Question - 1
Git Data Structure

SCORE: **5 points**

Git   Hard

How does Git store objects internally?

- ◯ a queue
- ◯ a linked list, every commit links to its parent
- ◯ a stack
- ⦿ a hash or a key-value store
- ◯ an array

Question - 2
Remove Sensitive Info

SCORE: **5 points**

Git   Hard

You have accidentally pushed a passwords.txt to your git repository. How do you remove this password from the git repo safely, so it can never be seen by anybody else. Select all correct answers.

- ◯ Execute `git reset --hard HEAD~` and do a force push, which removes the commit from the repo.
- ◯ Revert the commit using `git revert` and git push.
- ⦿ Use the tool BFG repo cleaner.
- ◯ Use the git branch-filter command to remove unwanted data.
- ⦿ Use the git filter-repo tool

Question - 3
git status

SCORE: **5 points**

Git   Easy

Based on the output of the 'git status' command that is shown, which of the following statements is true?

```
git status
On branch newbranch
Changes to be committed:
```

1/33

```
      (use "git reset HEAD <file>..." to unstage)

           modified:  README.md

 Changes not staged for commit:
    (use "git add <file>..." to update what will be committed)
    (use "git checkout -- <file>..." to discard changes in working directory)

           modified:  README.md
```

○ There are 2 files with the name README.md.

○ `git reset --soft HEAD~` was executed and the last commit added the REAMDE.md file.

○ `git reset --mixed HEAD~` was executed and the last commit added the REAMDE.md file.

○ `git reset --hard HEAD~` was executed and the last commit added the REAMDE.md file.

◉ `git add README.md` was executed and then another change was made to the README.md file.

Question - 4
git describe   SCORE: **5 points**

`Git` `Easy`

`git describe <commit-id>` describes the commit against

○ the HEAD.

○ the nearest branch.

◉ the nearest tag.

○ the latest commit of the main branch.

Question - 5
git squash   SCORE: **5 points**

`Git` `Easy`

Which command(s) will squash the last 3 commits into one commit? Pick all that apply.

◉ git rebase -i HEAD~3 ; In the screen that opens up, change "pick" to "squash" for the 2 commits before the latest commit.

◉ git rebase -i HEAD~3 ; In the screen that opens up, change "pick" to "fixup" for the 2 commits before the latest commit.

◉ git reset --soft HEAD~3 && git commit

○ git squash 3

Question - 6
Clone a Git Repo   SCORE: **5 points**

Which command(s) will clone a Git repository with submodules? Select all that apply.

- ◉   git clone --recurse-submodules https://github.com/cameronmcnz/surface.git

- ○   git clone --recursive https://github.com/cameronmcnz/surface.git

- ◉   git clone https://github.com/cameronmcnz/surface.git ; git submodule init; git submodule update --recursive

- ○   git clone https://github.com/cameronmcnz/surface.git; git fetch --all --recursive.

- ◉   git clone https://github.com/cameronmcnz/surface.git ;git submodule update --init --recursive

Question - 7
How Many Branches?

SCORE: **5 points**

Git   Easy

After cloning a remote repository with 5 branches, how many branches will `git branch -a` show?

- ○   5

- ◉   6

- ○   10

- ○   15

Question - 8
HEAD^2

SCORE: **5 points**

Git   Hard   Hard

Consider the output of the git log command.

```
*   dcef518 (HEAD -> master, newbranch) Merge branch 'newbranch'

|\

| * 0824c9e adding index.html

* | 6c50d08 adding about.html

|/

* 80be5ff new commit to newbranch

* 98bf46c Ading more content

* 00b3edf Initial Commit
```

On this repo, which commit is checked out when the following command is executed?

```
git checkout HEAD^2
```

○ 80be5ff

○ 98bf46c

○ 00b3edf

● 0824c9e

○ dcef518

Question - 9
Delete a Remote Branch

SCORE: **5 points**

`Hard` `Git`

Which of the following commands can you use to delete a remote/upstream branch *hotfix1* in git? Select all that apply.

○ git branch -D hotfix1

● git push origin --delete hotfix1

● git push origin :hotfix1

● git push origin -d hotfix1

○ git branch --delete hotfix1

Question - 10
HEAD~5

SCORE: **5 points**

`Git` `Hard` `Hard`

Consider the output of the git log command.

```
*   dcef518 (HEAD -> master, newbranch) Merge branch 'newbranch'

|\

| * 0824c9e adding index.html

* | 6c50d08 adding about.html

|/

* 80be5ff new commit to newbranch

* 98bf46c Adding more content

* 00b3edf Initial Commit
```

On this repo, which commit is checked out when the following command is executed?

```
git checkout HEAD~5
```

- ⭘ 80be5ff
- ⭘ 98bf46c
- ⭘ 00b3edf
- ⭘ 0824c9e
- ⦿ dcef518

Question - 11
Branch Names

SCORE: **5 points**

`Git` `Easy`

Which of the following are valid branch names?

- ⭘ new..branch
- ⭘ new branch
- ⦿ new_branch
- ⦿ new/branch
- ⭘ .newbranch
- ⭘ /new_branch

Question - 12
Git Blame

SCORE: **5 points**

`Git` `Hard`

Which statements are true about git blame?

- ⦿ Identifies a particular commit.
- ⦿ Tells us who modified each line in a file and which commit was responsible for the changes.
- ⭘ Shows the lines that were deleted or replaced.
- ⭘ All of these.

Question - 13
Git Languages

SCORE: **5 points**

`Git` `Easy`

Which language(s) are used to build git?

- ( ) Java
- (●) C
- (●) Perl
- (●) Python
- ( ) Swift

Question - 14
File Commits

`Git` `Hard`

You have recently committed the file *LearningGit.c.* This is your 7th commit. Find the difference between your 2nd and 4th commit. Choose all that apply.

- ( ) git diff head^^ head^^^^ LearningGit.c
- ( ) git diff head~2 head~4 LearningGit.c
- (●) git diff head~5 head~3 LearningGit.c
- (●) git diff head^^^^^ head^^^ LearningGit.c

Question - 15
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 - 16
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 - 17
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 is recommended?
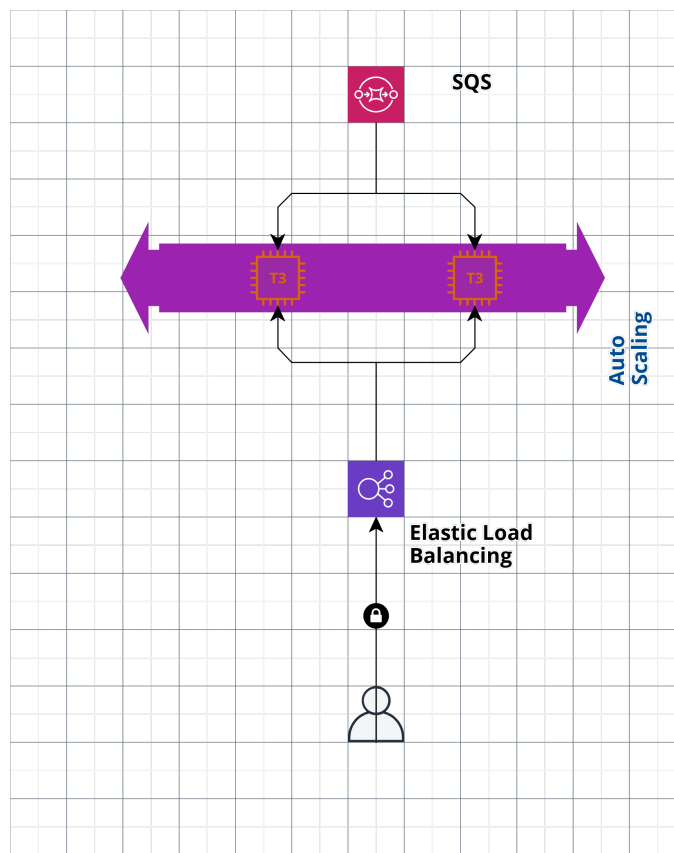
○ Use *DelaySeconds* action to delay a message's visibility timeout.

○ 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 - 18
Order Processing Application

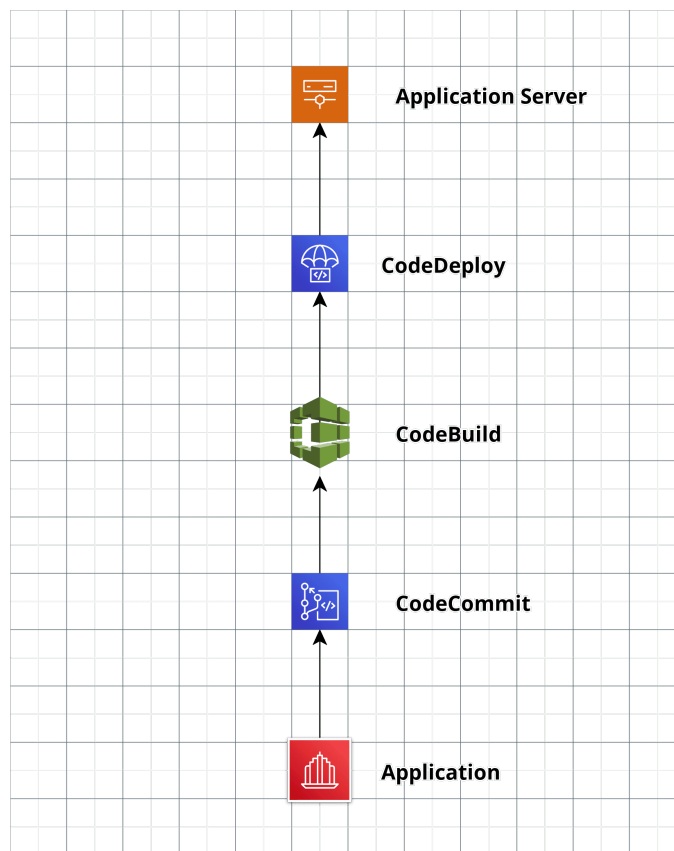`AWS` `AWS Code Build` `Easy`

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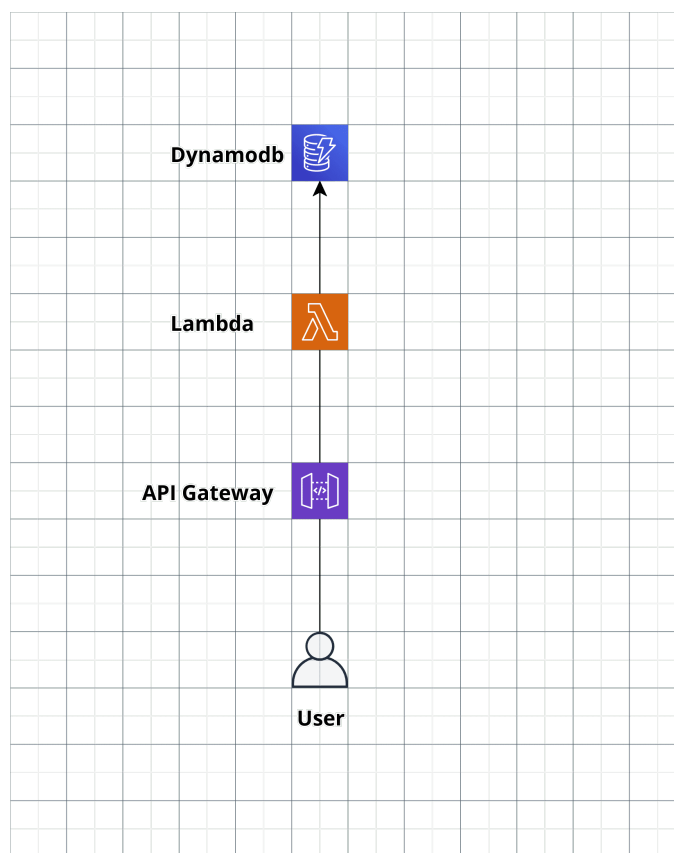
- ○ Amazon Cognito User Pools
- ● AWS Lambda Authorizer
- ○ AWS IAM permissions with AWS Signature Version 4 (SigV4)
- ○ Amazon API Gateway User Pools

Question - 20
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?
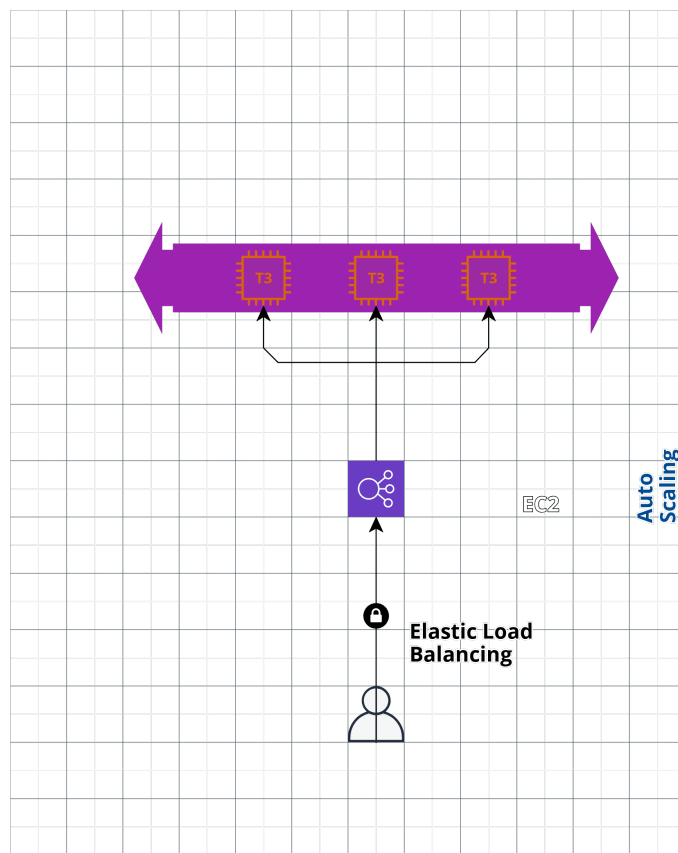
- ( ) Amazon ALB access logs
- ( ) Amazon CloudTrail logs
- ( ) Amazon CloudWatch metrics
- ( ) ALB request tracing

Question - 21
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?
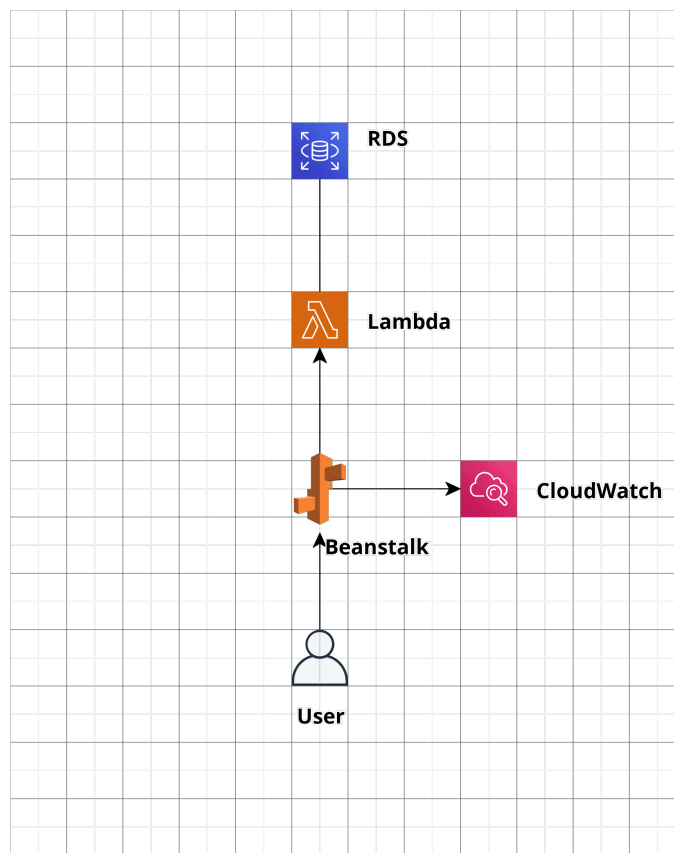
○ Deploy using 'Immutable' deployment policy.

○ Deploy using 'All at once' deployment policy.

● Deploy using 'Rolling with additional batch' deployment policy.

○ Deploy using 'Rolling' deployment policy.
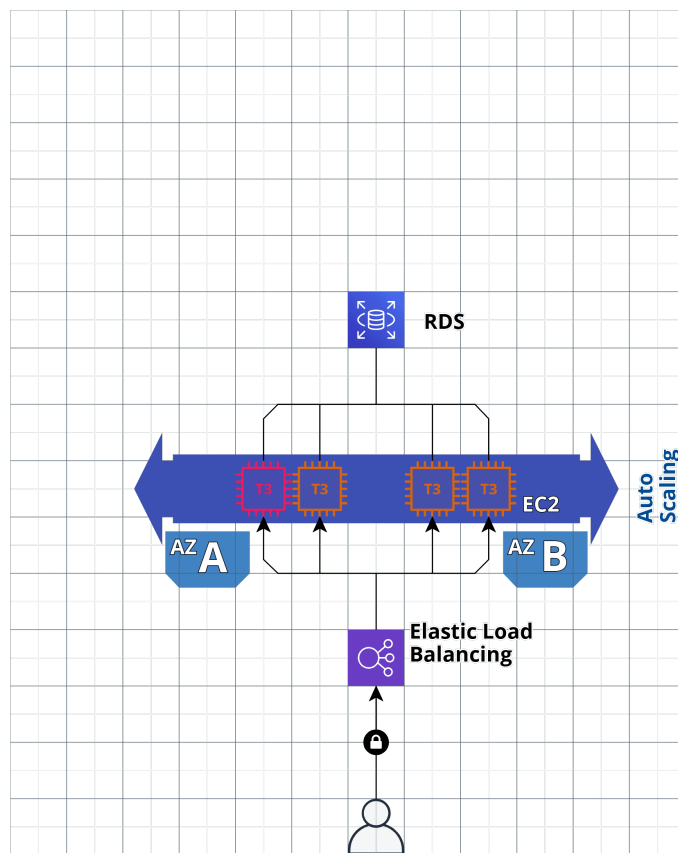

Question - 22
Workloads on AWS

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 - 23
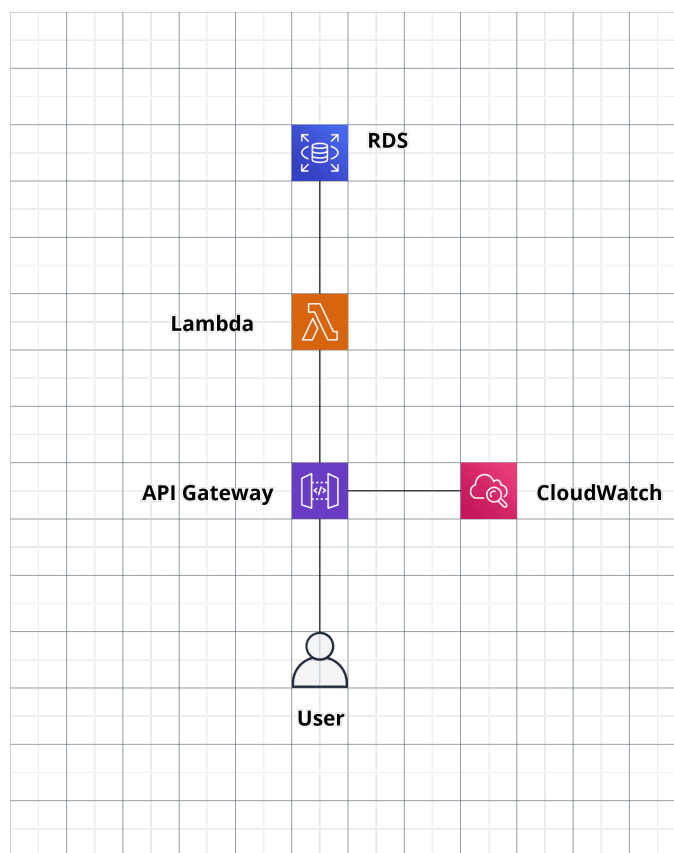**Amazon API Gateway**

`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.

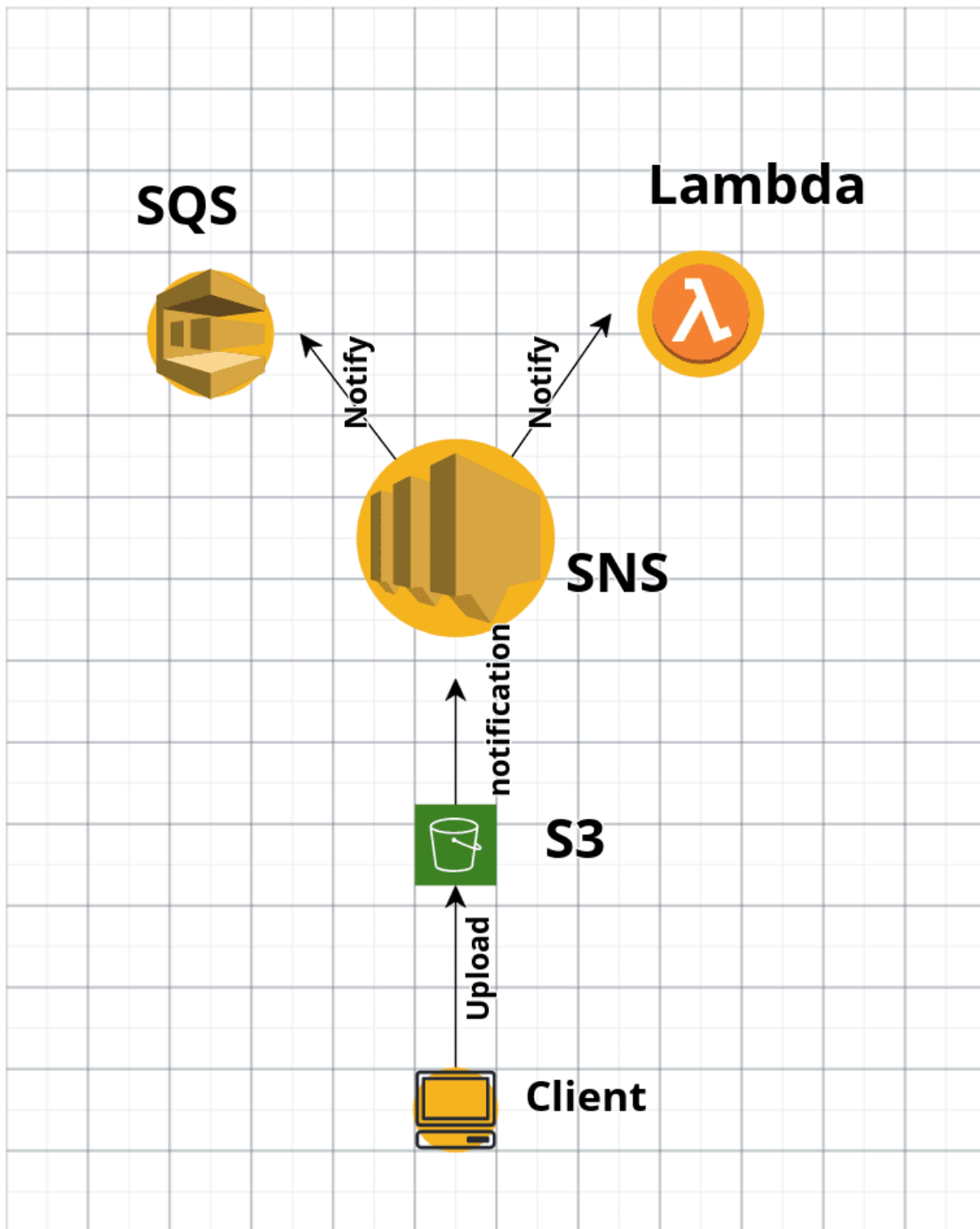○ Use an AWS Lambda custom interceptor.

Question - 24
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.

SQS

Lambda

Notify

Notify

SNS

notification

S3

Upload

Client

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?
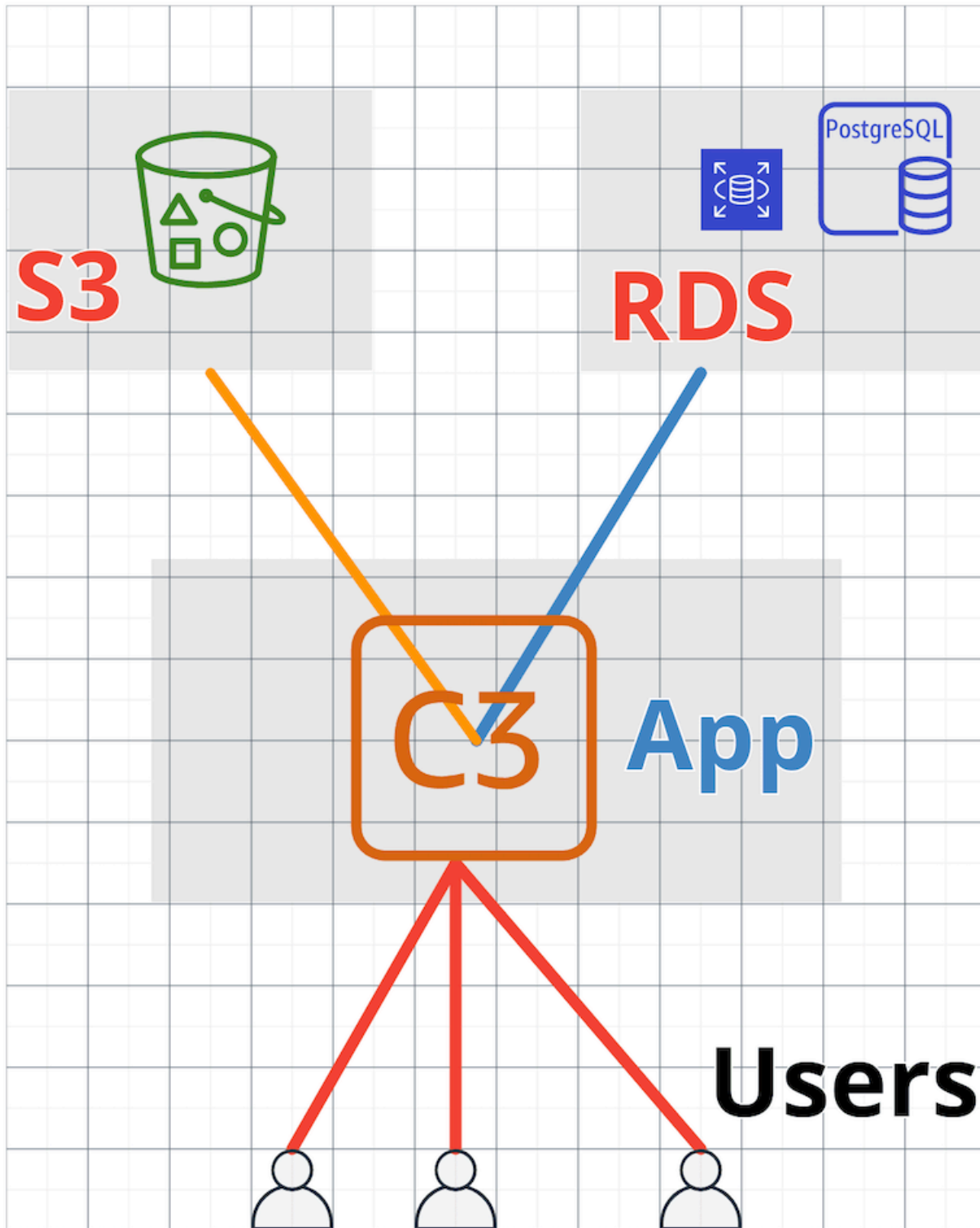
○ Standard

○ Last in, first out (LIFO)

◉ First in, first out (FIFO)

○ Strict

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.

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 - 26
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.
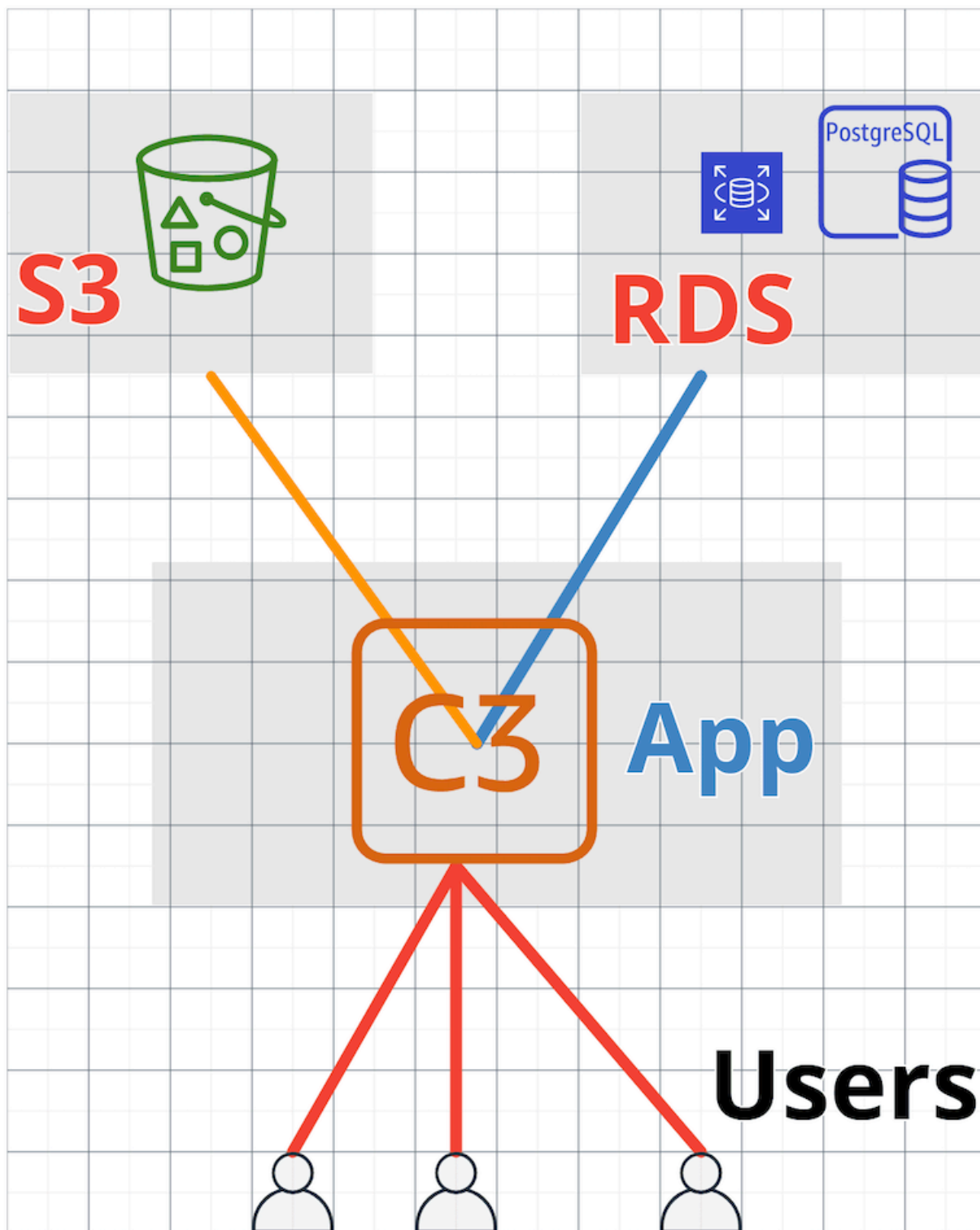
The application is an e-commerce platform where users can buy products. It stores client files like images, CSS, and JS in the Amazon S3, and product attribute details in the Amazon RDS database. It makes an RDS database backup on a daily basis and stores it in a separate Amazon S3 bucket. The backup 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
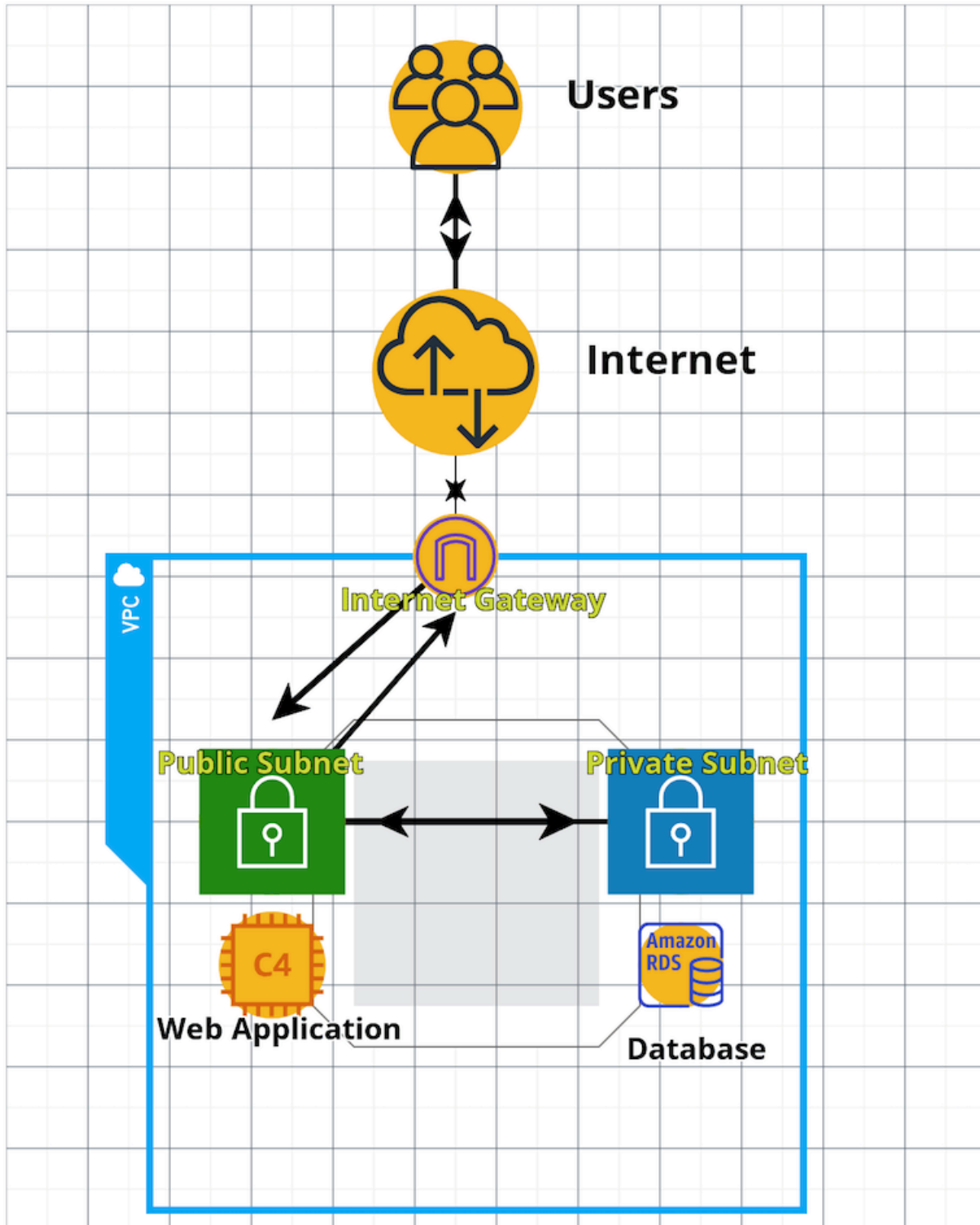- ● Amazon S3 Glacier
- ○ Amazon S3 Standard

Question - 27
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

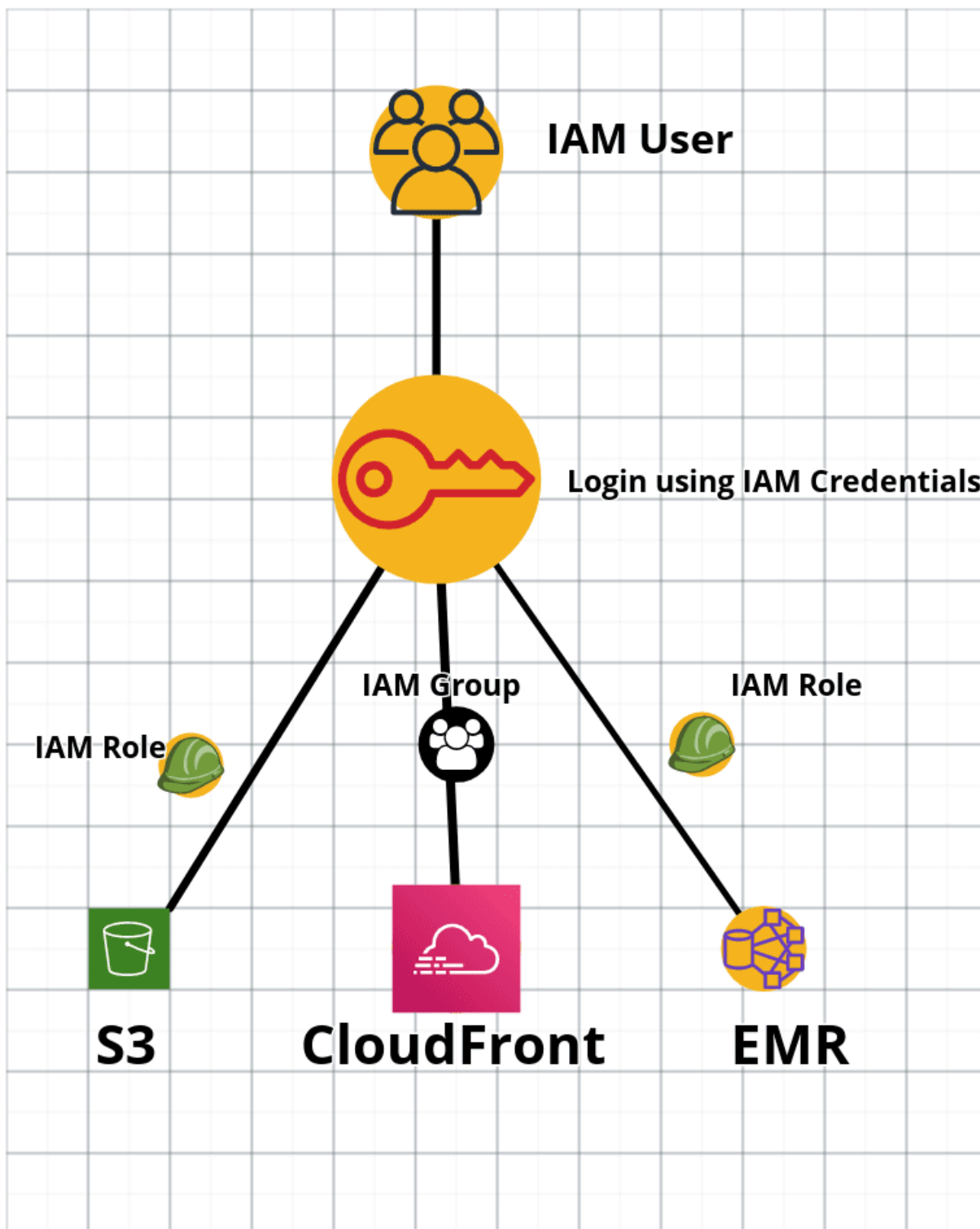○ Amazon RDS

● Amazon S3

○ Amazon Redshift

| Question - 28 | 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.

IAM User

Login using IAM Credentials

IAM Group

IAM Role

IAM Role

S3

CloudFront

EMR

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

○ IAM user groups

○ IAM Roles

○ IAM Users

⦿ All of these

AWS   Easy

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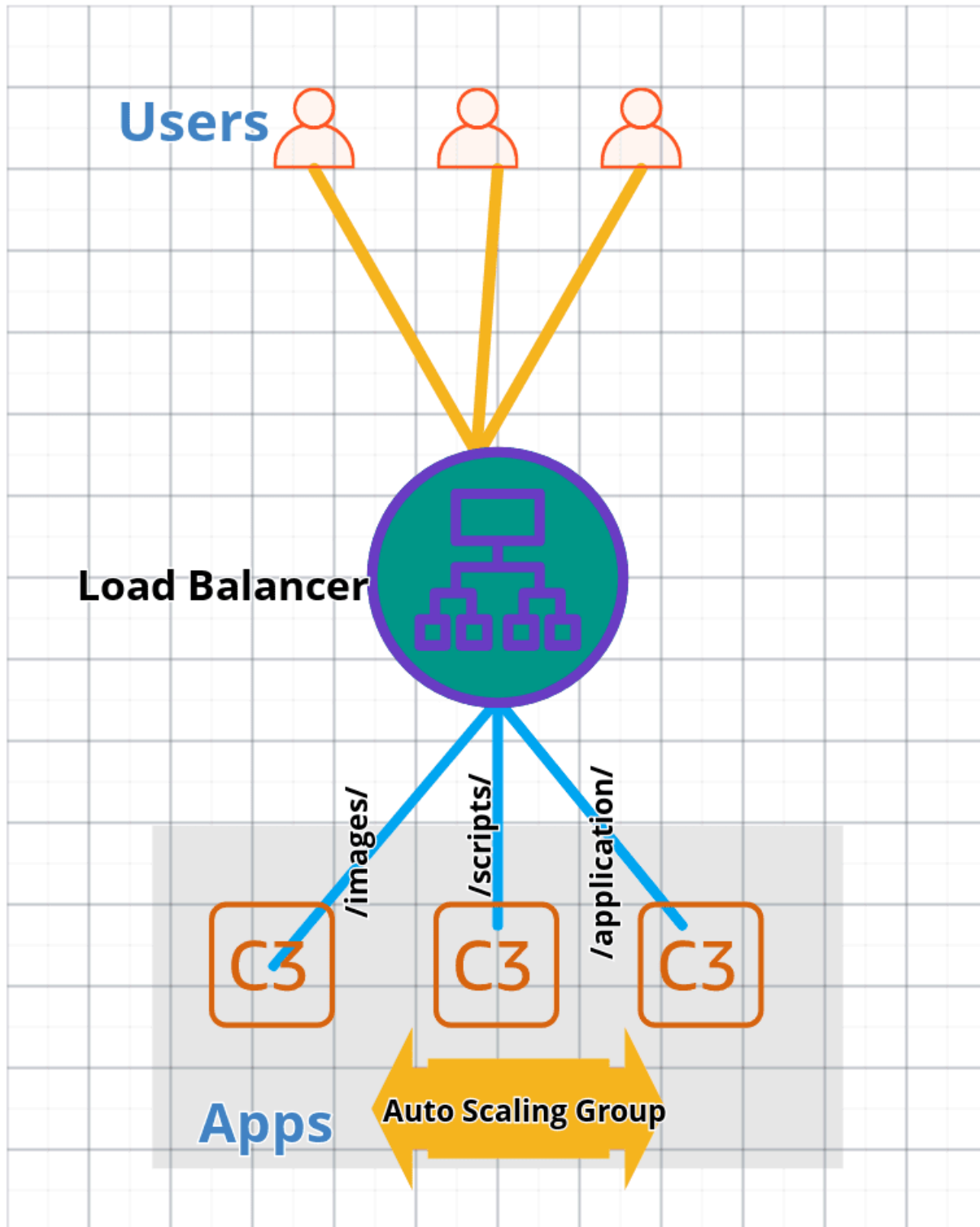
The application is a content management platform that consists of components like image, script, and application services. The services are deployed on different Amazon EC2 instances and managed by an auto-scaling group. The load balancer routes user requests based on the request path to a specified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

Which type of load balancer is suitable?

○   Network Load Balancer

○   Gateway Load Balancer

○   Path Load Balancer
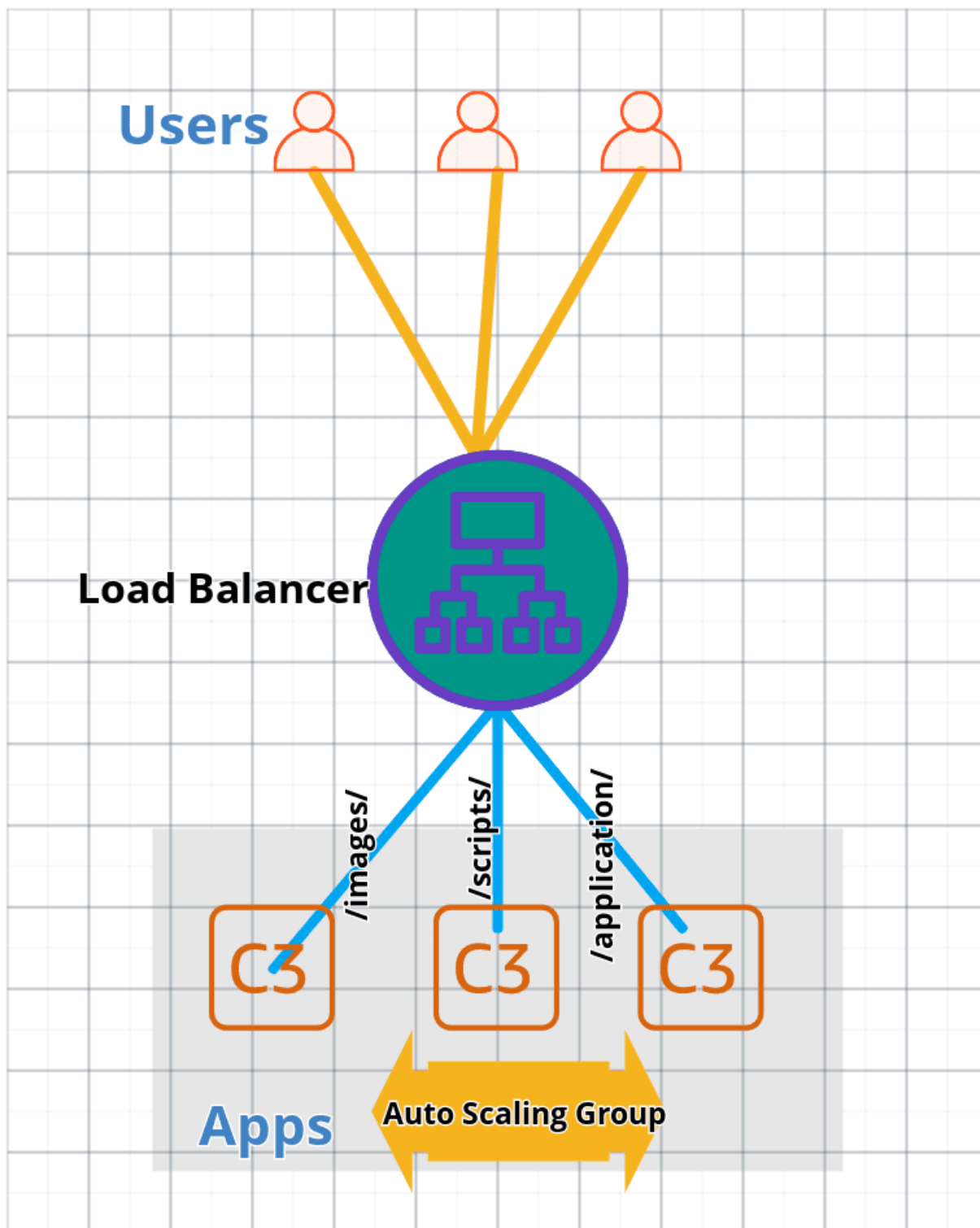
●   Application Load Balancer

Question - 30
AWS EC2 - Remove a Load Balancer

SCORE: **5 points**

`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.
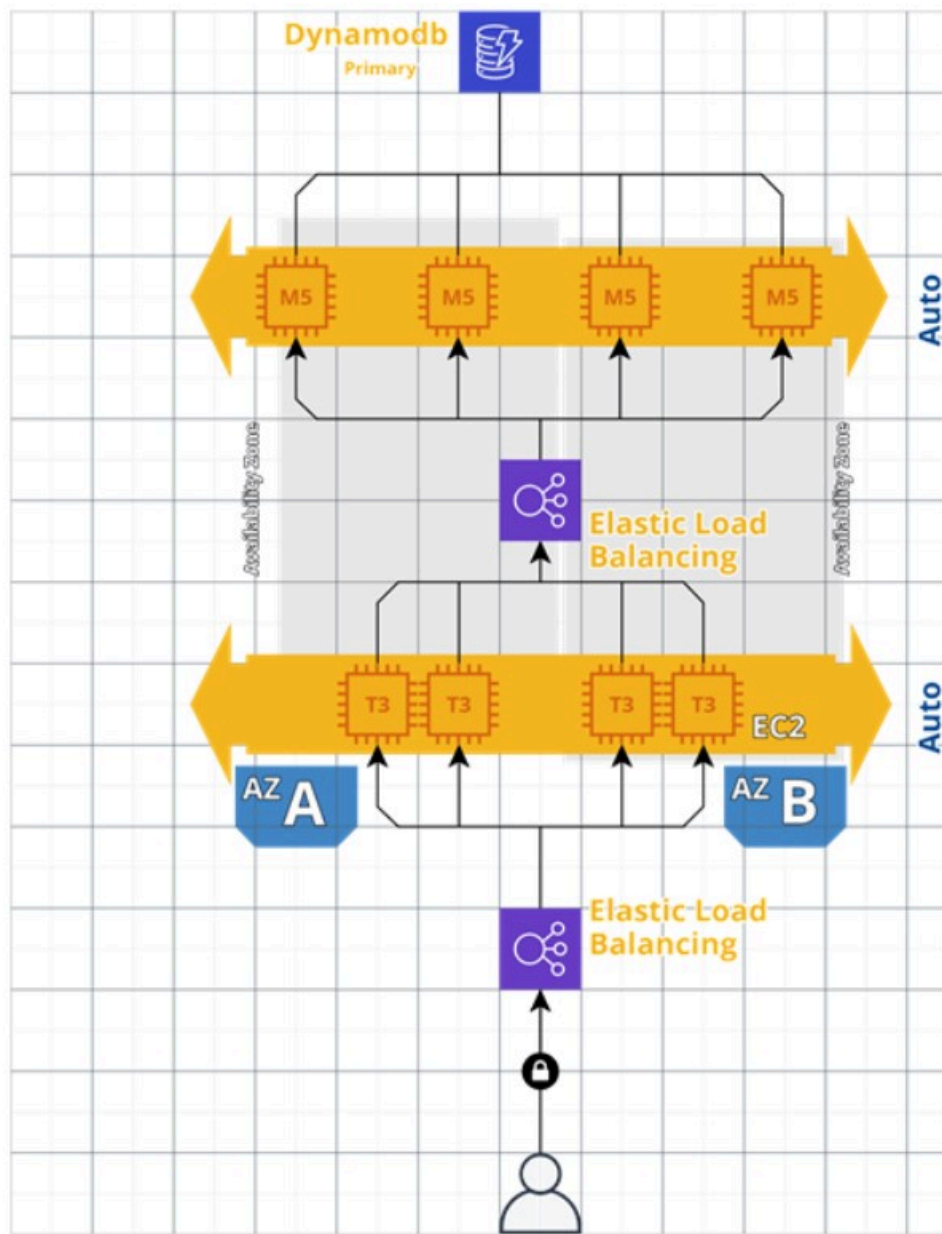- ○ The auto-scaling process will relaunch the load balancer.

○ Auto-scaling will stop all the instances.

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 - 32
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?
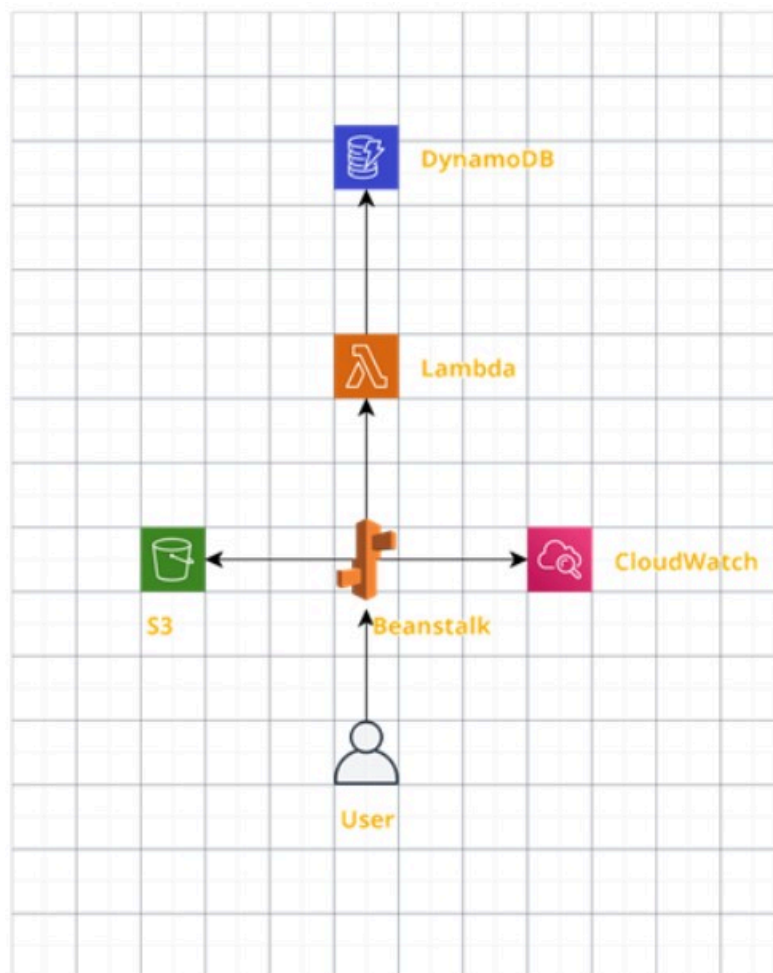
◯ Use Amazon CloudWatch Events to track all new data in the table and configure it as the event source for the Lambda function.

◉ 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.
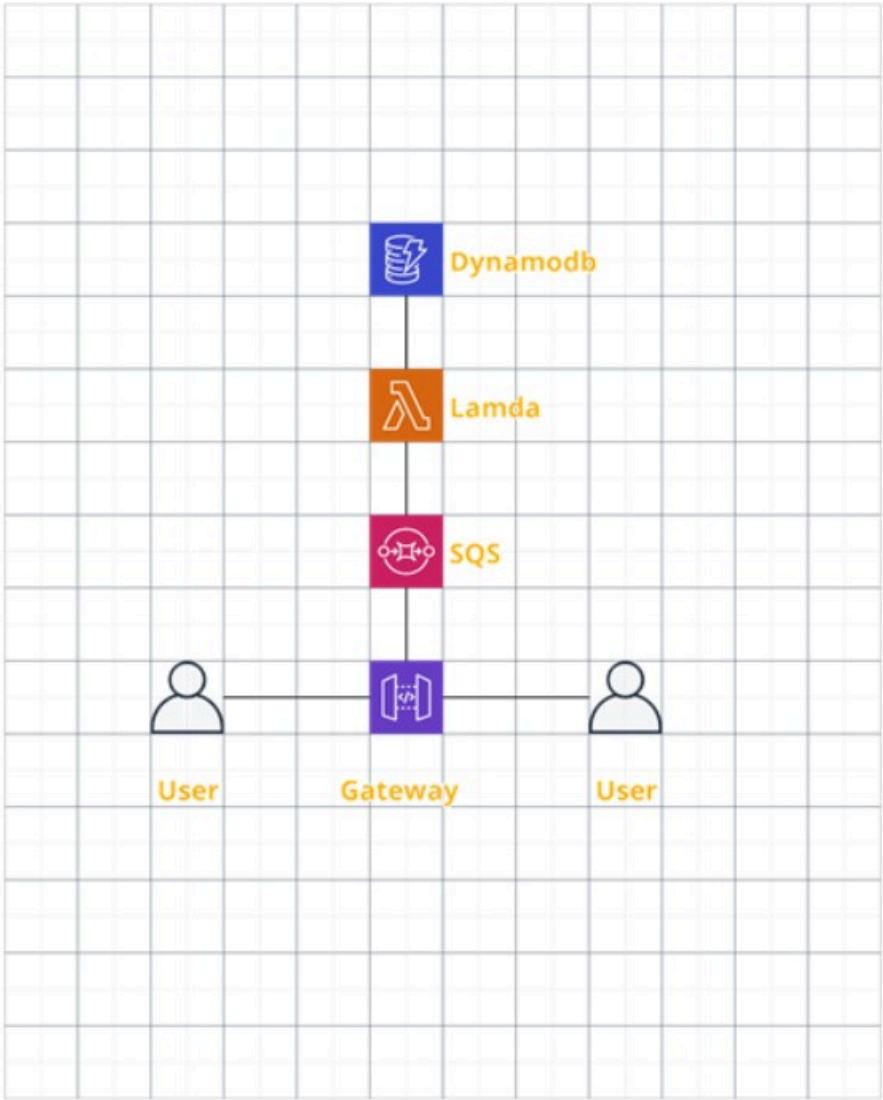

Question - 33
AWS Serverless Application

SCORE: **5 points**

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 - 34   SCORE: **5 points**
AWS Web App: Application Capacity Optimization

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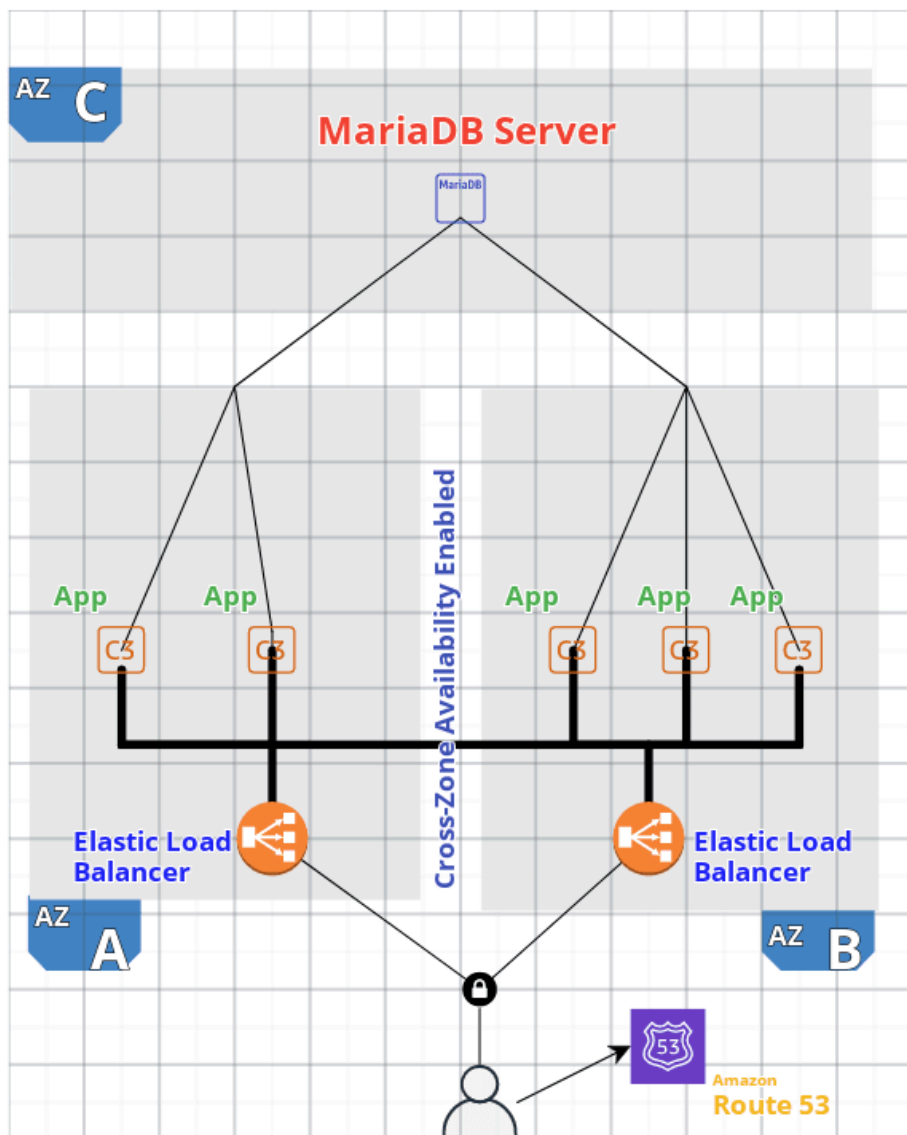
There are two enabled Availability Zones (AZs), with 2 targets in AZ "A" and 3 targets in AZ "B". Clients send requests, and Amazon Route 53 responds to each request with the IP address of one of the load balancer nodes. Amazon Route 53 has been configured such that each load balancer node receives an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

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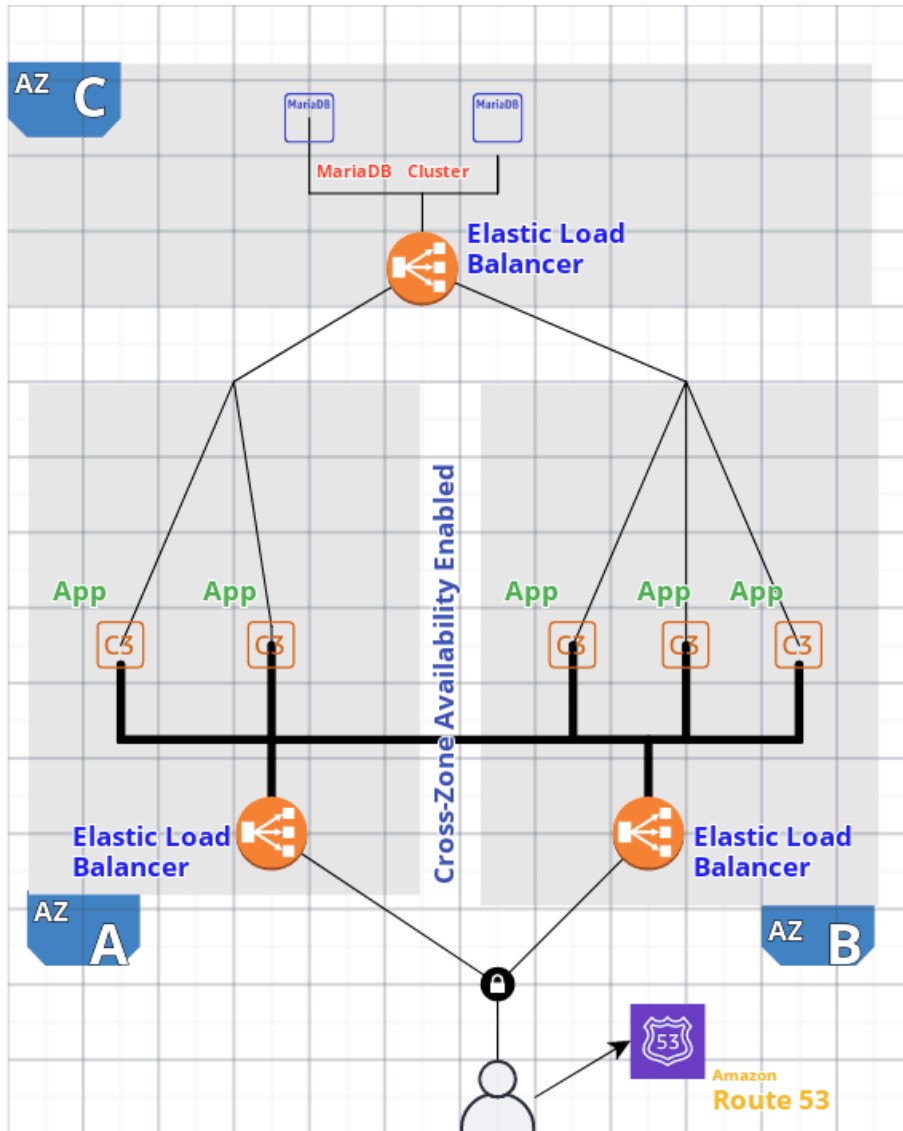
There are two enabled Availability Zones(AZs), with 2 targets in AZ "A" and 3 targets in AZ "B". Clients send requests, and Amazon Route 53 responds with the IP address of one of the load balancer nodes. Amazon Route 53 has been configured in a way that each load balancer node receives an equal share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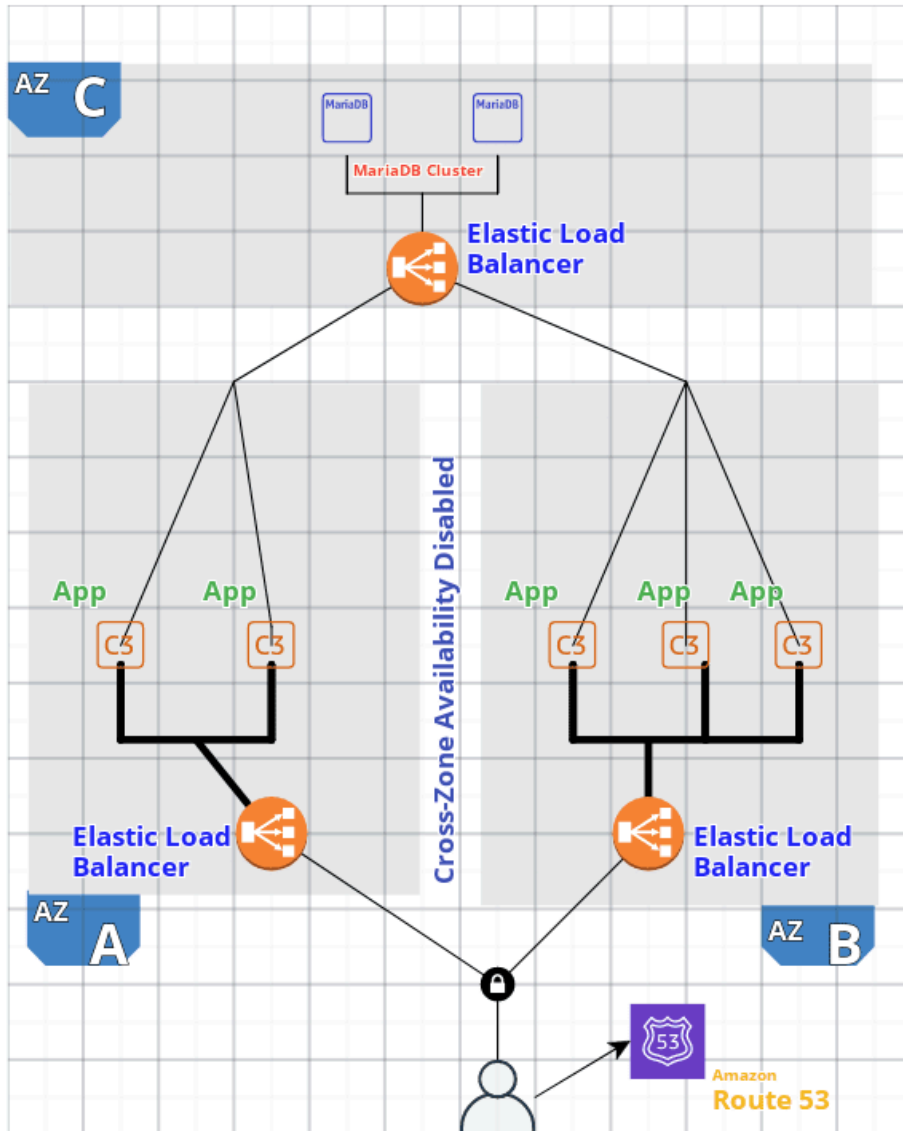
What happens when one of the targets in AZ "A" becomes unhealthy?

- ◉ 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

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 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
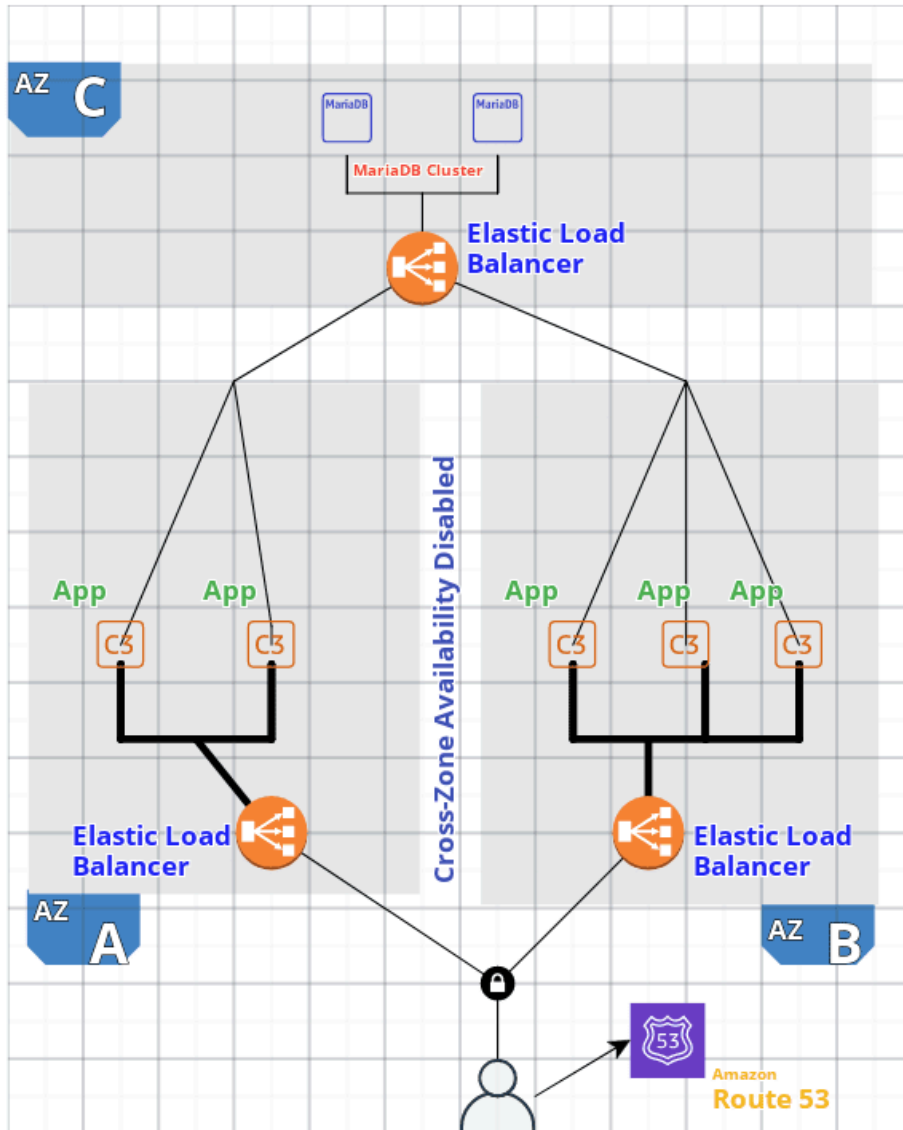
Question - 37
AWS Web App: Disabling Load Balancing Across AZs

`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.

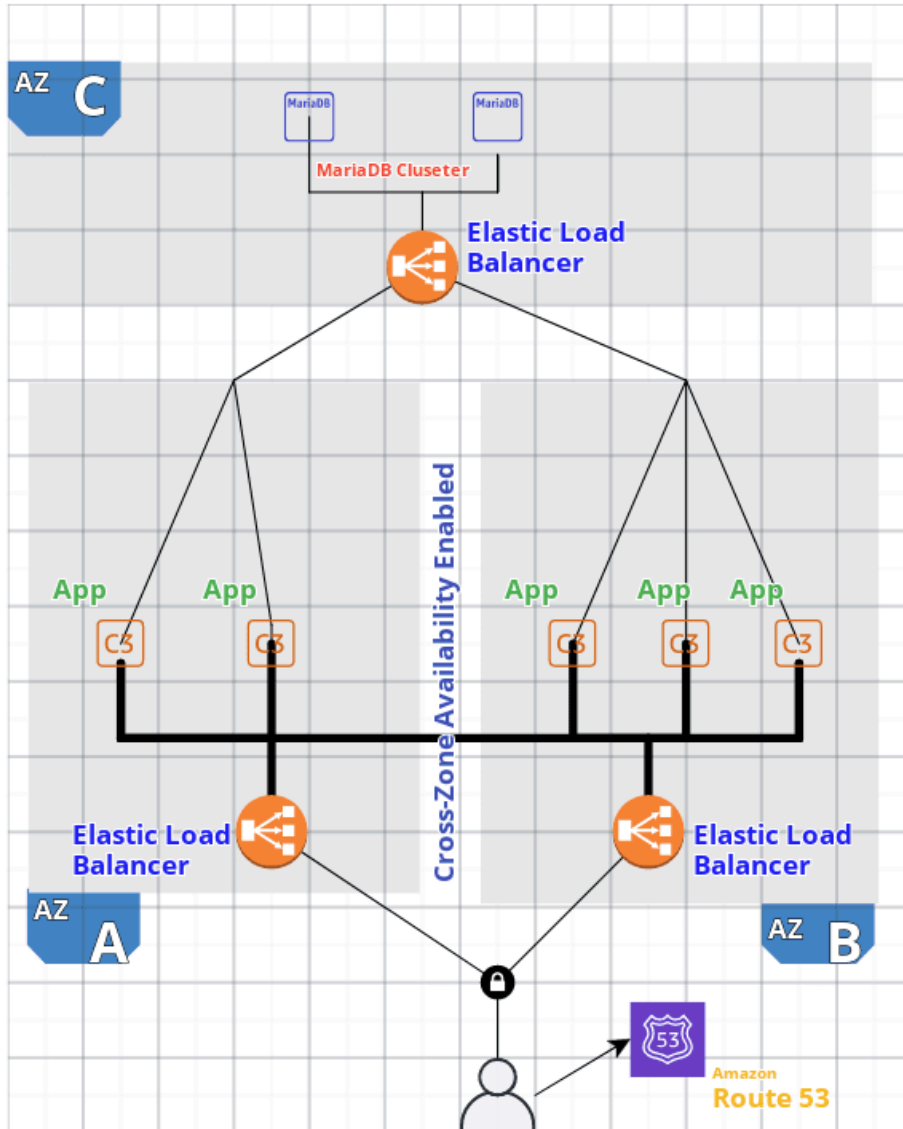○ Availability Zone B receives 50% of the traffic.

Question - 38
AWS Web App: Enabling Cross Zone Load Balancing

`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.

○ Each target will receive 100% of traffic from the clients.