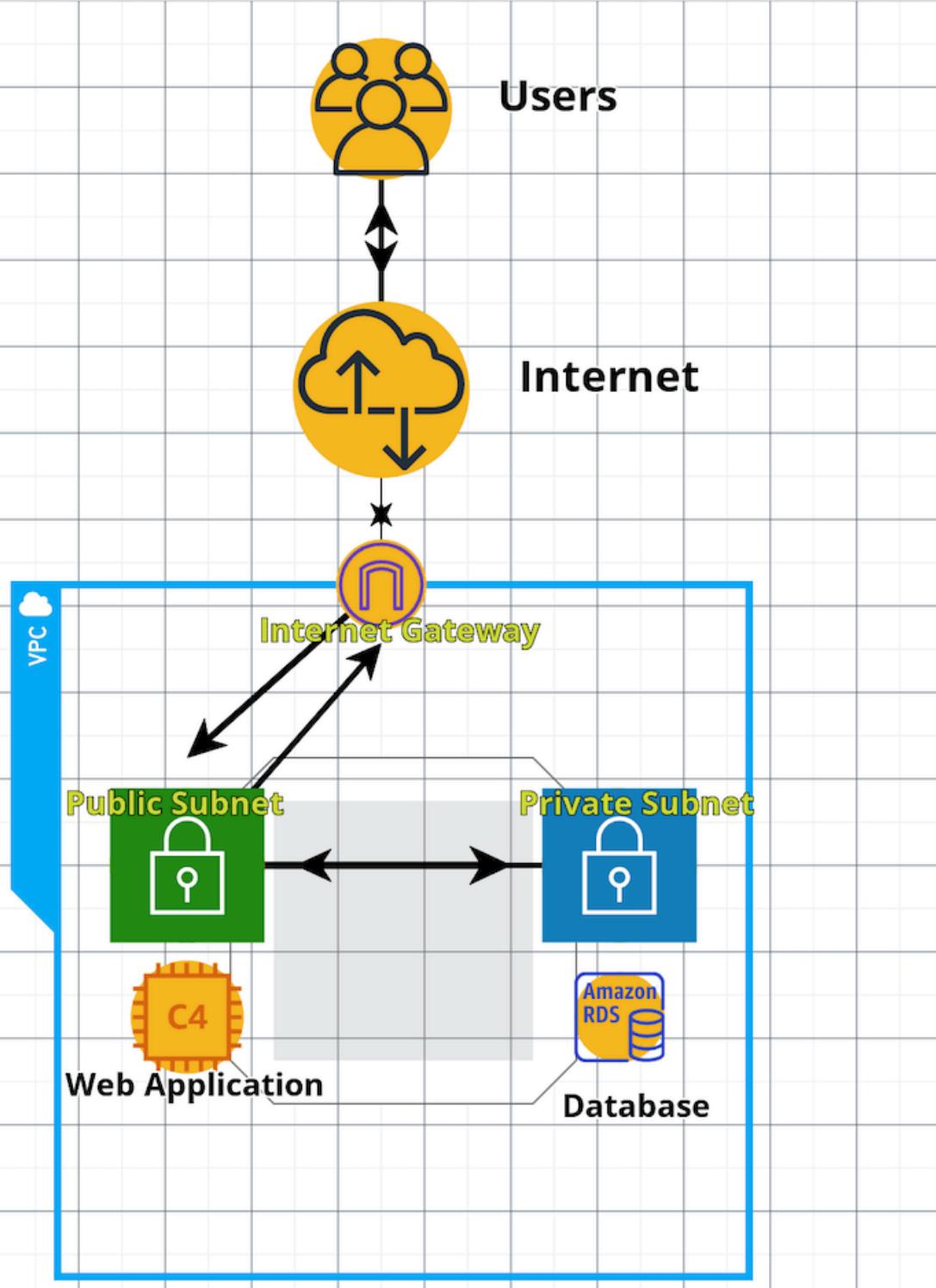
SCORE: 5 points

AWS RDS

AWS

Easy

This is an architectural diagram of a web application infrastructure. The whole service is hosted in the Amazon cloud.



The application is a web platform for subscription management. It stores the subscription details in the Amazon RDS database.

Where are Amazon RDS automated DB backups stored?

- Amazon EBS Volume
- Amazon RDS
- Amazon S3
- Amazon Redshift

Question - 34

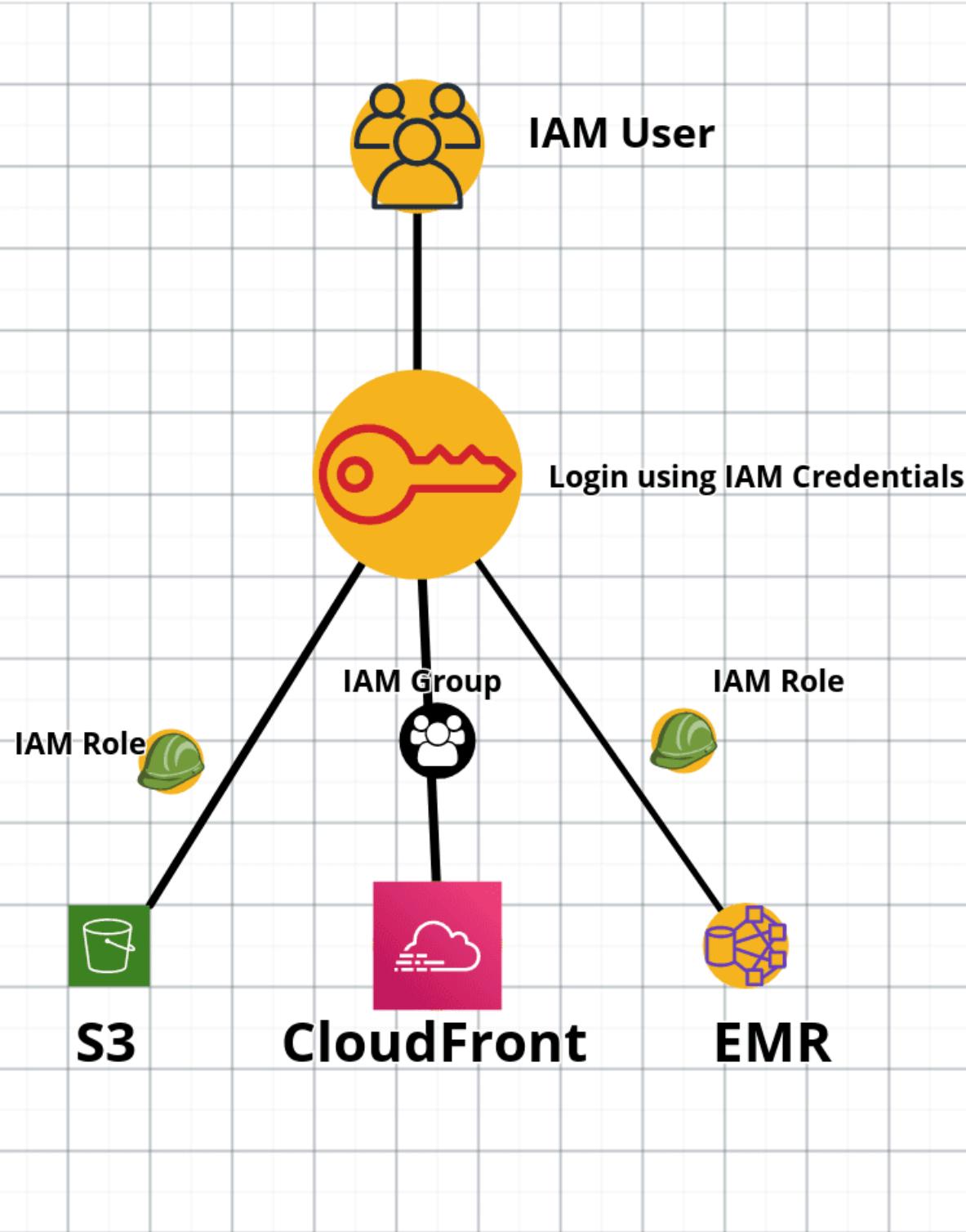
SCORE: 5 points

AWS IAM Identities

AWS

Easy

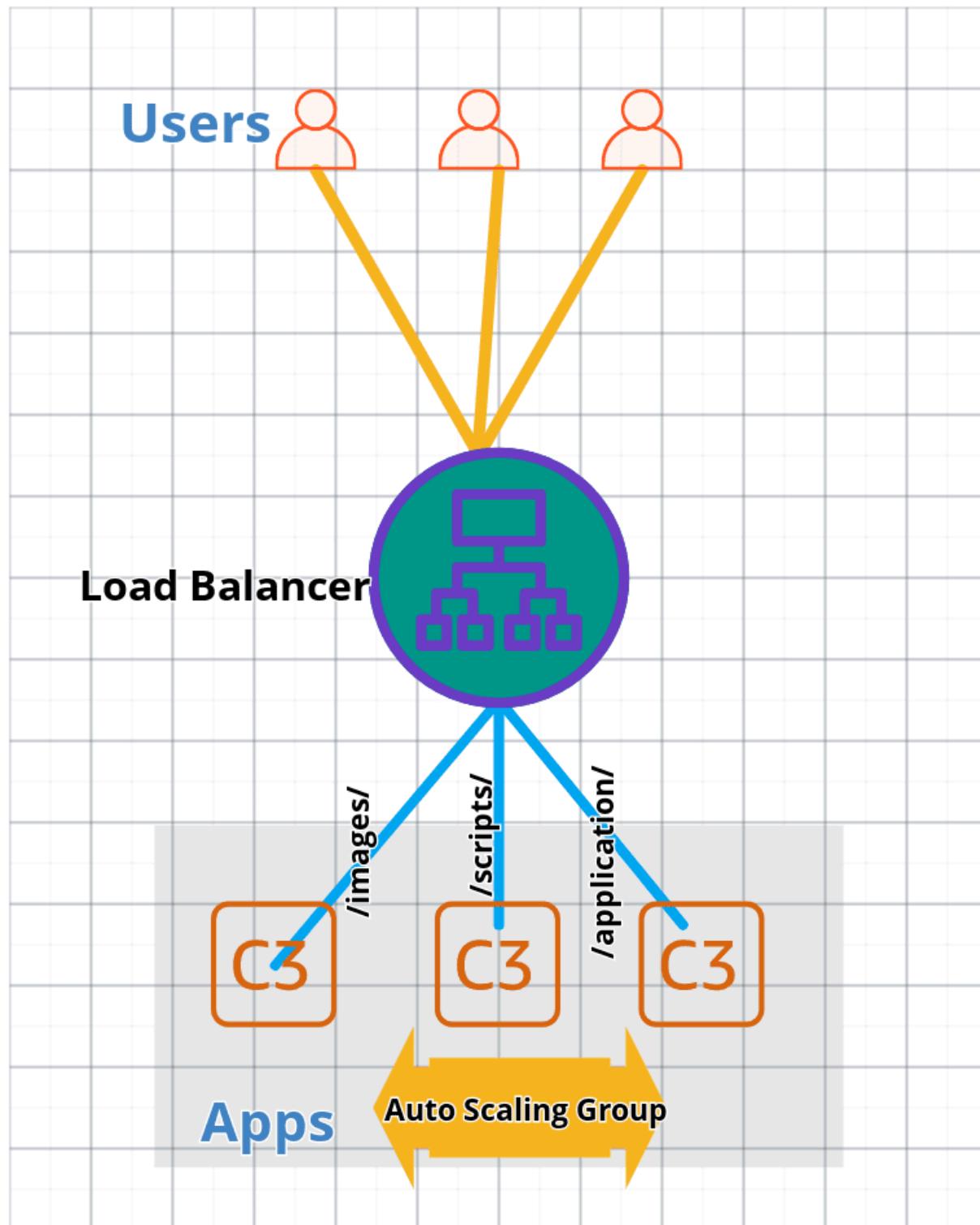
This diagram shows how a typical user logs into AWS using IAM credentials and accesses various services using roles and group permissions.



Which of the following is an identity in the AWS IAM?

- IAM user groups
- IAM Roles
- IAM Users
- All of these

This is an architectural diagram of a simple content management deployment infrastructure. The service is hosted in the Amazon cloud.



The application is a content management platform that consists of components like image, script, and application services. The services are deployed on different Amazon EC2 instances and managed by an auto-scaling group. The load balancer routes user requests based on the request path to a specified instance.

Which type of load balancer is suitable?

- Network Load Balancer
- Gateway Load Balancer
- Path Load Balancer
- Application Load Balancer

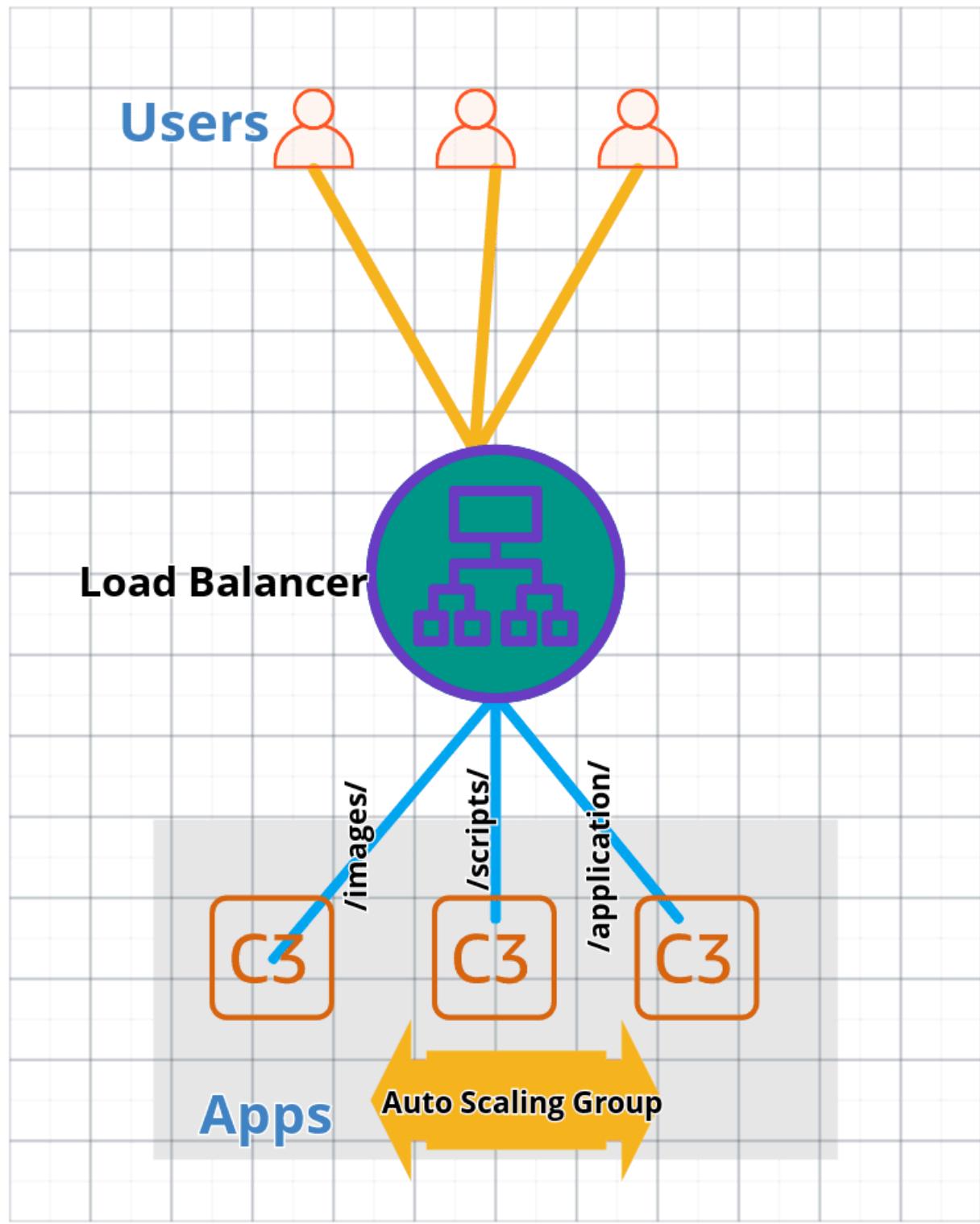
Question - 36

SCORE: 5 points

AWS EC2 - Remove a Load Balancer

Easy AWS

This is an architectural diagram of a simple content management deployment infrastructure. The whole service is hosted in the Amazon cloud.



The application is a content management platform that consists of components like image, script, and application services. The services are deployed on different Amazon EC2 instances and managed by an auto-scaling group. The load balancer routes user requests based on the request path to a specified instance.

What happens if the load balancer is removed?

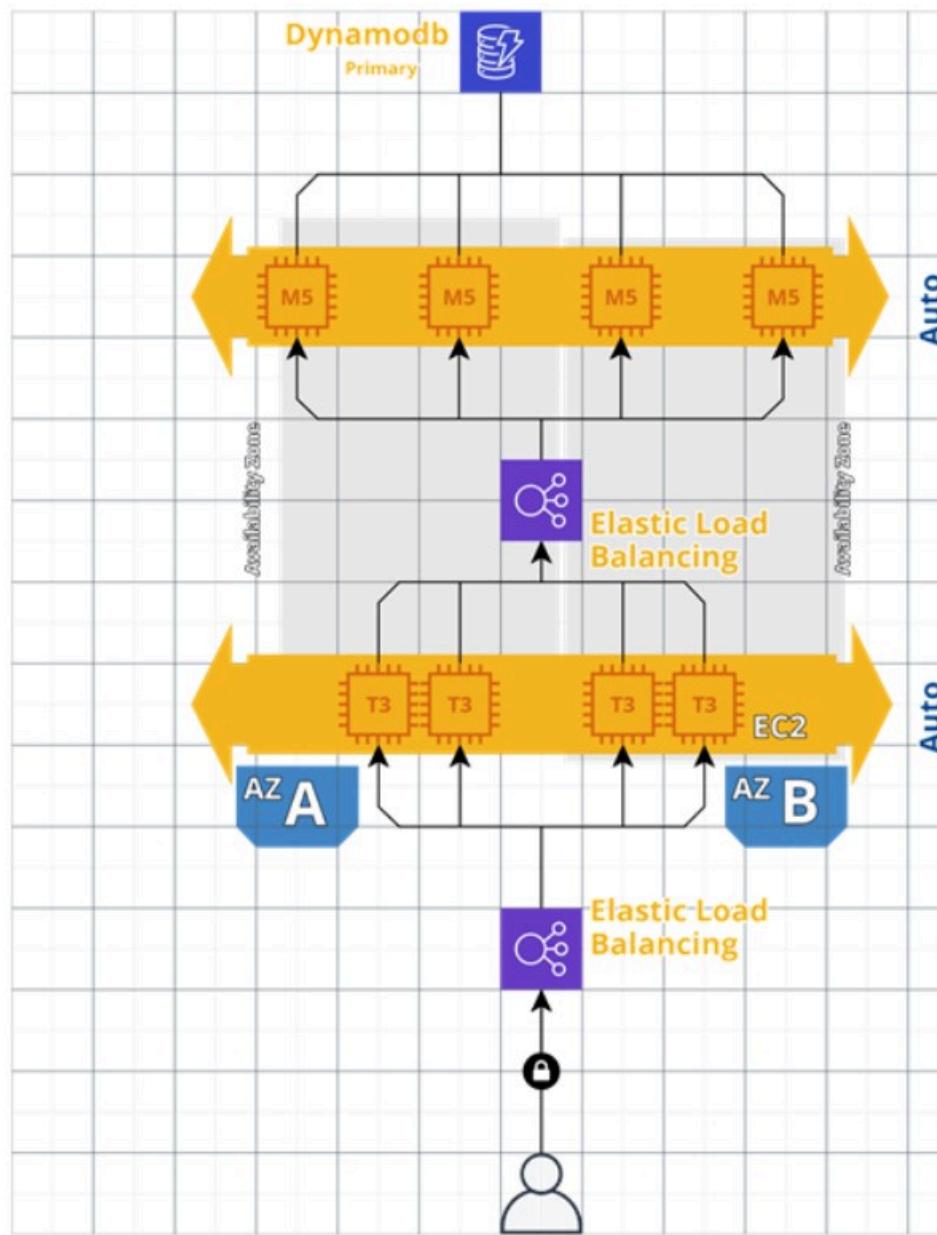
- Auto-scaling will continue to work.
- The auto-scaling process will stop.
- The auto-scaling process will relaunch the load balancer.

Question - 37
Simple Web Application

SCORE: 5 points

 DynamoDB DAX Elastic Beanstalk AWS Easy NoSQL

This is an architectural diagram of a simple web application. The service is hosted in a single AWS region (us-east-2).



A reporting application is hosted in AWS Elastic Beanstalk and uses Amazon DynamoDB as its database. If a user requests data, it scans the entire table and returns the requested data. In the coming weeks, it is expected that the table will grow due to the surge of new users and requested reports.

Which of the following should be done in preparation to improve the performance of the application with minimal cost? (select two)

- Increase the page size.
- Increase the Web ACL Capacity Unit (WCU) of the table.
- Use a query operation.

Reduce the page size. Use Amazon DynamoDB Accelerator (DAX).

Question - 38

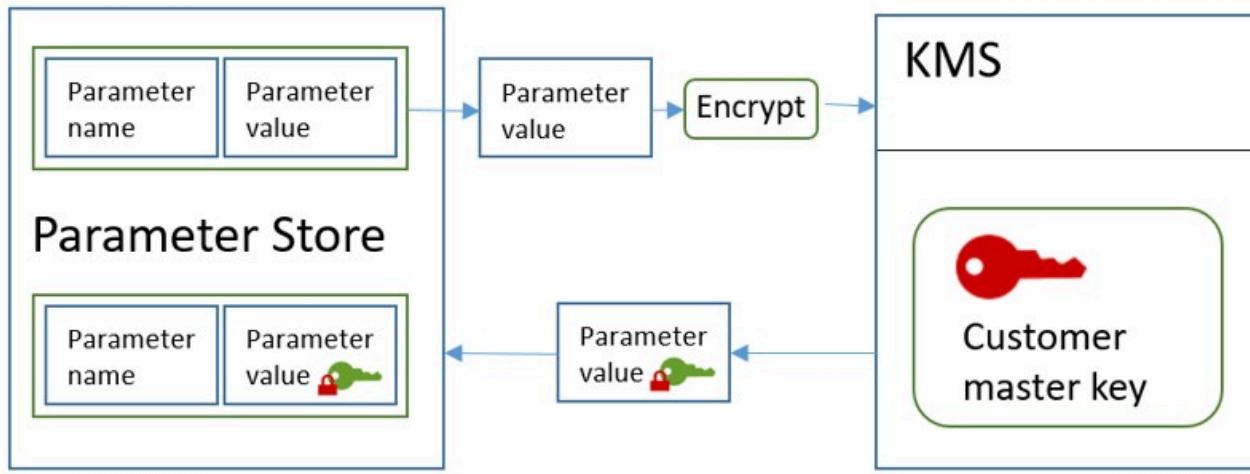
SCORE: 5 points

AWS KMS Parameter Store

[KMS](#) [Parameter Store](#) [AWS](#) [Medium](#) [Amazon AWS S3](#)

A developer runs a shell script that uses the AWS CLI to upload a large file to an S3 bucket, which includes an AWS KMS key. An Access Denied error always shows up whenever the developer uploads a file with a size of 100 GB or more. Uploading a smaller file with the KMS key succeeds.

Which of the following are possible reasons why this issue is happening? (select two)



- The AWS CLI S3 commands perform a multipart upload when the file is large.
- The developer does not have the kms:Decrypt permission.
- The developer does not have the kms:Encrypt permission.
- The developer's IAM permission has an attached inline policy that restricts him from uploading a file to S3 with a size of 100 GB or more.
- The maximum size that can be encrypted in KMS is 100 GB.

Question - 39

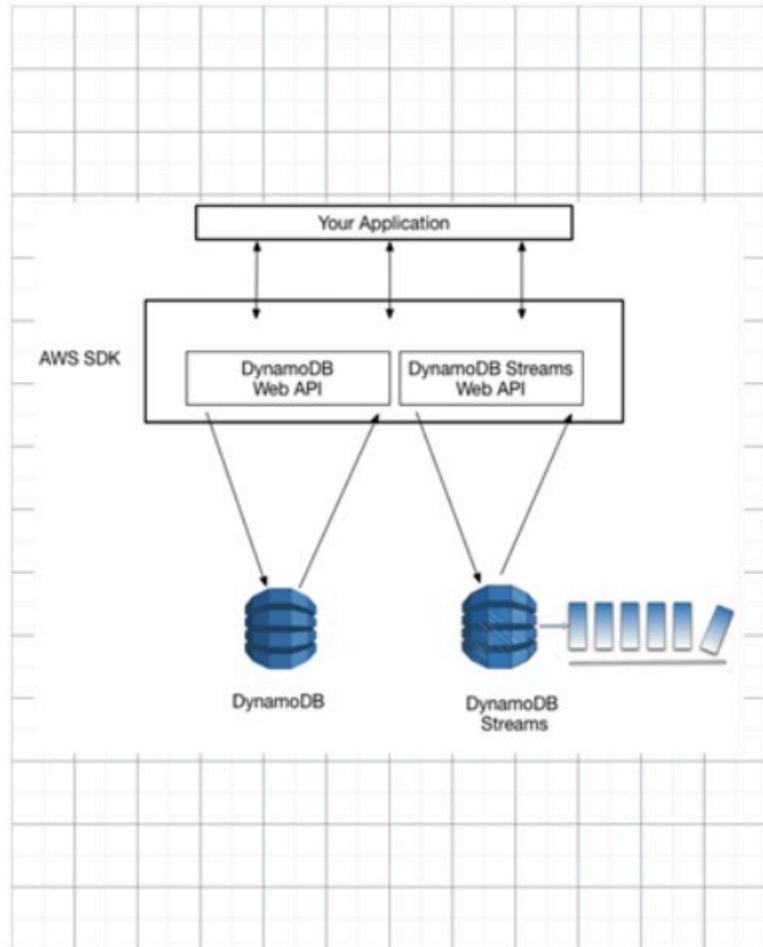
SCORE: 5 points

DynamoDB Stream

[DynamoDB Stream](#) [Lambda](#) [AWS](#) [Medium](#) [NoSQL](#)

A developer is designing an online medical appointment system. It will allow patients to book an appointment with their preferred doctors at medical centers all over the country. The Amazon DynamoDB Streams feature is enabled in the DynamoDB database. It can capture information about every modification to data items in the table. An AWS Lambda function integrated with Amazon CloudWatch Events is used to process the data stream every 36 hours and to store the results in an Amazon S3 bucket. It is found that there are a lot of updates in DynamoDB which are not sent to the S3 bucket even though there are no errors in the logs.

Which of the following is the most appropriate solution?



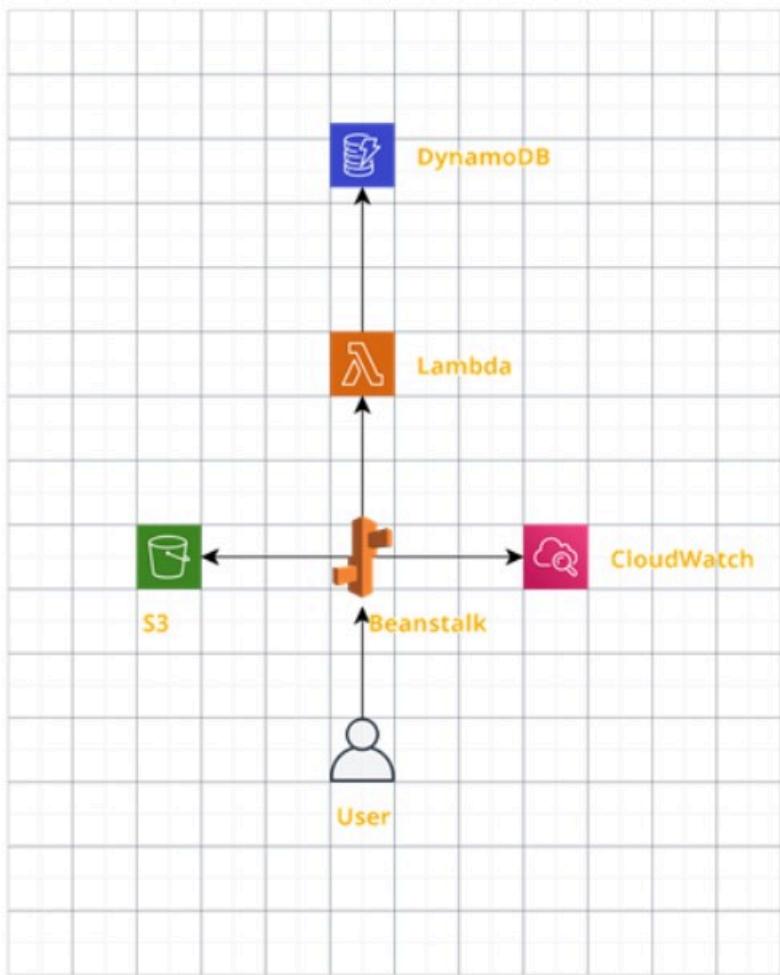
- Decrease the interval of running the function to 24 hours.
- Increase the interval of running the function to 48 hours.
- Set the value of the StreamViewType parameter in DynamoDB Streams to NEW_AND_OLD_IMAGES.
- Set the value of the StreamViewType parameter in DynamoDB Streams to NEW_IMAGE.

Question - 40 Elastic Beanstalk With Lambda and DynamoDB

SCORE: 5 points

[Lambda](#) [DynamoDB Stream](#) [AWS](#) [Easy](#) [NoSQL](#)

There is an online learning platform using AWS Lambda, AWS Elastic Beanstalk, and Amazon DynamoDB. Whenever a new customer is added to the DynamoDB table, it will invoke a Lambda function that sends a welcome email to the customer. Which of the following is the most suitable solution for this feature?



- Use Amazon CloudWatch Events to track all new data in the table and configure it as the event source for the Lambda function.
- Enable DynamoDB Streams and configure them as the event source for the Lambda function.
- Enable DynamoDB Transactions and configure it as the event source for the Lambda function.
- Use Amazon Kinesis Data Streams to track all new data in the table and configure it as the event source for the Lambda function.

Question - 41

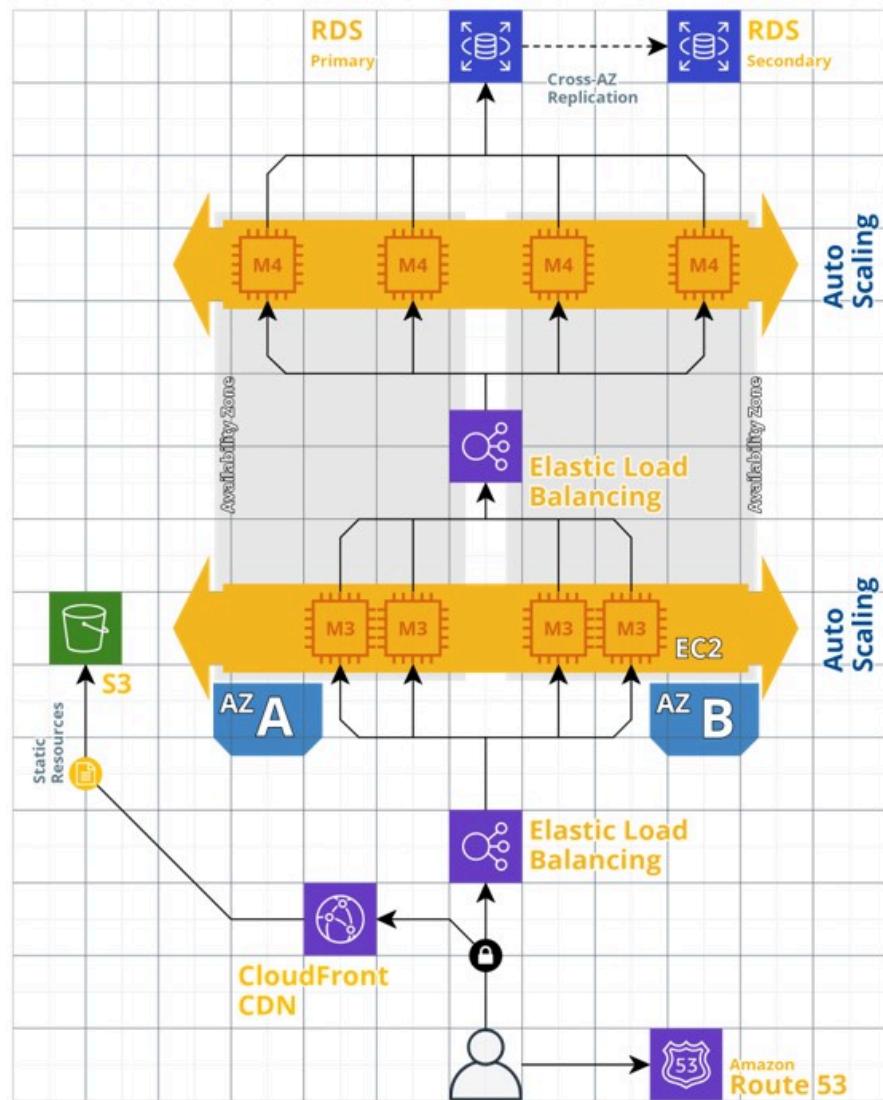
Elastic Beanstalk with Encrypted S3 Bucket

SCORE: 5 points

Elastic Beanstalk Encryption AWS Medium Amazon AWS S3

A developer is designing a multi-tiered system that utilizes various AWS resources. The application will be hosted in AWS Elastic Beanstalk, which uses an Amazon RDS database and an Amazon S3 bucket that is configured to use Server-Side Encryption with Customer-Provided Encryption Keys (SSE-C). In this configuration, Amazon S3 does not store the encryption key you provide but instead, stores a randomly salted hash-based message authentication code (HMAC) value of the encryption key in order to validate future requests.

Which of the following is a valid consideration that the developer should keep in mind when implementing this architecture?



- The salted hash-based message authentication code (HMAC) value can be used to derive the value of the encryption key.
- The salted HMAC value can be used to decrypt the contents of the encrypted object.
- If the encryption key is lost, the salted HMAC value can be used to decrypt the object.
- If the encryption key is lost, the object is lost.

Question - 42

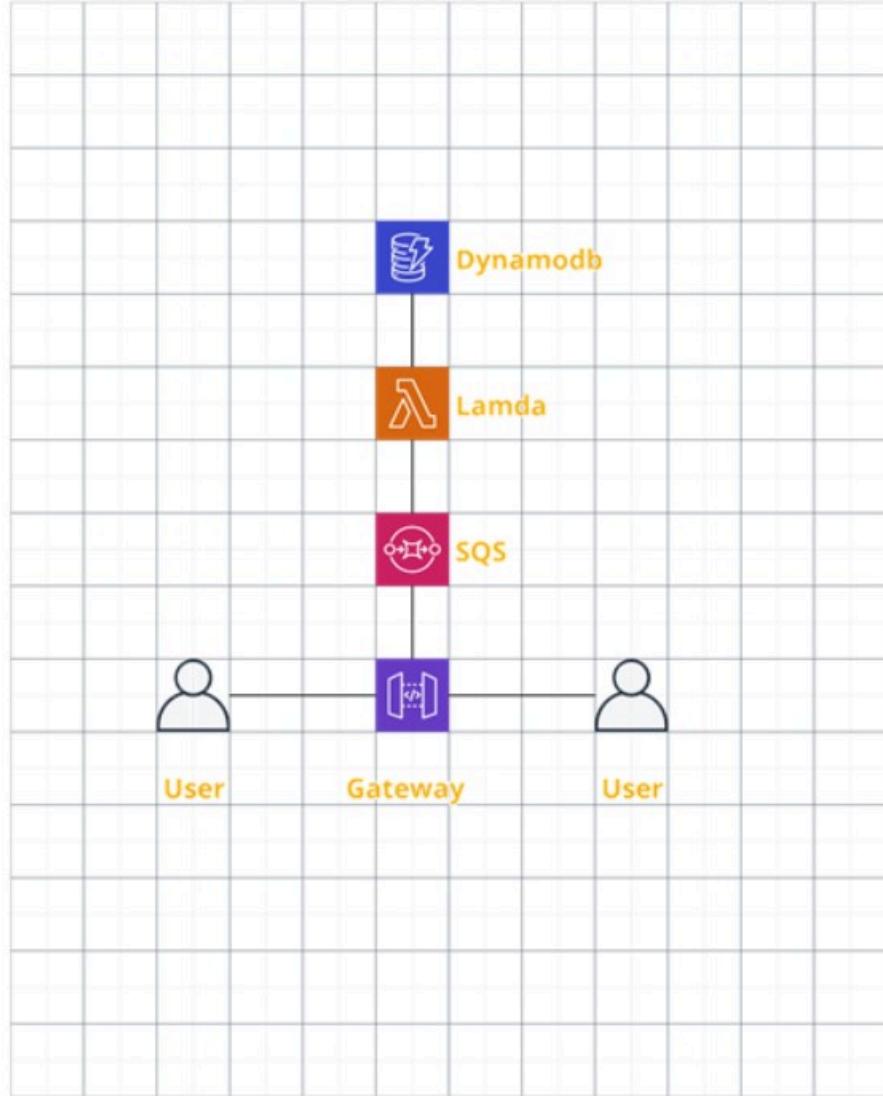
AWS Serverless Application

SCORE: 5 points

Lambda AWS Easy DynamoDB NoSQL

A mobile game has a serverless backend in AWS which is composed of AWS Lambda, Amazon API Gateway, and Amazon DynamoDB. It writes 100 items per second to the AmazonDynamoDB table and the size is 1.5 KB per item. The table has a provisioned AWS WAF web ACL capacity units (WCUs) of 100, but the write requests are still being throttled by Amazon DynamoDB.

What is the MOST suitable solution to address this throttling issue?



- Enable Amazon DynamoDB Accelerator (DAX).
- Implement database caching with an Amazon ElastiCache cluster.
- Use strong consistency in the write operations.
- Increase the AWS WAF web ACL capacity units (WCUs) to 200

Question - 43

AWS Web App: Application Capacity Optimization

SCORE: 5 points

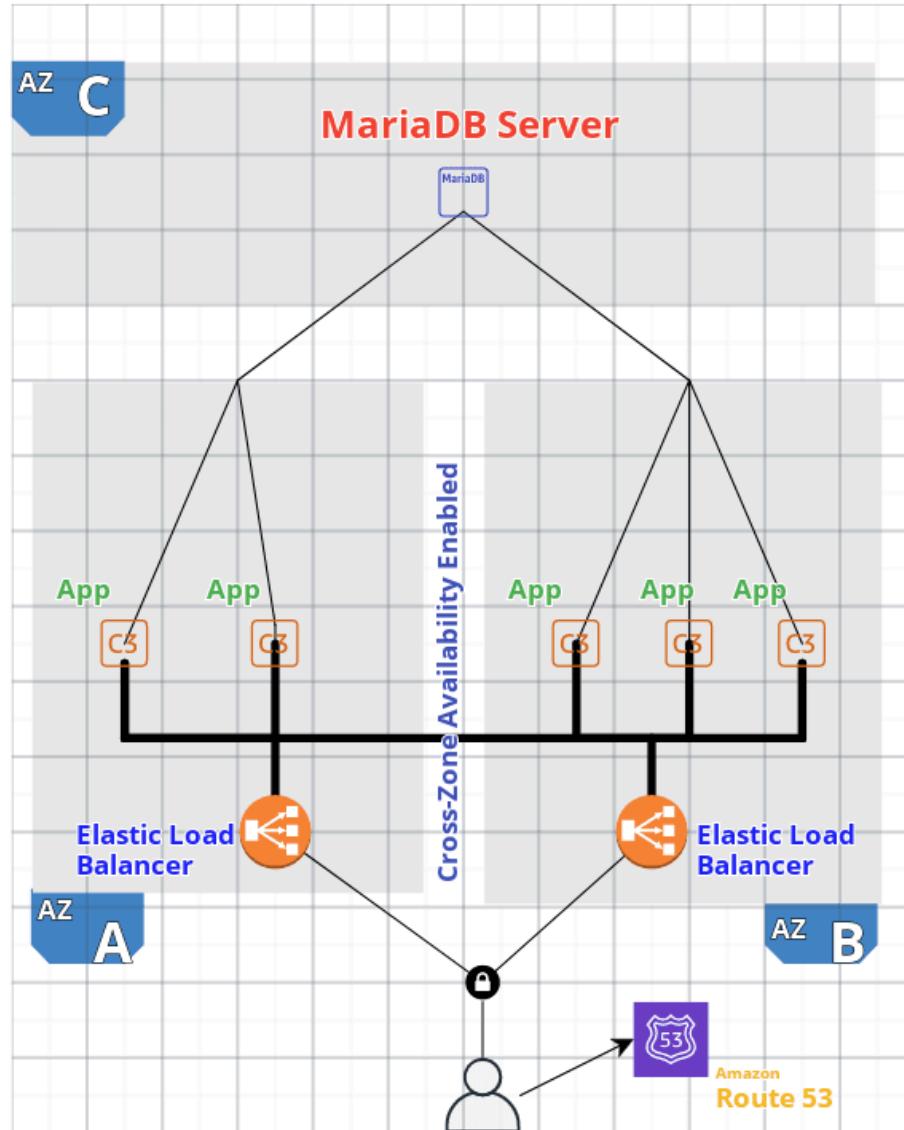
AWS

Easy

This is an architectural diagram of a simple web application. The whole service is hosted in a single AWS region (us-east-2).

AZ C

MariaDB Server



There are two enabled Availability Zones (AZs), with 2 targets in AZ "A" and 3 targets in AZ "B". Clients send requests, and Amazon Route 53 responds to each request with the IP address of one of the load balancer nodes. Amazon Route 53 has been configured such that each load balancer node receives an equal share of the traffic from the clients. Each load balancer node distributes its share of the traffic across the registered targets in its scope.

It is discovered that the web app servers are encountering frequent timeouts on database requests due to disk IOPS (Input/Output Operations Per Second) getting maxed out on the Amazon RDS for MariaDB database server. It is using a 1 TB st1 disk on the Amazon RDS for MariaDB server, and it is noticed that the database server needs at least 3000 IOPS and a disk size of at least 500GB to solve the timeout issue.

Which of the following can provide the required IOPS at the minimum cost?

Note: "gp2" costs \$0.10 per GB per month and gives 3 IOPS per GB. "io1" costs \$0.125 per GB per month and \$0.065 per provisioned IOPS per month.

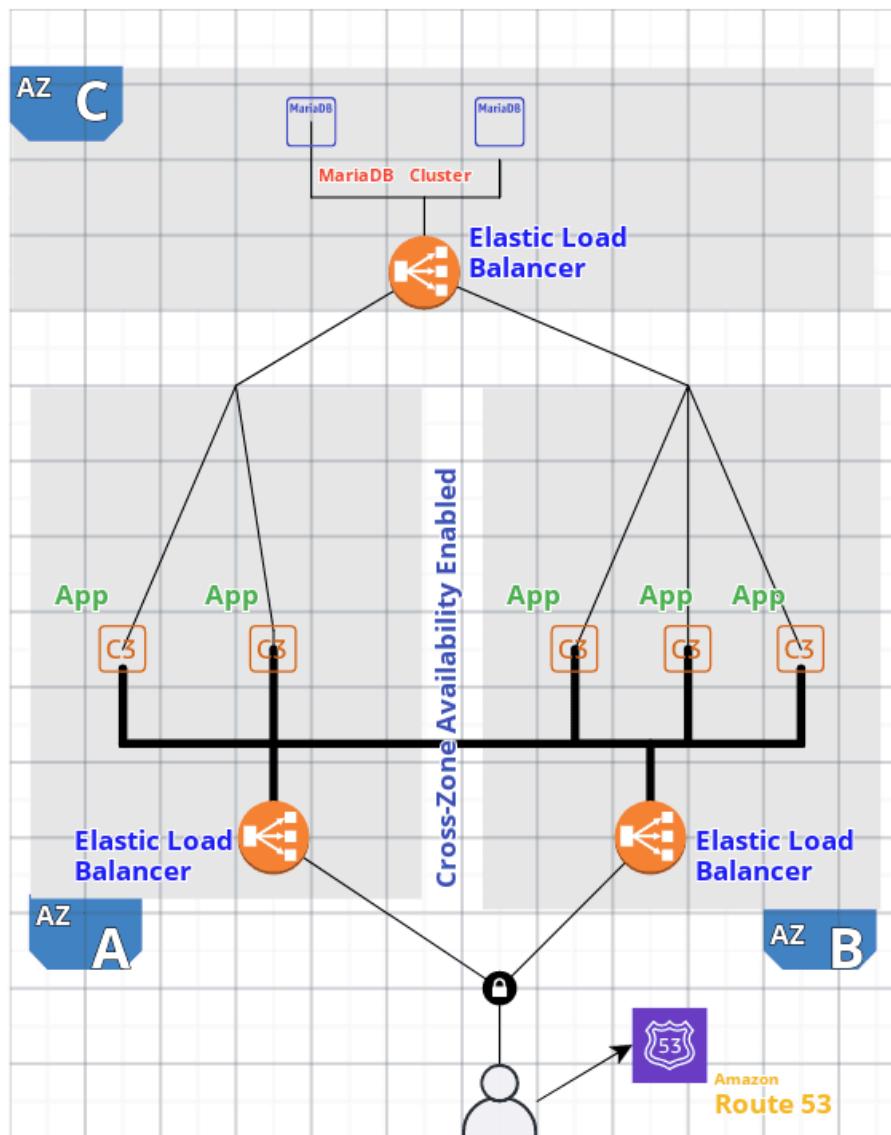
- Upgrade the current 1 TB "st1" to 1 TB "gp2".
- Upgrade the current 1 TB "st1" to 500 GB "io1" with 3000 provisioned IOPS.
- Upgrade the current 1 TB "st1" to 500 GB "gp2".
- Upgrade the current 1 TB "st1" to 1 TB "io1" with 3000 provisioned IOPS.

Question - 44

AWS Web App: Load Balancing and Node Health

SCORE: 5 points

This is an architectural diagram of a simple web application. The whole service is hosted in a single AWS region (us-east-2).



There are two enabled Availability Zones(AZs), with 2 targets in AZ "A" and 3 targets in AZ "B". Clients send requests, and Amazon Route 53 responds with the IP address of one of the load balancer nodes. Amazon Route 53 has been configured in a way that each load balancer node receives an equal share of the traffic from the clients. Each load balancer node distributes its share of the traffic across the registered targets in its scope.

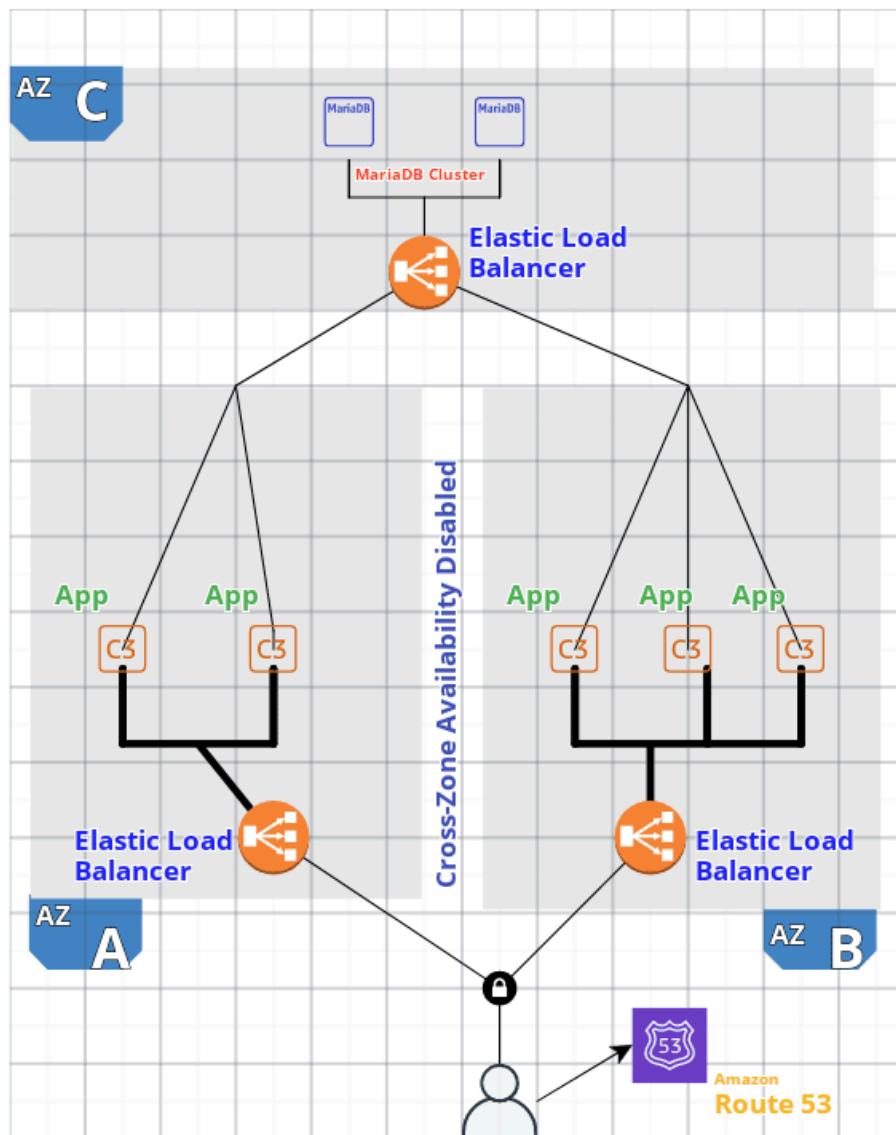
What happens when one of the targets in AZ "A" becomes unhealthy?

- The ELB in AZ "A" will stop serving traffic to it and divert its traffic to a healthy instance.
- The ELB in AZ "A" will stop serving traffic and the ELB in AZ "B" will start serving traffic.
- The ELB in AZ "A" will stop serving traffic to its targets and divert its traffic to targets in AZ "B".
- All of the above

Question - 45
AWS Web App: Load Balancing and Traffic Management

SCORE: 5 points

This is an architectural diagram of a simple web application. The whole service is hosted in a single AWS region (us-east-2).



There are two Availability Zones(AZs), with 2 targets in AZ A and 3 targets in AZ B.

Clients send requests and Amazon Route 53 responds to each request with the IP address of one of the load balancer nodes.

Route 53 has been configured in a way that each load balancer node receives an equal share of the traffic from the clients.

Each load balancer node distributes its share of the traffic across the registered targets in its scope.

Answer the question below.

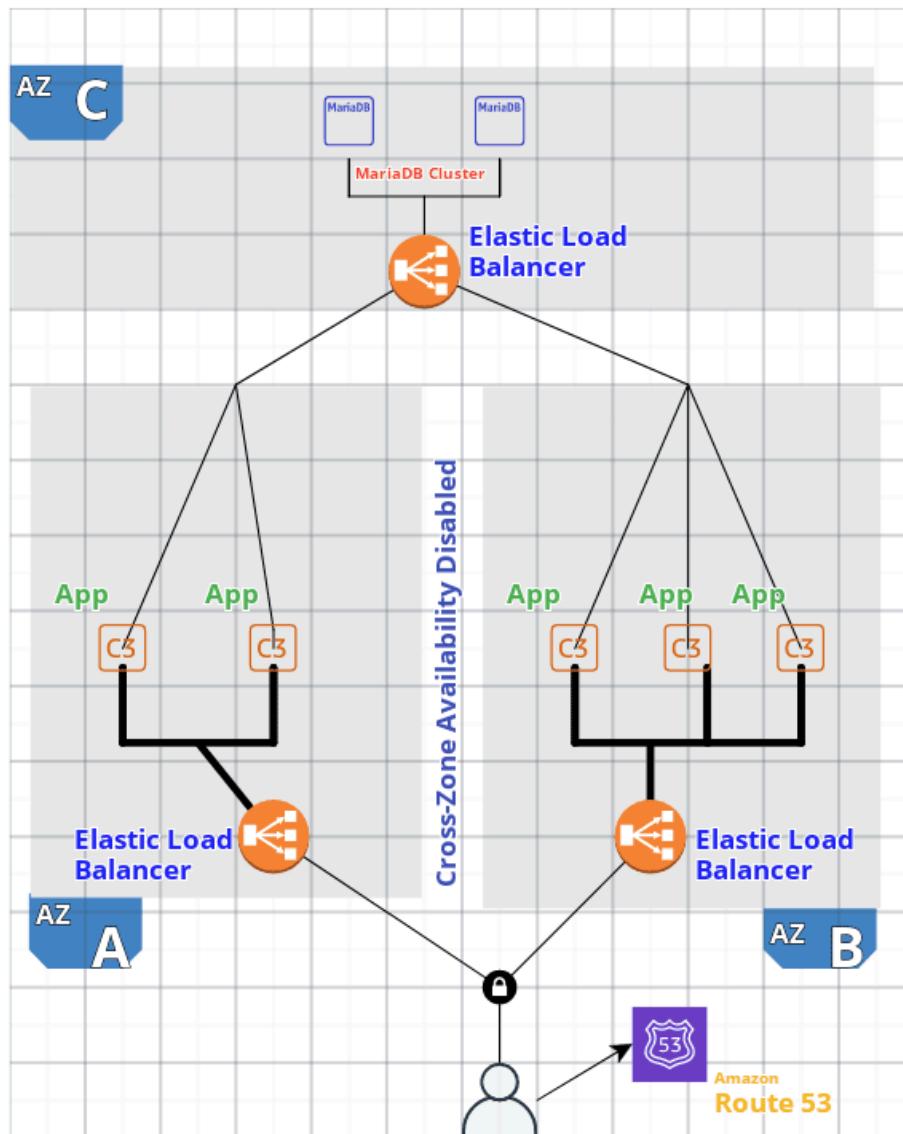
As cross-zone load balancing is disabled, how much traffic will each of the 5 targets receive?

- Each of the 2 targets in AZ A receives 25% of the traffic and each of the 3 targets in AZ B receives 16.67% of the traffic
- Each of the 2 targets in AZ A receives 12.5% of the traffic and each of the 3 targets in AZ B receives 25% of the traffic
- Each of the 2 targets in AZ A receives 50% of the traffic and each of the 3 targets in AZ B receives 50% of the traffic
- None of these

AWS

Easy

This is an architectural diagram of a simple web application. The service is hosted in a single AWS region (us-east-2).



There are two Availability Zones(AZs), with 2 targets in AZ A and 3 targets in AZ B.

Clients send requests and Amazon Route 53 responds to each request with the IP address of one of the load balancer nodes.

Route 53 has been configured so that each load balancer node receives an equal share of the traffic from the clients.

Each load balancer node distributes its share of the traffic across the registered targets in its scope.

Assuming cross-zone load balancing is disabled, how much traffic will each of the 2 AZs receive?

Select all that are correct.

- Availability Zone A receives 25% of the traffic.
- Availability Zone B receives 75% of the traffic.
- Availability Zone A receives 50% of the traffic.



Availability Zone B receives 50% of the traffic.

Question - 47

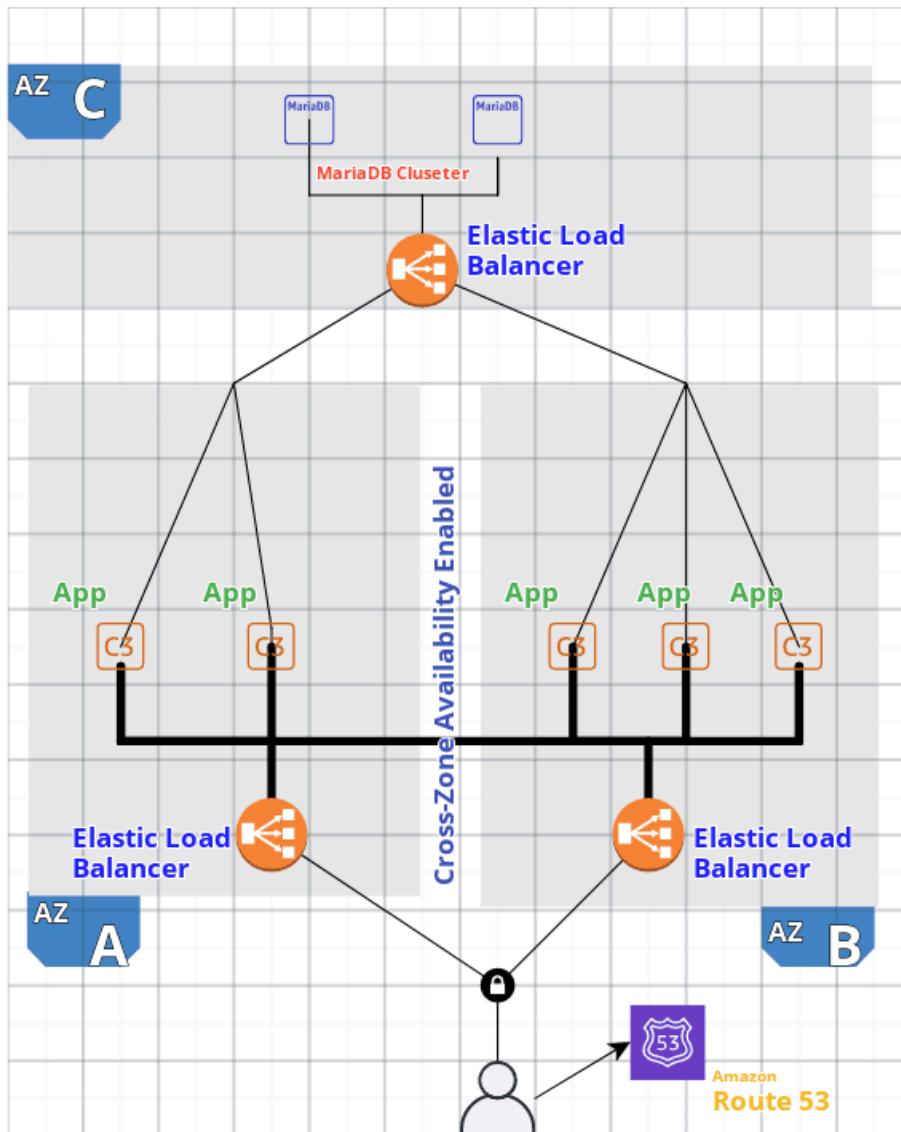
AWS Web App: Enabling Cross Zone Load Balancing

SCORE: 5 points

AWS

Easy

This is an architectural diagram of a simple web application. The whole service is hosted in a single AWS region (us-east-2).



There are two enabled Availability Zones (AZs), with 2 targets in AZ "A" and 3 targets in AZ "B".

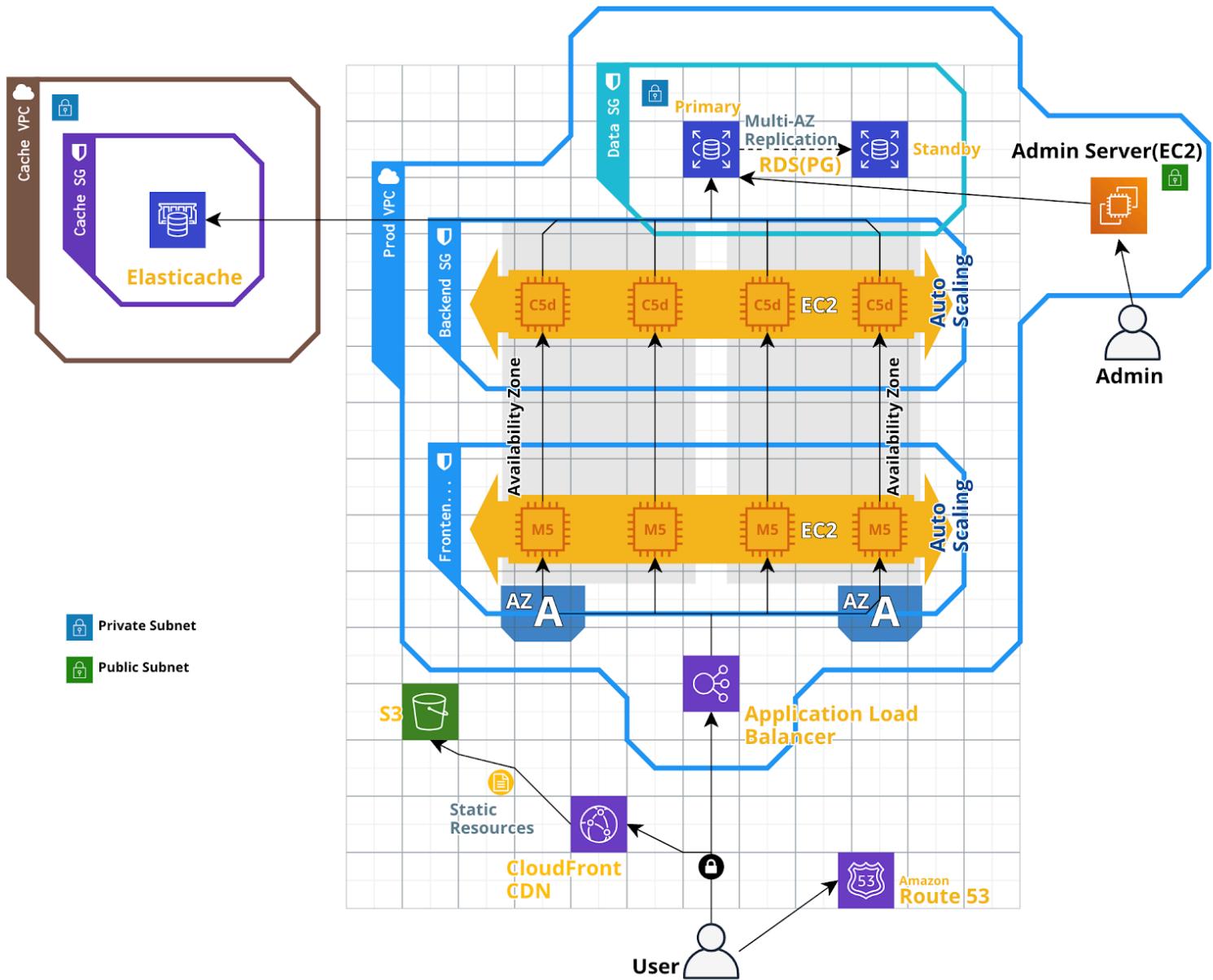
Clients send requests, and Amazon Route 53 responds to each request with the IP address of one of the load balancer nodes.

Amazon Route 53 has been configured in a way that each load balancer node receives an equal share of the traffic from the clients.

Each load balancer node distributes its share of the traffic across the registered targets in its scope.

As cross-zone load balancing is enabled, how much traffic will each of the 5 targets receive?

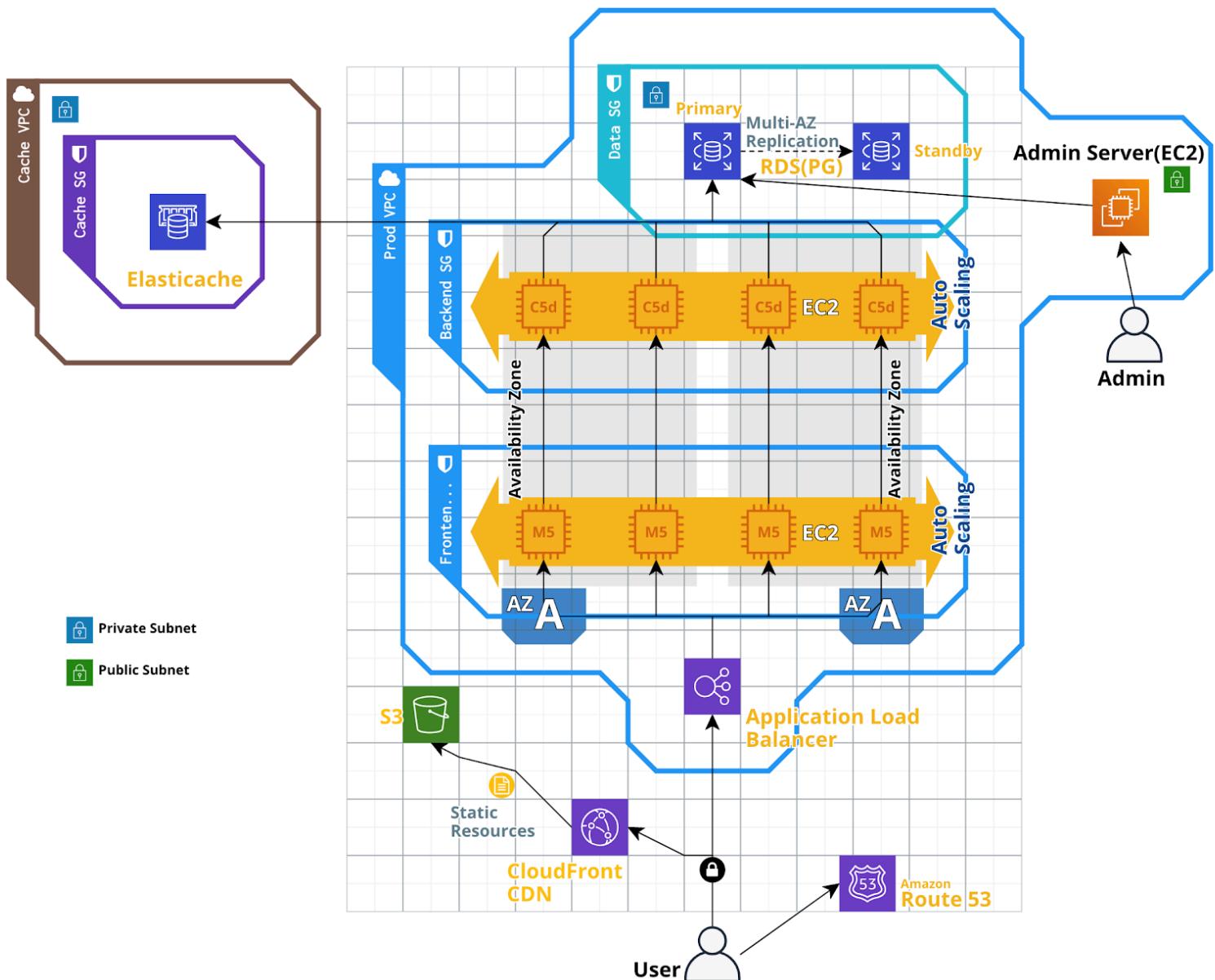
- Each target will receive 50% of traffic from the clients.
- Each target will receive 25% of traffic from the clients.
- Each target will receive 20% of traffic from the clients.
- Each target will receive 100% of traffic from the clients.



This is an architecture diagram of a web e-commerce storefront. The whole service is hosted in a single AWS region (us-east-2).

An engineer must enable backend instances to access the elastic cache server. They are set up in different VPCs right now. Which of these are *appropriate* actions they can possibly take to make it work? Select all that apply.

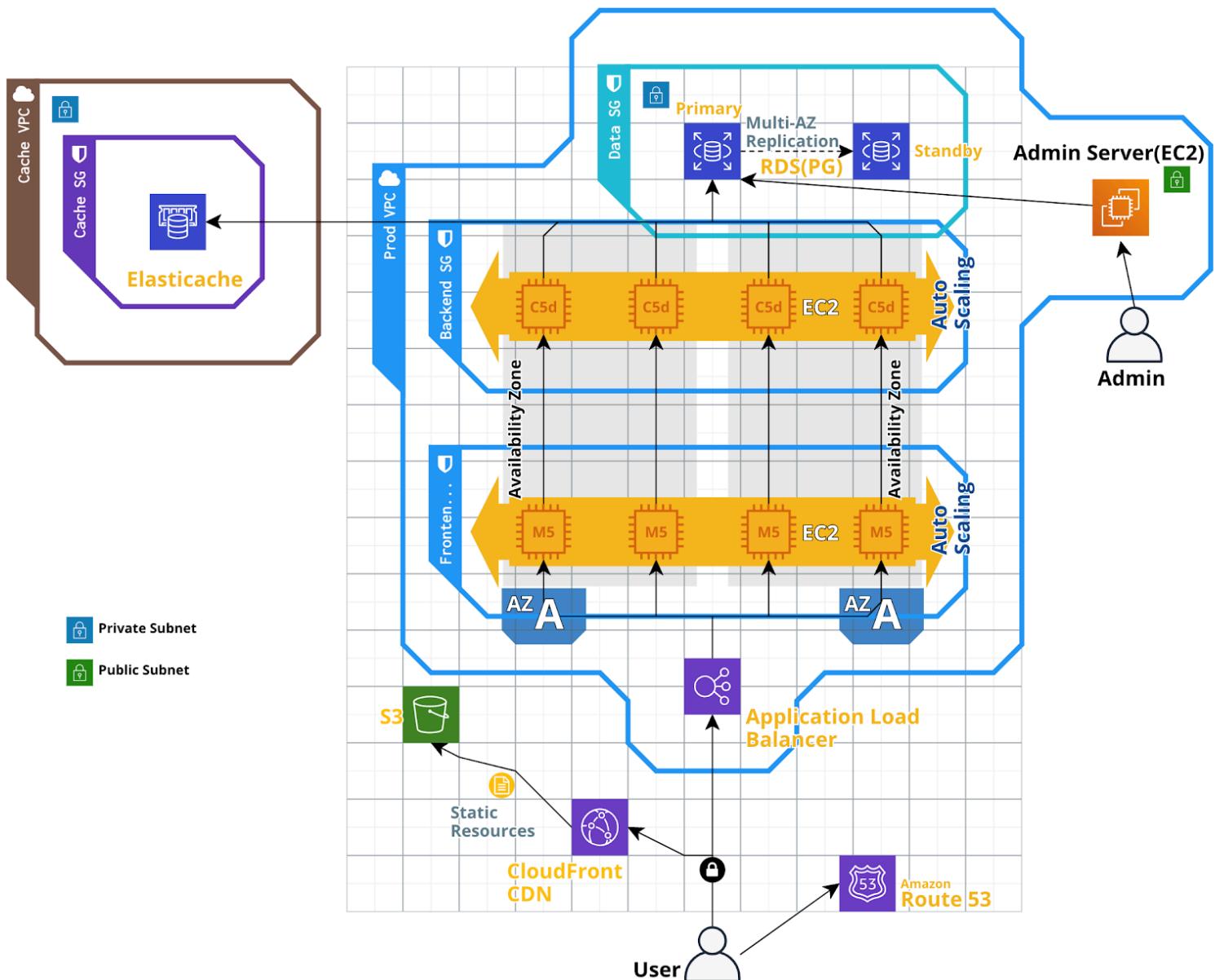
- Use the same subnet across VPCs for both the backend and cache server.
- Make the cache server subnet public so that backend instances can access it.
- Send the VPC credentials with the connection request during the connection handshake.
- None of these.



This is an architecture diagram of a web e-commerce storefront. The whole service is hosted in a single AWS region (us-east-2).

There is a sale happening right now, and an engineer notices that the backend servers are encountering frequent timeouts on database requests. They go to the RDS console and see disk IOPS getting maxed out. They are currently using Provisioned IOPS. Which of these things might fix the issue? Select all that apply.

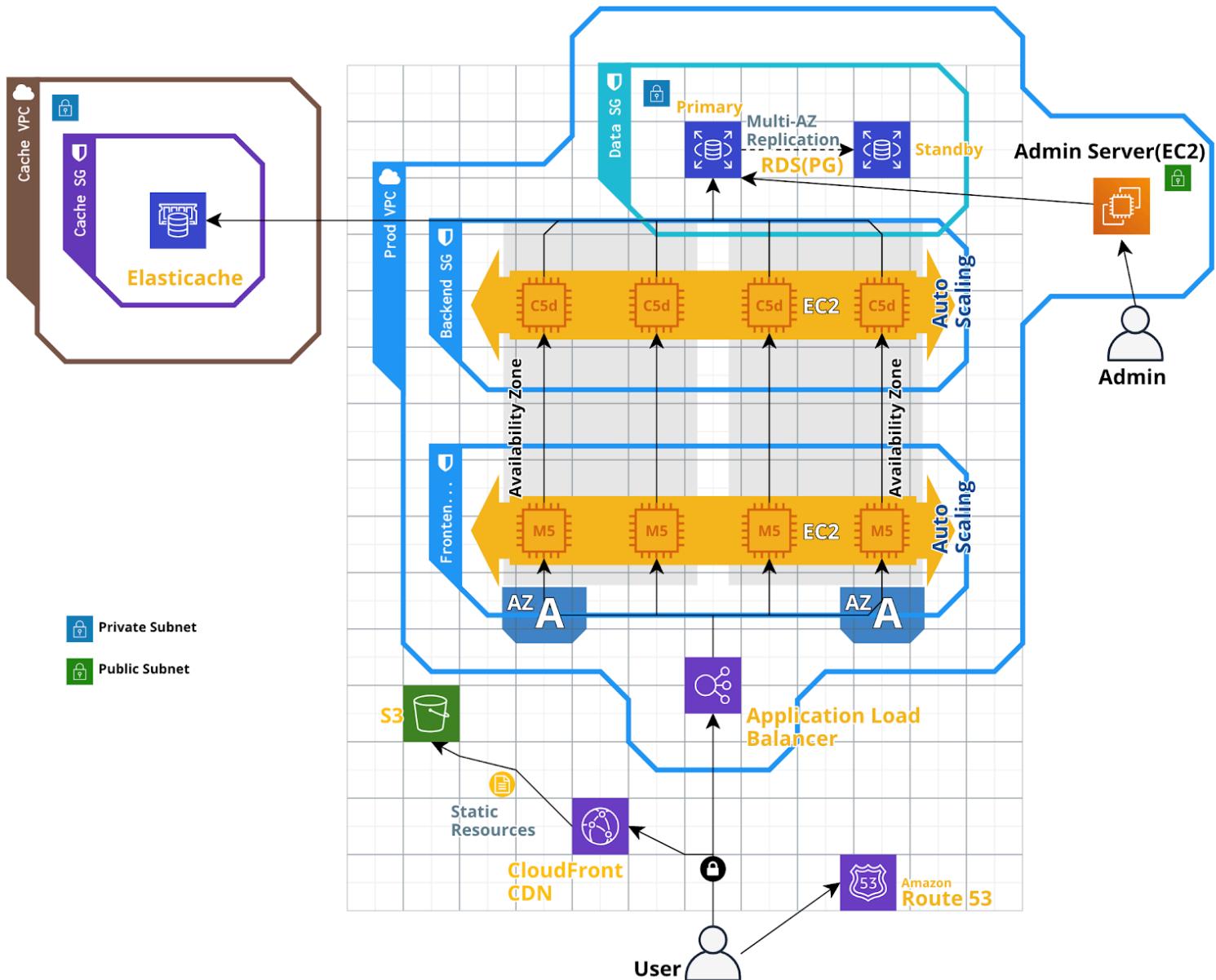
- Switch to a general purpose SSD because relational database workloads are more suited for them, while provisioned IOPS are more suited for NoSQL databases.
- Switch to a bigger or newer instance type because that might be optimized for EBS usage based on the current instance type.
- Switch to a bigger instance type because more RAM might lead to a reduction in disk IOPS.
- None of these.



This is an architecture diagram of a web e-commerce storefront. The whole service is hosted in a single AWS region (us-east-2).

The backend instances are not able to connect to the database. After some investigation, there are some observations. Which of these observations are correct and can potentially fix the issue? Select all that apply.

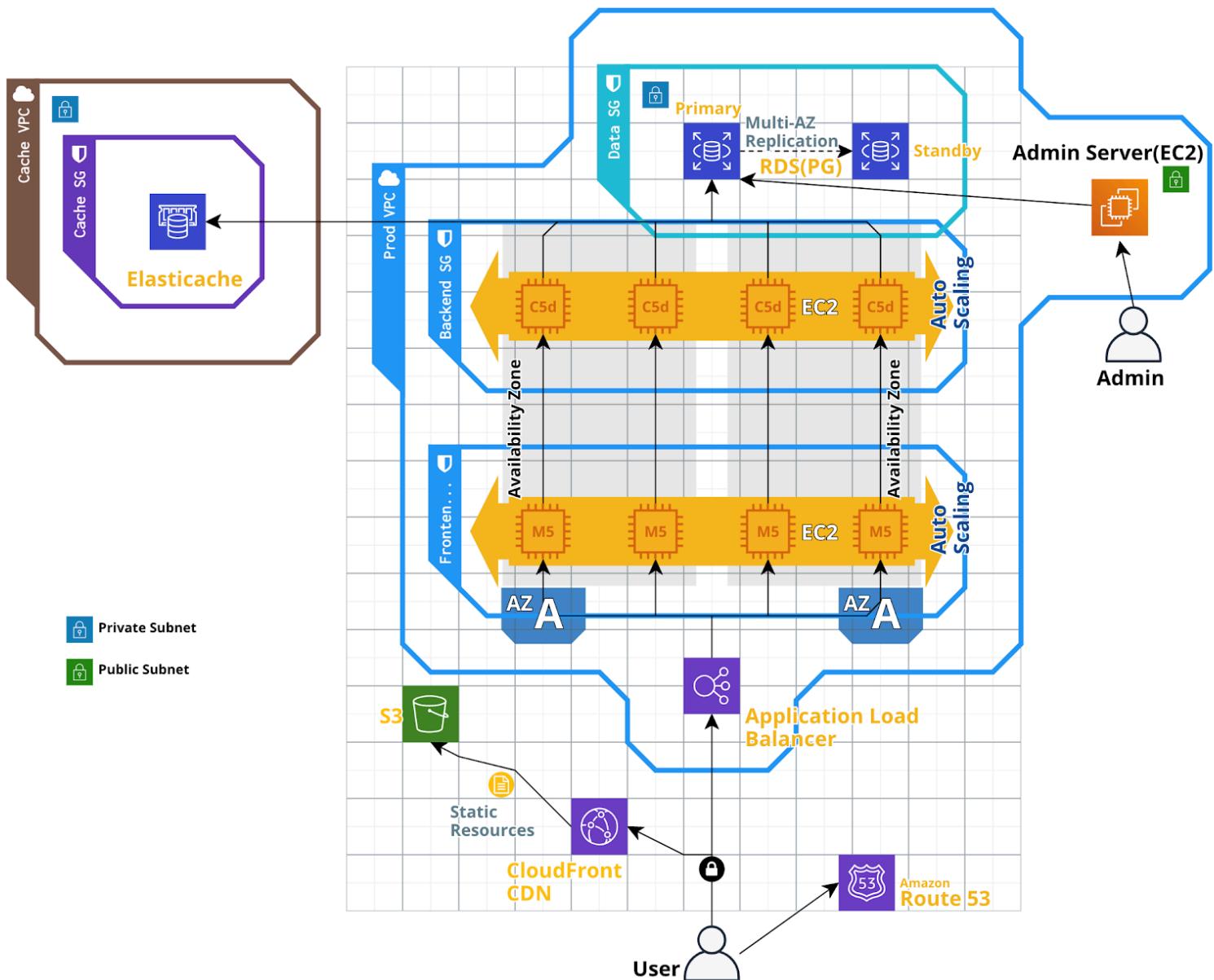
- The availability zones of the backend instances and DB are different. They should be in the same availability zone for the request to succeed, so you should change the availability zone of the database.
- The subnets of the backend instance and DB are different. For them to be able to talk to the database, the subnets should be the same, so you should change the subnet of the database.
- The subnets are different, but you can peer the subnets together so they are able to talk to each other by enabling subnet peering, which will allow database access.
- The security groups might not have the correct ACL rules, which might be limiting access to the database by the backend instances.
- None of these.



This is an architecture diagram of a web e-commerce storefront. The whole service is hosted in a single AWS region (us-east-2).

Requests other than the CDN ones are not able to connect. What could be the root cause of this? Select all that apply.

- The application load balancer should be in a public subnet because it servers traffic to the user.
- Frontend instances should be in a public subnet because they also serve traffic to the user through the load balancer.
- The application load balancer should not be in a VPC because VPC makes it private and you are not able to access it.
- Frontend instances should not be in a VPC because VPC makes them private and you are not able to access them.
- None of these.

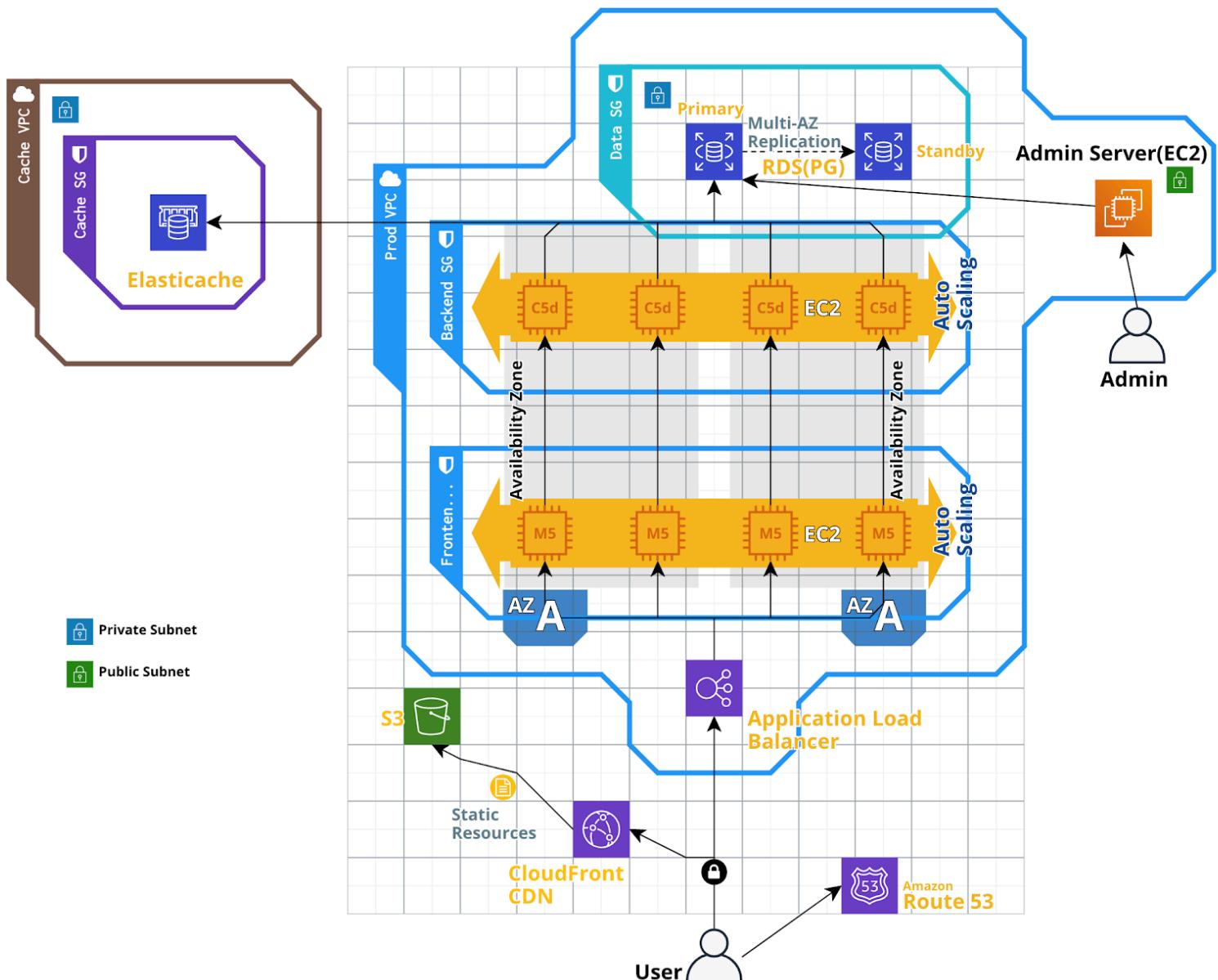


This is an architecture diagram of a web e-commerce storefront. The whole service is hosted in a single AWS region (us-east-2). Answer the question below. You notice your AWS bill is very high, a significant part of it being consumed by the frontend instances. What can you do to reduce the bill without affecting the scalability and reliability of the site? Select all that apply.

- You notice that CPU usage is low in the instances, so you move the servers to C5 from M5 because C instances are optimal for such workloads.
- You notice that memory usage in instances is low and CPU usage is also low, so you move the instances to R5 type instances because they are suitable for such workloads.
- You notice that the instances are "on demand" and you find that spot instances are cheaper by 40%, but you have to wait 2-3 minutes more for them to come up. So, you decide to shift all of them to spot and overprovision the instances a bit, which will take care of the extra demand while the instances come up.
- You notice that CPU usage and memory usage are both low, so you decide to shift to an instance of smaller size but within M5 only.
- None of these.

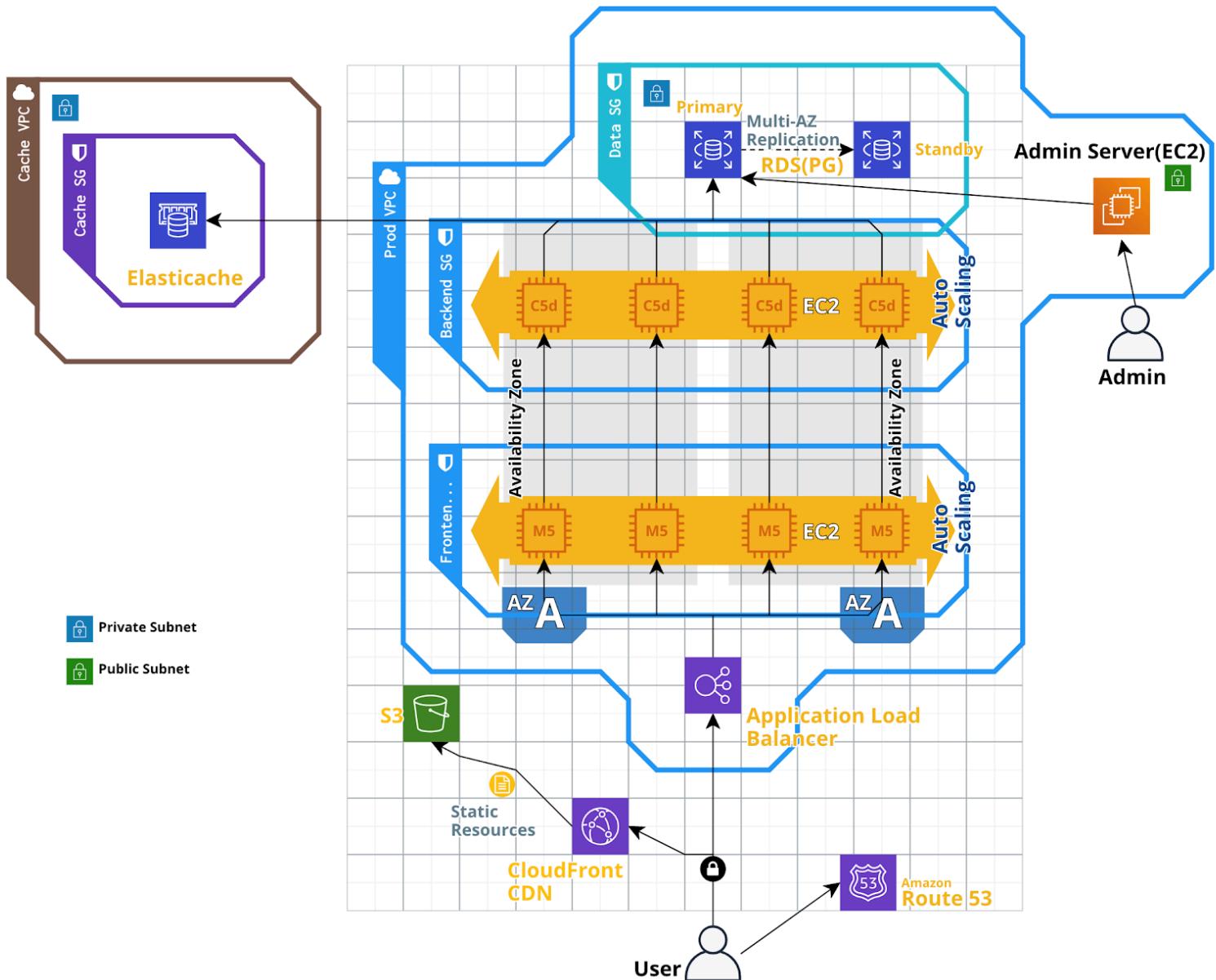
AWS

Medium



This is an architecture diagram of a web e-commerce storefront. The whole service is hosted in a single AWS region (us-east-2). Answer the question below. Assume that the site can work without a cache. Is the application tolerant of a single availability zone failure?

- Yes, but only if we switch to a network load balancer.
- Yes, but only if we replace the frontend instances to C5d, which are network optimized and have tolerance for single zone failure.
- Yes, but only if the database standby is configured properly and in a different zone than the master one.
- No. This can only be achieved if we host in at least two AWS regions far away from each other.
- None of these.



This is an architecture diagram of a web e-commerce storefront. The whole service is hosted in a single AWS region (us-east-2).

There is a surge in traffic from someone crawling the site, increasing the load on the site and even taking it offline sometimes while autoscaling catches up. What is the best course of action here?

- Increase the baseline server count so that it can handle the surge from the user easily.
- Use a tool like Amazon GuardDuty to guard against requests like these coming to the load balancer.
- Use AWS WAF to prevent requests like these coming to the load balancer.
- Use Amazon SQS to send the extra requests coming to the load balancer and serve them later with lower priority.