

# Exam Questions AWS-Certified-Developer-Associate

Amazon AWS Certified Developer - Associate

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### NEW QUESTION 1

An online food company provides an Amazon API Gateway HTTP API to receive orders for partners. The API is integrated with an AWS Lambda function. The Lambda function stores the orders in an Amazon DynamoDB table.

The company expects to onboard additional partners. Some partners require additional Lambda function to receive orders. The company has created an Amazon S3 bucket. The company needs to store all orders and updates in the S3 bucket for future analysis.

How can the developer ensure that all orders and updates are stored to Amazon S3 with the LEAST development effort?

- A. Create a new Lambda function and a new API Gateway API endpoint
- B. Configure the new Lambda function to write to the S3 bucket
- C. Modify the original Lambda function to post updates to the new API endpoint.
- D. Use Amazon Kinesis Data Streams to create a new data stream
- E. Modify the Lambda function to publish orders to the data stream. Configure the data stream to write to the S3 bucket.
- F. Enable DynamoDB Streams on the DynamoDB table
- G. Create a new Lambda function
- H. Associate the stream's Amazon Resource Name (ARN) with the Lambda Function
- I. Modify the Lambda function to publish to a new Amazon SNS topic
- J. Create a new Lambda function that receives orders from the API Gateway and publishes them to the SNS topic
- K. Subscribe a new Lambda function to the topic
- L. Configure the new Lambda function to write to the S3 bucket as updates come through the topic.

**Answer: C**

#### Explanation:

This solution will ensure that all orders and updates are stored to Amazon S3 with the least development effort because it uses DynamoDB Streams to capture changes in the DynamoDB table and trigger a Lambda function to write those changes to the S3 bucket. This way, the original Lambda function and API Gateway API endpoint do not need to be modified, and no additional services are required. Option A is not optimal because it will require more development effort to create a new Lambda function and a new API Gateway API endpoint, and to modify the original Lambda function to post updates to the new API endpoint. Option B is not optimal because it will introduce additional costs and complexity to use Amazon Kinesis Data Streams to create a new data stream, and to modify the Lambda function to publish orders to the data stream. Option D is not optimal because it will require more development effort to modify the Lambda function to publish to a new Amazon SNS topic, and to create and subscribe a new Lambda function to the topic. References: Using DynamoDB Streams, Using AWS Lambda with Amazon S3

### NEW QUESTION 2

A company has a multi-node Windows legacy application that runs on premises. The application uses a network shared folder as a centralized configuration repository to store configuration files in .xml format. The company is migrating the application to Amazon EC2 instances. As part of the migration to AWS, a developer must identify a solution that provides high availability for the repository.

Which solution will meet this requirement MOST cost-effectively?

- A. Mount an Amazon Elastic Block Store (Amazon EBS) volume onto one of the EC2 instances
- B. Deploy a file system on the EBS volume
- C. Use the host operating system to share a folder
- D. Update the application code to read and write configuration files from the shared folder.
- E. Deploy a micro EC2 instance with an instance store volume
- F. Use the host operating system to share a folder
- G. Update the application code to read and write configuration files from the shared folder.
- H. Create an Amazon S3 bucket to host the repository
- I. Migrate the existing .xml files to the S3 bucket
- J. Update the application code to use the AWS SDK to read and write configuration files from Amazon S3.
- K. Create an Amazon S3 bucket to host the repository
- L. Migrate the existing .xml files to the S3 bucket
- M. Mount the S3 bucket to the EC2 instances as a local volume
- N. Update the application code to read and write configuration files from the disk.

**Answer: C**

#### Explanation:

Amazon S3 is a service that provides highly scalable, durable, and secure object storage. The developer can create an S3 bucket to host the repository and migrate the existing .xml files to the S3 bucket. The developer can update the application code to use the AWS SDK to read and write configuration files from S3. This solution will meet the requirement of high availability for the repository in a cost-effective way.

References:

- ? [Amazon Simple Storage Service (S3)]
- ? [Using AWS SDKs with Amazon S3]

### NEW QUESTION 3

A developer has been asked to create an AWS Lambda function that is invoked any time updates are made to items in an Amazon DynamoDB table. The function has been created and appropriate permissions have been added to the Lambda execution role. Amazon DynamoDB streams have been enabled for the table, but the function is still not being invoked.

Which option would enable the Lambda function to be invoked by the DynamoDB table updates?

- A. Change the StreamViewType parameter value to NEW\_AND\_OLD\_IMAGES for the DynamoDB table.
- B. Configure event source mapping for the Lambda function.
- C. Map an Amazon Simple Notification Service (Amazon SNS) topic to the DynamoDB streams.
- D. Increase the maximum runtime (timeout) setting of the Lambda function.

**Answer: B**

#### Explanation:

This solution allows the Lambda function to be invoked by the DynamoDB stream whenever updates are made to items in the DynamoDB table. Event source

mapping is a feature of Lambda that enables a function to be triggered by an event source, such as a DynamoDB stream, an Amazon Kinesis stream, or an Amazon Simple Queue Service (SQS) queue. The developer can configure event source mapping for the Lambda function using the AWS Management Console, the AWS CLI, or the AWS SDKs. Changing the StreamViewType parameter value to NEW\_AND\_OLD\_IMAGES for the DynamoDB table will not affect the invocation of the Lambda function, but only change the information that is written to the stream record. Mapping an Amazon Simple Notification Service (Amazon SNS) topic to the DynamoDB stream will not invoke the Lambda function directly, but require an additional subscription from the Lambda function to the SNS topic. Increasing the maximum runtime (timeout) setting of the Lambda function will not affect the invocation of the Lambda function, but only change how long the function can run before it is terminated.

Reference: [Using AWS Lambda with Amazon DynamoDB], [Using AWS Lambda with Amazon SNS]

#### NEW QUESTION 4

A developer has observed an increase in bugs in the AWS Lambda functions that a development team has deployed in its Node.js application. To minimize these bugs, the developer wants to implement automated testing of Lambda functions in an environment that closely simulates the Lambda environment. The developer needs to give other developers the ability to run the tests locally. The developer also needs to integrate the tests into the team's continuous integration and continuous delivery (CI/CD) pipeline before the AWS Cloud Development Kit (AWS CDK) deployment. Which solution will meet these requirements?

- A. Create sample events based on the Lambda documentation
- B. Create automated test scripts that use the `cdk local invoke` command to invoke the Lambda function
- C. Check the response Document the test scripts for the other developers on the team Update the CI/CD pipeline to run the test scripts.
- D. Install a unit testing framework that reproduces the Lambda execution environment
- E. Create sample events based on the Lambda Documentation Invoke the handler function by using a unit testing framework for the other developers on the team
- F. Check the response Document how to run the unit testing framework
- G. Update the CI/CD pipeline to run the unit testing framework.
- H. Install the AWS Serverless Application Model (AWS SAM) CLI tool Use the `Sam local generate-event` command to generate sample events for automated test
- I. Create automated test scripts that use the `Sam local invoke` command to invoke the Lambda function
- J. Check the response Document the test scripts for the other developers on the team Update the CI/CD pipeline to run the test scripts.
- K. Create sample events based on the Lambda documentation
- L. Create a Docker container from the Node.js base image to invoke the Lambda function
- M. Check the response Document how to run the Docker container for the more developers on the team update the CI/CD pipeline to run the Docker container.

**Answer: C**

#### Explanation:

This solution will meet the requirements by using AWS SAM CLI tool, which is a command line tool that lets developers locally build, test, debug, and deploy serverless applications defined by AWS SAM templates. The developer can use `sam local generate-event` command to generate sample events for different event sources such as API Gateway or S3. The developer can create automated test scripts that use `sam local invoke` command to invoke Lambda functions locally in an environment that closely simulates Lambda environment. The developer can check the response from Lambda functions and document how to run the test scripts for other developers on the team. The developer can also update CI/CD pipeline to run these test scripts before deploying with AWS CDK. Option A is not optimal because it will use `cdk local invoke` command, which does not exist in AWS CDK CLI tool. Option B is not optimal because it will use a unit testing framework that reproduces Lambda execution environment, which may not be accurate or consistent with Lambda environment. Option D is not optimal because it will create a Docker container from Node.js base image to invoke Lambda functions, which may introduce additional overhead and complexity for creating and running Docker containers.

References: [AWS Serverless Application Model (AWS SAM)], [AWS Cloud Development Kit (AWS CDK)]

#### NEW QUESTION 5

A developer designed an application on an Amazon EC2 instance The application makes API requests to objects in an Amazon S3 bucket Which combination of steps will ensure that the application makes the API requests in the MOST secure manner? (Select TWO.)

- A. Create an IAM user that has permissions to the S3 bucket
- B. Add the user to an IAM group
- C. Create an IAM role that has permissions to the S3 bucket
- D. Add the IAM role to an instance profile
- E. Attach the instance profile to the EC2 instance.
- F. Create an IAM role that has permissions to the S3 bucket Assign the role to an IAM group
- G. Store the credentials of the IAM user in the environment variables on the EC2 instance

**Answer: BC**

#### Explanation:

- Create an IAM role that has permissions to the S3 bucket. - Add the IAM role to an instance profile. Attach the instance profile to the EC2 instance. We first need to create an IAM Role with permissions to read and eventually write a specific S3 bucket. Then, we need to attach the role to the EC2 instance through an instance profile. In this

way, the ec2 instance has the permissions to read and eventually write the specified S3 bucket

#### NEW QUESTION 6

A company is using an AWS Lambda function to process records from an Amazon Kinesis data stream. The company recently observed slow processing of the records. A developer notices that the iterator age metric for the function is increasing and that the Lambda run duration is constantly above normal. Which actions should the developer take to increase the processing speed? (Choose two.)

- A. Increase the number of shards of the Kinesis data stream.
- B. Decrease the timeout of the Lambda function.
- C. Increase the memory that is allocated to the Lambda function.
- D. Decrease the number of shards of the Kinesis data stream.
- E. Increase the timeout of the Lambda function.

**Answer: AC**

#### Explanation:

Increasing the number of shards of the Kinesis data stream will increase the throughput and parallelism of the data processing. Increasing the memory that is allocated to the Lambda function will also increase the CPU and network performance of the function, which will reduce the run duration and improve the processing speed. Option B is not correct because decreasing the timeout of the Lambda function will not affect the processing speed, but may cause some records to fail if they exceed the timeout limit. Option D is not correct because decreasing the number of shards of the Kinesis data stream will decrease the throughput and parallelism of the data processing, which will slow down the processing speed. Option E is not correct because increasing the timeout of the Lambda function will not affect the processing speed, but may increase the cost of running the function.

References: [Amazon Kinesis Data Streams Scaling], [AWS Lambda Performance Tuning]

#### NEW QUESTION 7

A developer is creating an AWS Lambda function that consumes messages from an Amazon Simple Queue Service (Amazon SQS) standard queue. The developer notices that the Lambda function processes some messages multiple times.

How should developer resolve this issue MOST cost-effectively?

- A. Change the Amazon SQS standard queue to an Amazon SQS FIFO queue by using the Amazon SQS message deduplication ID.
- B. Set up a dead-letter queue.
- C. Set the maximum concurrency limit of the AWS Lambda function to 1
- D. Change the message processing to use Amazon Kinesis Data Streams instead of Amazon SQS.

**Answer:** A

#### Explanation:

Amazon Simple Queue Service (Amazon SQS) is a fully managed queue service that allows you to de-couple and scale for applications<sup>1</sup>. Amazon SQS offers two types of queues: Standard and FIFO (First In First Out) queues<sup>1</sup>. The FIFO queue uses the `messageDeduplicationId` property to treat messages with the same value as duplicate<sup>2</sup>.

Therefore, changing the Amazon SQS standard queue to an Amazon SQS FIFO queue using the Amazon SQS message deduplication ID can help resolve the issue of the Lambda function processing some messages multiple times. Therefore, option A is correct.

#### NEW QUESTION 8

A developer is working on a Python application that runs on Amazon EC2 instances. The developer wants to enable tracing of application requests to debug performance issues in the code.

Which combination of actions should the developer take to achieve this goal? (Select TWO)

- A. Install the Amazon CloudWatch agent on the EC2 instances.
- B. Install the AWS X-Ray daemon on the EC2 instances.
- C. Configure the application to write JSON-formatted logs to `/var/log/cloudwatch`.
- D. Configure the application to write trace data to `/var/log/xray`.
- E. Install and configure the AWS X-Ray SDK for Python in the application.

**Answer:** BE

#### Explanation:

This solution will meet the requirements by using AWS X-Ray to enable tracing of application requests to debug performance issues in the code. AWS X-Ray is a service that collects data about requests that the applications serve, and provides tools to view, filter, and gain insights into that data. The developer can install the AWS X-Ray daemon on the EC2 instances, which is a software that listens for traffic on UDP port 2000, gathers raw segment data, and relays it to the X-Ray API. The developer can also install and configure the AWS X-Ray SDK for Python in the application, which is a library that enables instrumenting Python code to generate and send trace data to the X-Ray daemon. Option A is not optimal because it will install the Amazon CloudWatch agent on the EC2 instances, which is a software that collects metrics and logs from EC2 instances and on-premises servers, not application performance data. Option C is not optimal because it will configure the application to write JSON-formatted logs to `/var/log/cloudwatch`, which is not a valid path or destination for CloudWatch logs. Option D is not optimal because it will configure the application to write trace data to `/var/log/xray`, which is also not a valid path or destination for X-Ray trace data.

References: [AWS X-Ray], [Running the X-Ray Daemon on Amazon EC2]

#### NEW QUESTION 9

A developer has an application that makes batch requests directly to Amazon DynamoDB by using the `BatchGetItem` low-level API operation. The responses frequently return values in the `UnprocessedKeys` element.

Which actions should the developer take to increase the resiliency of the application when the batch response includes values in `UnprocessedKeys`? (Choose two.)

- A. Retry the batch operation immediately.
- B. Retry the batch operation with exponential backoff and randomized delay.
- C. Update the application to use an AWS software development kit (AWS SDK) to make the requests.
- D. Increase the provisioned read capacity of the DynamoDB tables that the operation accesses.
- E. Increase the provisioned write capacity of the DynamoDB tables that the operation accesses.

**Answer:** BC

#### Explanation:

The `UnprocessedKeys` element indicates that the `BatchGetItem` operation did not process all of the requested items in the current response. This can happen if the

response size limit is exceeded or if the table's provisioned throughput is exceeded. To handle this situation, the developer should retry the batch operation with exponential backoff and randomized delay to avoid throttling errors and reduce the load on the table. The developer should also use an AWS SDK to make the requests, as the SDKs automatically retry requests that return `UnprocessedKeys`.

References:

? [BatchGetItem - Amazon DynamoDB]

? [Working with Queries and Scans - Amazon DynamoDB]

? [Best Practices for Handling DynamoDB Throttling Errors]

#### NEW QUESTION 10

A company receives food orders from multiple partners. The company has a microservices application that uses Amazon API Gateway APIs with AWS Lambda

integration. Each partner sends orders by calling a customized API that is exposed through API Gateway. The API call invokes a shared Lambda function to process the orders. Partners need to be notified after the Lambda function processes the orders. Each partner must receive updates for only the partner's own orders. The company wants to add new partners in the future with the fewest code changes possible. Which solution will meet these requirements in the MOST scalable way?

- A. Create a different Amazon Simple Notification Service (Amazon SNS) topic for each partner
- B. Configure the Lambda function to publish messages for each partner to the partner's SNS topic.
- C. Create a different Lambda function for each partner
- D. Configure the Lambda function to notify each partner's service endpoint directly.
- E. Create an Amazon Simple Notification Service (Amazon SNS) topic
- F. Configure the Lambda function to publish messages with specific attributes to the SNS topic
- G. Subscribe each partner to the SNS topic
- H. Apply the appropriate filter policy to the topic subscriptions.  
 Create one Amazon Simple Notification Service (Amazon SNS) topic
- I. Subscribe all partners to the SNS topic.

**Answer: C**

**Explanation:**

Amazon Simple Notification Service (Amazon SNS) is a fully managed messaging service that enables pub/sub communication between distributed systems. The developer can create an SNS topic and configure the Lambda function to publish messages with specific attributes to the topic. The developer can subscribe each partner to the SNS topic and apply the appropriate filter policy to the topic subscriptions. This way, each partner will receive updates for only their own orders based on the message attributes. This solution will meet the requirements in the most scalable way and allow adding new partners in the future with minimal code changes.

References:

- ? [Amazon Simple Notification Service (SNS)]
- ? [Filtering Messages with Attributes - Amazon Simple Notification Service]

**NEW QUESTION 10**

A developer is creating an application that will be deployed on IoT devices. The application will send data to a RESTful API that is deployed as an AWS Lambda function. The application will assign each API request a unique identifier. The volume of API requests from the application can randomly increase at any given time of day.

During periods of request throttling, the application might need to retry requests. The API must be able to handle duplicate requests without inconsistencies or data loss.

Which solution will meet these requirements?

- A. Create an Amazon RDS for MySQL DB instance
- B. Store the unique identifier for each request in a database table
- C. Modify the Lambda function to check the table for the identifier before processing the request.
- D. Create an Amazon DynamoDB table
- E. Store the unique identifier for each request in the table
- F. Modify the Lambda function to check the table for the identifier before processing the request.
- G. Create an Amazon DynamoDB table
- H. Store the unique identifier for each request in the table
- I. Modify the Lambda function to return a client error response when the function receives a duplicate request.
- J. Create an Amazon ElastiCache for Memcached instance
- K. Store the unique identifier for each request in the cache
- L. Modify the Lambda function to check the cache for the identifier before processing the request.

**Answer: B**

**Explanation:**

Amazon DynamoDB is a fully managed NoSQL database service that can store and retrieve any amount of data with high availability and performance. DynamoDB can handle concurrent requests from multiple IoT devices without throttling or data loss. To prevent duplicate requests from causing inconsistencies or data loss, the Lambda function can use DynamoDB conditional writes to check if the unique identifier for each request already exists in the table before processing the request. If the identifier exists, the function can skip or abort the request; otherwise, it can process the request and store the identifier in the table. Reference: Using conditional writes

**NEW QUESTION 13**

A company has an application that runs as a series of AWS Lambda functions. Each Lambda function receives data from an Amazon Simple Notification Service (Amazon SNS) topic and writes the data to an Amazon Aurora DB instance.

To comply with an information security policy, the company must ensure that the Lambda functions all use a single securely encrypted database connection string to access Aurora.

Which solution will meet these requirements?

- A. Use IAM database authentication for Aurora to enable secure database connections for all the Lambda functions.
- B. Store the credentials and read the credentials from an encrypted Amazon RDS DB instance.
- C. Store the credentials in AWS Systems Manager Parameter Store as a secure string parameter.
- D. Use Lambda environment variables with a shared AWS Key Management Service (AWS KMS) key for encryption.

**Answer: A**

**Explanation:**

This solution will meet the requirements by using IAM database authentication for Aurora, which enables using IAM roles or users to authenticate with Aurora databases instead of using passwords or other secrets. The developer can use IAM database authentication for Aurora to enable secure database connections for all the Lambda functions that access Aurora DB instance. The developer can create an IAM role with permission to connect to Aurora DB instance and attach it to each Lambda function. The developer can also configure Aurora DB instance to use IAM database authentication and enable encryption in transit using SSL certificates. This way, the Lambda functions can use a single securely encrypted database connection string to access Aurora without needing any secrets or passwords. Option B is not optimal because it will store the credentials and read them from an encrypted Amazon RDS DB instance, which may introduce additional costs and complexity for managing and accessing another RDS DB instance. Option C is not optimal because it will store the credentials in

AWS Systems Manager Parameter Store as a secure string parameter, which may require additional steps or permissions to retrieve and decrypt the credentials from Parameter Store. Option D is not optimal because it will use Lambda environment variables with a shared AWS Key Management Service (AWS KMS) key for encryption, which may not be secure or scalable as environment variables are stored as plain text unless encrypted with AWS KMS. References: [IAM Database Authentication for MySQL and PostgreSQL], [Using SSL/TLS to Encrypt a Connection to a DB Instance]

**NEW QUESTION 14**

A developer must use multi-factor authentication (MFA) to access data in an Amazon S3 bucket that is in another AWS account. Which AWS Security Token Service (AWS STS) API operation should the developer use with the MFA information to meet this requirement?

- A. AssumeRoleWithWebIdentity
- B. GetFederationToken
- C. AssumeRoleWithSAML
- D. AssumeRole

**Answer:** D

**Explanation:**

The AssumeRole API operation returns a set of temporary security credentials that can be used to access resources in another AWS account. The developer can specify the MFA device serial number and the MFA token code in the request parameters. This option enables the developer to use MFA to access data in an S3 bucket that is in another AWS account. The other options are not relevant or effective for this scenario. References

? AssumeRole

? Requesting Temporary Security Credentials

**NEW QUESTION 18**

A company is building a web application on AWS. When a customer sends a request, the application will generate reports and then make the reports available to the customer within one hour. Reports should be accessible to the customer for 8 hours. Some reports are larger than 1 MB. Each report is unique to the customer. The application should delete all reports that are older than 2 days. Which solution will meet these requirements with the LEAST operational overhead?

- A. Generate the reports and then store the reports as Amazon DynamoDB items that have a specified TTL
- B. Generate a URL that retrieves the reports from DynamoDB
- C. Provide the URL to customers through the web application.
- D. Generate the reports and then store the reports in an Amazon S3 bucket that uses server-side encryption
- E. Attach the reports to an Amazon Simple Notification Service (Amazon SNS) message
- F. Subscribe the customer to email notifications from Amazon SNS.
- G. Generate the reports and then store the reports in an Amazon S3 bucket that uses server-side encryption
- H. Generate a presigned URL that contains an expiration date. Provide the URL to customers through the web application
- I. Add S3 Lifecycle configuration rules to the S3 bucket to delete old reports.
- J. Generate the reports and then store the reports in an Amazon RDS database with a date stamp
- K. Generate a URL that retrieves the reports from the RDS database
- L. Provide the URL to customers through the web application
- M. Schedule an hourly AWS Lambda function to delete database records that have expired date stamps.

**Answer:** C

**Explanation:**

This solution will meet the requirements with the least operational overhead because it uses Amazon S3 as a scalable, secure, and durable storage service for the reports. The presigned URL will allow customers to access their reports for a limited time (8 hours) without requiring additional authentication. The S3 Lifecycle configuration rules will automatically delete the reports that are older than 2 days, reducing storage costs and complying with the data retention policy. Option A is not optimal because it will incur additional costs and complexity to store the reports as DynamoDB items, which have a size limit of 400 KB. Option B is not optimal because it will not provide customers with access to their reports within one hour, as Amazon SNS email delivery is not guaranteed. Option D is not optimal because it will require more operational overhead to manage an RDS database and a Lambda function for storing and deleting the reports. References: Amazon S3 Presigned URLs, Amazon S3 Lifecycle

**NEW QUESTION 22**

An developer is building a serverless application by using the AWS Serverless Application Model (AWS SAM). The developer is currently testing the application in a development environment. When the application is nearly finished, the developer will need to set up additional testing and staging environments for a quality assurance team.

The developer wants to use a feature of the AWS SAM to set up deployments to multiple environments.

Which solution will meet these requirements with the LEAST development effort?

- A. Add a configuration file in TOML format to group configuration entries to every environment
- B. Add a table for each testing and staging environment
- C. Deploy updates to the environments by using the sam deploy command and the --config-env flag that corresponds to the each environment.
- D. Create additional AWS SAM templates for each testing and staging environment
- E. Write a custom shell script that uses the sam deploy command and the --template-file flag to deploy updates to the environments.
- F. Create one AWS SAM configuration file that has default parameters
- G. Perform updates to the testing and staging environments by using the --parameter-overrides flag in the AWS SAM CLI and the parameters that the updates will override.
- H. Use the existing AWS SAM template
- I. Add additional parameters to configure specific attributes for the serverless function and database table resources that are in each environment
- J. Deploy updates to the testing and staging environments by using the sam deploy command.

**Answer:** A

**Explanation:**

The correct answer is A. Add a configuration file in TOML format to group configuration entries to every environment. Add a table for each testing and staging

environment. Deploy updates to the environments by using the `sam deploy` command and the `--config-env` flag that corresponds to the each environment.

\* A. Add a configuration file in TOML format to group configuration entries to every environment. Add a table for each testing and staging environment. Deploy updates to the environments by using the `sam deploy` command and the `--config-env` flag that corresponds to the each environment. This is correct. This solution will meet the requirements with the least development effort, because it uses a feature of the AWS SAM CLI that supports a project-level configuration file that can be used to configure AWS SAM CLI command parameter values<sup>1</sup>. The configuration file can have multiple environments, each with its own set of parameter values, such as stack name, region, capabilities, and more<sup>2</sup>. The developer can use the `--config-env` option to specify which environment to use when deploying the application<sup>3</sup>. This way, the developer can avoid creating multiple templates or scripts, or manually overriding parameters for each environment.

\* B. Create additional AWS SAM templates for each testing and staging environment. Write a custom shell script that uses the `sam deploy` command and the `--template-file` flag to

deploy updates to the environments. This is incorrect. This solution will not meet the requirements with the least development effort, because it requires creating and maintaining multiple templates and scripts for each environment. This can introduce duplication, inconsistency, and complexity in the deployment process.

\* C. Create one AWS SAM configuration file that has default parameters. Perform updates to the testing and staging environments by using the `--parameter-overrides` flag in the AWS SAM CLI and the parameters that the updates will override. This is incorrect. This solution will not meet the requirements with the least development effort, because it requires manually specifying and overriding parameters for each environment every time the developer deploys the application. This can be error-prone, tedious, and inefficient.

\* D. Use the existing AWS SAM template. Add additional parameters to configure specific attributes for the serverless function and database table resources that are in each environment. Deploy updates to the testing and staging environments by using the `sam deploy` command. This is incorrect. This solution will not meet the requirements with the least development effort, because it requires modifying the existing template and adding complexity to the resource definitions for each environment. This can also make it difficult to manage and track changes across different environments.

References:

? 1: AWS SAM CLI configuration file - AWS Serverless Application Model

? 2: Configuration file basics - AWS Serverless Application Model

? 3: Specify a configuration file - AWS Serverless Application Model

### NEW QUESTION 26

A developer has observed an increase in bugs in the AWS Lambda functions that a development team has deployed in its Node.js application.

To minimize these bugs, the developer wants to implement automated testing of Lambda functions in an environment that closely simulates the Lambda environment.

The developer needs to give other developers the ability to run the tests locally. The developer also needs to integrate the tests into the team's continuous integration and continuous delivery (CI/CD) pipeline before the AWS Cloud Development Kit (AWS CDK) deployment.

Which solution will meet these requirements?

- A. Create sample events based on the Lambda documentatio
- B. Create automated test scripts that use the `cdk local invoke` command to invoke the Lambda function
- C. Check the respons
- D. Document the test scripts for the other developers on the tea
- E. Update the CI/CD pipeline to run the test scripts.

Create sample events based on the Lambda

F. Install a unit testing framework that reproduces the Lambda execution environment.

G. Invoke the handler function by using a unit testing framewor

H. Check the respons

I. Document how to run the unit testing framework for the other developers on the tea

J. Update the CI/CD pipeline to run the unit testing framework.

K. Install the AWS Serverless Application Model (AWS SAM) CLI too

L. Use the `sam local generate-event` command to generate sample events for the automated test

M. Create automated test scripts that use the `sam local invoke` command to invoke the Lambda function

N. Check the respons

O. Document the test scripts for the other developers on the tea

P. Update the CI/CD pipeline to run the test scripts.

Q. Create sample events based on the Lambda documentatio

R. Create a Docker container from the Node.js base image to invoke the Lambda function

S. Check the respons

T. Document how to run the Docker container for the other developers on the tea

. Update the CI/CD pipeline to run the Docker container.

**Answer: C**

#### Explanation:

The AWS Serverless Application Model Command Line Interface (AWS SAM CLI) is a command-line tool for local development and testing of Serverless applications<sup>3</sup>. The `sam local generate-event` command of AWS SAM CLI generates sample events for automated tests<sup>3</sup>. The `sam local invoke` command is used to invoke Lambda functions<sup>3</sup>. Therefore, option C is correct.

### NEW QUESTION 27

A company is migrating an on-premises database to Amazon RDS for MySQL. The company has read-heavy workloads. The company wants to refactor the code to achieve optimum read performance for queries.

Which solution will meet this requirement with LEAST current and future effort?

Use a multi-AZ Amazon RDS deploymen

**A:** Increase the number of connections that the code makes to the database or increase the connection pool size if a connection pool is in use.

C. Use a multi-AZ Amazon RDS deploymen

D. Modify the code so that queries access the secondary RDS instance.

E. Deploy Amazon RDS with one or more read replica

F. Modify the application code so that queries use the URL for the read replicas.

G. Use open source replication software to create a copy of the MySQL database on an Amazon EC2 instanc

H. Modify the application code so that queries use the IP address of the EC2 instance.

**Answer: C**

#### Explanation:

Amazon RDS for MySQL supports read replicas, which are copies of the primary database instance that can handle read-only queries. Read replicas can improve

the read performance of the database by offloading the read workload from the primary instance and distributing it across multiple replicas. To use read replicas, the application code needs to be modified to direct read queries to the URL of the read replicas, while write queries still go to the URL of the primary instance. This solution requires less current and future effort than using a multi-AZ deployment, which does not provide read scaling benefits, or using open source replication software, which requires additional configuration and maintenance. Reference: Working with read replicas

**NEW QUESTION 28**

A developer is creating a new REST API by using Amazon API Gateway and AWS Lambda. The development team tests the API and validates responses for the known use cases before deploying the API to the production environment.

The developer wants to make the REST API available for testing by using API Gateway locally.

Which AWS Serverless Application Model Command Line Interface (AWS SAM CLI) subcommand will meet these requirements?

- A. Sam local invoke
- B. Sam local generate-event
- C. Sam local start-lambda
- D. Sam local start-api

**Answer:** D

**Explanation:**

The AWS Serverless Application Model Command Line Interface (AWS SAM CLI) is a command-line tool for local development and testing of Serverless applications<sup>2</sup>. The sam local start-api subcommand of AWS SAM CLI is used to simulate a REST API by starting a new local endpoint<sup>3</sup>. Therefore, option D is correct.

**NEW QUESTION 33**

A company wants to automate part of its deployment process. A developer needs to automate the process of checking for and deleting unused resources that supported previously deployed stacks but that are no longer used.

The company has a central application that uses the AWS Cloud Development Kit (AWS CDK) to manage all deployment stacks. The stacks are spread out across multiple accounts. The developer's solution must integrate as seamlessly as possible within the current deployment process.

Which solution will meet these requirements with the LEAST amount of configuration?

- A. In the central AWS CDK application, write a handler function in the code that uses AWS SDK calls to check for and delete unused resource
- B. Create an AWS CloudFormation template from a JSON file
- C. Use the template to attach the function code to an AWS Lambda function and to invoke the Lambda function when the deployment stack runs.
- D. In the central AWS CDK application, write a handler function in the code that uses AWS SDK calls to check for and delete unused resource
- E. Create an AWS CDK custom resource Use the custom resource to attach the function code to an AWS Lambda function and to invoke the Lambda function when the deployment stack runs.
- F. In the central AWS CDK, write a handler function in the code that uses AWS SDK calls to check for and delete unused resource
- G. Create an API in AWS Amplify Use the API to attach the function code to an AWS Lambda function and to invoke the Lambda function when the deployment stack runs.
- H. In the AWS Lambda console write a handler function in the code that uses AWS SDK calls to check for and delete unused resource
- I. Create an AWS CDK custom resource
- J. Use the custom resource to import the Lambda function into the stack and to invoke the Lambda function when the deployment stack runs.

**Answer:** B

**Explanation:**

This solution meets the requirements with the least amount of configuration because it uses a feature of AWS CDK that allows custom logic to be executed during stack deployment or deletion. The AWS Cloud Development Kit (AWS CDK) is a software development framework that allows you to define cloud infrastructure as code and provision it through CloudFormation. An AWS CDK custom resource is a construct that enables you to create resources that are not natively supported by CloudFormation or perform tasks that are not supported by CloudFormation during stack deployment or deletion. The developer can write a handler function in the code that uses AWS SDK calls to check for and delete unused resources, and create an AWS CDK custom resource that attaches the function code to a Lambda function and invokes it when the deployment stack runs. This way, the developer can automate the cleanup process without requiring additional configuration or integration. Creating a CloudFormation template from a JSON file will require additional configuration and integration with the central AWS CDK application. Creating an API in AWS Amplify will require additional configuration and integration with the central AWS CDK application and may not provide optimal performance or availability. Writing a handler function in the AWS Lambda console will require additional configuration and integration with the central AWS CDK application.

Reference: [AWS Cloud Development Kit (CDK)], [Custom Resources]

**NEW QUESTION 38**

An application uses Lambda functions to extract metadata from files uploaded to an S3 bucket; the metadata is stored in Amazon DynamoDB. The application starts behaving unexpectedly, and the developer wants to examine the logs of the Lambda function code for errors.

Based on this system configuration, where would the developer find the logs?

- A. Amazon S3
- B. AWS CloudTrail
- C. Amazon CloudWatch
- D. Amazon DynamoDB

**Answer:** C

**Explanation:**

Amazon CloudWatch is the service that collects and stores logs from AWS Lambda functions. The developer can use CloudWatch Logs Insights to query and analyze the logs for errors and metrics. Option A is not correct because Amazon S3 is a storage service that does not store Lambda function logs. Option B is not correct because AWS CloudTrail is a service that records API calls and events for AWS services, not Lambda function logs. Option D is not correct because Amazon DynamoDB is a database service that does not store Lambda function logs.

References: AWS Lambda Monitoring, [CloudWatch Logs Insights]

**NEW QUESTION 40**

An AWS Lambda function requires read access to an Amazon S3 bucket and requires read/write access to an Amazon DynamoDB table. The correct IAM policy already exists.

What is the MOST secure way to grant the Lambda function access to the S3 bucket and the DynamoDB table?

- A. Attach the existing IAM policy to the Lambda function.
- B. Create an IAM role for the Lambda function. Attach the existing IAM policy to the role. Attach the role to the Lambda function.
- C. Create an IAM user with programmatic access. Attach the existing IAM policy to the user.
- D. Add the user access key ID and secret access key as environment variables in the Lambda function.
- E. Add the AWS account root user access key ID and secret access key as encrypted environment variables in the Lambda function.

**Answer: B**

**Explanation:**

The most secure way to grant the Lambda function access to the S3 bucket and the DynamoDB table is to create an IAM role for the Lambda function and attach the existing IAM policy to the role. This way, you can use the principle of least privilege and avoid exposing any credentials in your function code or environment variables. You can also leverage the temporary security credentials that AWS provides to the Lambda function when it assumes the role. This solution follows the best practices for working with AWS Lambda functions<sup>1</sup> and designing and architecting with DynamoDB<sup>2</sup>. References

? Best practices for working with AWS Lambda functions

? Best practices for designing and architecting with DynamoDB

**NEW QUESTION 44**

A company is planning to securely manage one-time fixed license keys in AWS. The company's development team needs to access the license keys in automation scripts that run in Amazon EC2 instances and in AWS CloudFormation stacks.

Which solution will meet these requirements MOST cost-effectively?

- A. Amazon S3 with encrypted files prefixed with "config"
- B. AWS Secrets Manager secrets with a tag that is named SecretString
- C. AWS Systems Manager Parameter Store SecureString parameters
- D. CloudFormation NoEcho parameters

**Answer: C**

**Explanation:**

AWS Systems Manager Parameter Store is a service that provides secure, hierarchical storage for configuration data and secrets. Parameter Store supports SecureString parameters, which are encrypted using AWS Key Management Service (AWS KMS) keys. SecureString parameters can be used to store license keys in AWS and retrieve them securely from automation scripts that run in EC2 instances or CloudFormation stacks. Parameter Store is a cost-effective solution because it does not charge for storing parameters or API calls. Reference: Working with Systems Manager parameters

**NEW QUESTION 45**

A developer must analyze performance issues with production-distributed applications written as AWS Lambda functions. These distributed Lambda applications invoke other components that make up the applications. How should the developer identify and troubleshoot the root cause of the performance issues in production?

- A. Add logging statements to the Lambda function.
- B. then use Amazon CloudWatch to view the logs.
- C. Use AWS CloudTrail and then examine the logs.
- D. Use AWS X-Ray.
- E. then examine the segments and errors.
- F. Run Amazon Inspector agents and then analyze performance.

**Answer: C**

**Explanation:**

This solution will meet the requirements by using AWS X-Ray to analyze and debug the performance issues with the distributed Lambda applications. AWS X-Ray is a service that collects data about requests that the applications serve, and provides tools to view, filter, and gain insights into that data. The developer can use AWS X-Ray to identify the root cause of the performance issues by examining the segments and errors that show the details of each request and the components that make up the applications. Option A is not optimal because it will use logging statements and Amazon CloudWatch, which may not provide enough information or visibility into the distributed applications. Option B is not optimal because it will use AWS CloudTrail, which is a service that records API calls and events for AWS services, not application performance data. Option D is not optimal because it will use Amazon Inspector, which is a service that helps improve the security and compliance of applications on Amazon EC2 instances, not Lambda functions. References: AWS X-Ray, Using AWS X-Ray with AWS Lambda

**NEW QUESTION 46**

An application is processing clickstream data using Amazon Kinesis. The clickstream data feed into Kinesis experiences periodic spikes. The PutRecords API call occasionally fails and the logs show that the failed call returns the response shown below:

```

{
  "FailedRecordCount": 1,
  "Records": [
    {
      "SequenceNumber": "21269319989900637946712965403778482371",
      "ShardId": "shardId-000000000001"
    },
    {
      "ErrorCode": "ProvisionedThroughputExceededException",
      "ErrorMessage": "Rate exceeded for shard shardId-000000000001 in
                        stream exampleStreamName under account 123456789."
    },
    {
      "SequenceNumber": "21269319989999637946712965403778482985",
      "ShardId": "shardId-000000000002"
    }
  ]
}

```

Which techniques will help mitigate this exception? (Choose two.)

- A. Implement retries with exponential backoff.
- B. Use a PutRecord API instead of PutRecords.
- C. Reduce the frequency and/or size of the requests.
- D. Use Amazon SNS instead of Kinesis.
- E. Reduce the number of KCL consumers.

**Answer:** AC

**Explanation:**

The response from the API call indicates that the ProvisionedThroughputExceededException exception has occurred. This exception means that the rate of incoming requests exceeds the throughput limit for one or more shards in a stream. To mitigate this exception, the developer can use one or more of the following techniques:

- ? Implement retries with exponential backoff. This will introduce randomness in the retry intervals and avoid overwhelming the shards with retries.
- ? Reduce the frequency and/or size of the requests. This will reduce the load on the shards and avoid throttling errors.
- ? Increase the number of shards in the stream. This will increase the throughput capacity of the stream and accommodate higher request rates.
- ? Use a PutRecord API instead of PutRecords. This will reduce the number of records per request and avoid exceeding the payload limit.

References:

- ? [ProvisionedThroughputExceededException - Amazon Kinesis Data Streams Service API Reference]
- ? [Best Practices for Handling Kinesis Data Streams Errors]

**NEW QUESTION 51**

A company has multiple Amazon VPC endpoints in the same VPC. A developer needs configure an Amazon S3 bucket policy so users can access an S3 bucket only by using these VPC endpoints.

Which solution will meet these requirements?

- A. Create multiple S3 bucket policies by using each VPC endpoint ID that have the aws SourceVpce value in the StringNotEquals condition.
- B. Create a single S3 bucket policy that has the aws SourceVpc value and in the StingNotEquals condition to use VPC ID.
- C. Create a single S3 bucket policy that the multiple aws SourceVpce value and in the SringNotEquals condton to use vpce.
- D. Create a single S3 bucket policy that has multiple aws sourceVpce value in the StingNotEquale conditio
- E. Repeat for all the VPC endpoint IDs.

**Answer:** D

**Explanation:**

This solution will meet the requirements by creating a single S3 bucket policy that denies access to the S3 bucket unless the request comes from one of the specified VPC endpoints. The aws:SourceVpce condition key is used to match the ID of the VPC endpoint that is used to access the S3 bucket. The

StringNotEquals condition operator is used to negate the condition, so that only requests from the listed VPC endpoints are allowed. Option A is not optimal because it will create multiple S3 bucket policies, which is not possible as only one bucket policy can be attached to an S3 bucket. Option B is not optimal because it will use the aws:SourceVpc condition key, which matches the ID of the VPC that is used to access the S3 bucket, not the VPC endpoint. Option C is not optimal because it will use the StringNotEquals condition operator with a single value, which will deny access to the S3 bucket from all VPC endpoints except one.

References: Using Amazon S3 Bucket Policies and User Policies, AWS Global Condition Context Keys

**NEW QUESTION 53**

A company is migrating its PostgreSQL database into the AWS Cloud. The company wants to use a database that will secure and regularly rotate database credentials. The company wants a solution that does not require additional programming overhead.

Which solution will meet these requirements?

- A. Mastered
- B. Not Mastered

**Answer:** A

**Explanation:**

This solution meets the requirements because it uses a PostgreSQL- compatible database that can secure and regularly rotate database credentials without

requiring additional programming overhead. Amazon Aurora PostgreSQL is a relational database service that is compatible with PostgreSQL and offers high performance, availability, and scalability. AWS Secrets Manager is a service that helps you protect secrets needed to access your applications, services, and IT resources. You can store database credentials in AWS Secrets Manager and use them to access your Aurora PostgreSQL database. You can also enable automatic rotation of your secrets according to a schedule or an event. AWS Secrets Manager handles the complexity of rotating secrets for you, such as generating new passwords and updating your database with the new credentials. Using Amazon DynamoDB for the database will not meet the requirements because it is a NoSQL database that is not compatible with PostgreSQL. Using AWS Systems Manager Parameter Store for storing and rotating database credentials will require additional programming overhead to integrate with your database.

Reference: [What Is Amazon Aurora?], [What Is AWS Secrets Manager?]

#### NEW QUESTION 57

A company is implementing an application on Amazon EC2 instances. The application needs to process incoming transactions. When the application detects a transaction that is not valid, the application must send a chat message to the company's support team. To send the message, the application needs to retrieve the access token to authenticate by using the chat API.

A developer needs to implement a solution to store the access token. The access token must be encrypted at rest and in transit. The access token must also be accessible from other AWS accounts.

Which solution will meet these requirements with the LEAST management overhead?

- A. Use an AWS Systems Manager Parameter Store SecureString parameter that uses an AWS Key Management Service (AWS KMS) AWS managed key to store the access token
- B. Add a resource-based policy to the parameter to allow access from other account
- C. Update the IAM role of the EC2 instances with permissions to access Parameter Store and retrieve the token from Parameter Store with the decrypt flag enabled
- D. Retrieve the decrypted access token to send the message to the chat.
- F. Encrypt the access token by using an AWS Key Management Service (AWS KMS) customer managed key
- G. Store the access token in an Amazon DynamoDB table
- H. Update the IAM role of the EC2 instances with permissions to access DynamoDB and AWS KMS
- I. Retrieve the token from DynamoDB
- J. Decrypt the token by using AWS KMS on the EC2 instance
- K. Use the decrypted access token to send the message to the chat.
- L. Use AWS Secrets Manager with an AWS Key Management Service (AWS KMS) customer managed key to store the access token
- M. Add a resource-based policy to the secret to allow access from other account
- N. Update the IAM role of the EC2 instances with permissions to access Secrets Manager
- O. Retrieve the token from Secrets Manager
- P. Use the decrypted access token to send the message to the chat.
- Q. Encrypt the access token by using an AWS Key Management Service (AWS KMS) AWS managed key
- R. Store the access token in an Amazon S3 bucket
- S. Add a bucket policy to the S3 bucket to allow access from other account
- T. Update the IAM role of the EC2 instances with permissions to access Amazon S3 and AWS KMS
- . Retrieve the token from the S3 bucket
- . Decrypt the token by using AWS KMS on the EC2 instance
- . Use the decrypted access token to send the message to the chat.

**Answer:** C

#### Explanation:

<https://aws.amazon.com/premiumsupport/knowledge-center/secrets-manager-share-between-accounts/>  
[https://docs.aws.amazon.com/secretsmanager/latest/userguide/auth-and-access\\_examples\\_cross.html](https://docs.aws.amazon.com/secretsmanager/latest/userguide/auth-and-access_examples_cross.html)

#### NEW QUESTION 60

A developer is creating an AWS Lambda function that searches for items from an Amazon DynamoDB table that contains customer contact information. The DynamoDB table items have the customer's email\_address as the partition key and additional properties such as customer\_type, name, and job\_title. The Lambda function runs whenever a user types a new character into the customer\_type text input. The developer wants the search to return partial matches of all the email\_address property of a particular customer\_type. The developer does not want to recreate the DynamoDB table.

What should the developer do to meet these requirements?

- A. Add a global secondary index (GSI) to the DynamoDB table with customer\_type as the partition key and email\_address as the sort key. Perform a query operation on the GSI by using the begins\_with key condition expression with the email\_address property.
- B. Add a global secondary index (GSI) to the DynamoDB table with email\_address as the partition key and customer\_type as the sort key. Perform a query operation on the GSI by using the begins\_with key condition expression with the email\_address property.
- C. Add a local secondary index (LSI) to the DynamoDB table with customer\_type as the partition key and email\_address as the sort key. Perform a query operation on the LSI by using the begins\_with key condition expression with the email\_address property.
- D. Add a local secondary index (LSI) to the DynamoDB table with job\_title as the partition key and email\_address as the sort key. Perform a query operation on the LSI by using the begins\_with key condition expression with the email\_address property.

**Answer:** A

#### Explanation:

By adding a global secondary index (GSI) to the DynamoDB table with customer\_type as the partition key and email\_address as the sort key, the developer can perform a query operation on the GSI using the Begins\_with key condition expression with the email\_address property. This will return partial matches of all email\_address properties of a specific customer\_type.

#### NEW QUESTION 61

A developer needs to store configuration variables for an application. The developer needs to set an expiration date and time for the configuration. The developer wants to receive notifications before the configuration expires. Which solution will meet these requirements with the LEAST operational overhead?

- A. Create a standard parameter in AWS Systems Manager Parameter Store. Set Expiration and Expiration Notification policy types.
- B. Create a standard parameter in AWS Systems Manager Parameter Store. Create an AWS Lambda function to expire the configuration and to send Amazon Simple Notification Service (Amazon SNS) notifications.
- C. Create an advanced parameter in AWS Systems Manager Parameter Store. Set Expiration and Expiration Notification policy types.

D. Create an advanced parameter in AWS Systems Manager Parameter Store Create an Amazon EC2 instance with a cron job to expire the configuration and to send notifications.

**Answer:** C

**Explanation:**

This solution will meet the requirements by creating an advanced parameter in AWS Systems Manager Parameter Store, which is a secure and scalable service for storing and managing configuration data and secrets. The advanced parameter allows setting expiration and expiration notification policy types, which enable specifying an expiration date and time for the configuration and receiving notifications before the configuration expires. The Lambda code will be refactored to load the Root CA Cert from the parameter store and modify the runtime trust store outside the Lambda function handler, which will improve performance and reduce latency by avoiding repeated calls to Parameter Store and trust store modifications for each invocation of the Lambda function. Option A is not optimal because it will create a standard parameter in AWS Systems Manager Parameter Store, which does not support expiration and expiration notification policy types. Option B is not optimal because it will create a secret access key and access key ID with permission to access the S3 bucket, which will introduce additional security risks and complexity for storing and managing credentials. Option D is not optimal because it will create a Docker container from Node.js base image to invoke Lambda functions, which will incur additional costs and overhead for creating and running Docker containers. References: AWS Systems Manager Parameter Store, [Using SSL/TLS to Encrypt a Connection to a DB Instance]

**NEW QUESTION 65**

A developer wants to deploy a new version of an AWS Elastic Beanstalk application. During deployment the application must maintain full capacity and avoid service interruption. Additionally, the developer must minimize the cost of additional resources that support the deployment. Which deployment method should the developer use to meet these requirements?

- A. All at once
- B. Rolling with additional batch
- C. Bluegreen
- D. Immutable

**Answer:** B

**Explanation:**

This solution will meet the requirements by using a rolling with additional batch deployment method, which deploys the new version of the application to a separate group of instances and then shifts traffic to those instances in batches. This way, the application maintains full capacity and avoids service interruption during deployment, as well as minimizes the cost of additional resources that support the deployment. Option A is not optimal because it will use an all at once deployment method, which deploys the new version of the application to all instances simultaneously, which may cause service interruption or downtime during deployment. Option C is not optimal because it will use a blue/green deployment method, which deploys the new version of the application to a separate environment and then swaps URLs with the original environment, which may incur more costs for additional resources that support the deployment. Option D is not optimal because it will use an immutable deployment method, which deploys the new version of the application to a fresh group of instances and then redirects traffic to those instances, which may also incur more costs for additional resources that support the deployment.

References: AWS Elastic Beanstalk Deployment Policies

**NEW QUESTION 67**

A developer has code that is stored in an Amazon S3 bucket. The code must be deployed as an AWS Lambda function across multiple accounts in the same AWS Region as the S3 bucket an AWS CloudFormation template that runs for each account will deploy the Lambda function. What is the MOST secure way to allow CloudFormation to access the Lambda Code in the S3 bucket?

- A. Mastered
- B. Not Mastered

**Answer:** A

**Explanation:**

This solution allows the CloudFormation service role to access the S3 bucket from any account, as long as it has the S3 GetObject permission. The bucket policy grants access to any principal with the GetObject permission, which is the least privilege needed to deploy the Lambda code. This is more secure than granting ListBucket permission, which is not required for deploying Lambda code, or using a service-based link, which is not supported for Lambda functions. Reference: AWS CloudFormation Service Role, Using AWS Lambda with Amazon S3

**NEW QUESTION 71**

A developer is troubleshooting an application that uses Amazon DynamoDB in the us-west-2 Region. The application is deployed to an Amazon EC2 instance. The application requires read-only permissions to a table that is named Cars The EC2 instance has an attached IAM role that contains the following IAM policy.

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Sid": "ReadOnlyAPIActions",
      "Effect": "Allow",
      "Action": [
        "dynamodb:GetItem",
        "dynamodb:BatchGetItem",
        "dynamodb:Scan",
        "dynamodb:Query",
        "dynamodb:ConditionCheckItem"
      ],
      "Resource": "arn:aws:dynamodb:us-west-2:account-id:table/Cars"
    }
  ]
}
```

When the application tries to read from the Cars table, an Access Denied error occurs. How can the developer resolve this error?

- A. Modify the IAM policy resource to be "arn aws dynamo\* us-west-2 account-id table/\*"
- B. Modify the IAM policy to include the dynamodb \* action
- C. Create a trust policy that specifies the EC2 service principal

- D. Associate the role with the policy.
- E. Create a trust relationship between the role and dynamodb Amazonas com.

**Answer:** C

**Explanation:**

<https://docs.aws.amazon.com/amazondynamodb/latest/developerguide/access-control-overview.html#access-control-resource-ownership>

**NEW QUESTION 74**

A developer is preparing to begin development of a new version of an application. The previous version of the application is deployed in a production environment. The developer needs to deploy fixes and updates to the current version during the development of the new version of the application. The code for the new version of the application is stored in AWS CodeCommit.

Which solution will meet these requirements?

- A. From the main branch, create a feature branch for production bug fixe
- B. Create a second feature branch from the main branch for development of the new version.
- C. Create a Git tag of the code that is currently deployed in productio
- D. Create a Git tag for the development of the new versio
- E. Push the two tags to the CodeCommit repository.
- F. From the main branch, create a branch of the code that is currently deployed in productio
- G. Apply an IAM policy that ensures no other other users can push or merge to the branch.
- H. Create a new CodeCommit repository for development of the new version of the applicatio
- I. Create a Git tag for the development of the new version.

**Answer:** A

**Explanation:**

? A feature branch is a branch that is created from the main branch to work on a specific feature or task<sup>1</sup>. Feature branches allow developers to isolate their work from the main branch and avoid conflicts with other changes<sup>1</sup>. Feature branches can be merged back to the main branch when the feature or task is completed and tested<sup>1</sup>.

? In this scenario, the developer needs to maintain two parallel streams of work: one for fixing and updating the current version of the application that is deployed in production, and another for developing the new version of the application. The developer can use feature branches to achieve this goal.

? The developer can create a feature branch from the main branch for production bug fixes. This branch will contain the code that is currently deployed in production, and any fixes or updates that need to be applied to it. The developer can push this branch to the CodeCommit repository and use it to deploy changes to the production environment.

? The developer can also create a second feature branch from the main branch for development of the new version of the application. This branch will contain the code that is under development for the new version, and any changes or enhancements that are part of it. The developer can push this branch to the CodeCommit repository and use it to test and deploy the new version of the application in a separate environment.

? By using feature branches, the developer can keep the main branch stable and clean, and avoid mixing code from different versions of the application. The developer can also easily switch between branches and merge them when needed.

**NEW QUESTION 77**

A development team maintains a web application by using a single AWS CloudFormation template. The template defines web servers and an Amazon RDS database. The team uses the Cloud Formation template to deploy the Cloud Formation stack to different environments.

During a recent application deployment, a developer caused the primary development database to be dropped and recreated. The result of this incident was a loss of data. The team needs to avoid accidental database deletion in the future.

Which solutions will meet these requirements? (Choose two.)

- A. Add a CloudFormation Deletion Policy attribute with the Retain value to the database resource.
- B. Update the CloudFormation stack policy to prevent updates to the database.  
Modify the database to use a Multi-AZ deployment.
- C. Create a CloudFormation stack set for the web application and database deployments.
- E. Add a Cloud Formation DeletionPolicy attribute with the Retain value to the stack.

**Answer:** AB

**Explanation:**

AWS CloudFormation is a service that enables developers to model and provision AWS resources using templates. The developer can add a CloudFormation Deletion Policy attribute with the Retain value to the database resource. This will prevent the database from being deleted when the stack is deleted or updated. The developer can also update the CloudFormation stack policy to prevent updates to the database. This will prevent accidental changes to the database configuration or properties.

References:

? [What Is AWS CloudFormation? - AWS CloudFormation]

? [DeletionPolicy Attribute - AWS CloudFormation]

? [Protecting Resources During Stack Updates - AWS CloudFormation]

**NEW QUESTION 82**

A company built an online event platform For each event the company organizes quizzes and generates leaderboards that are based on the quiz scores. The company stores the leaderboard data in Amazon DynamoDB and retains the data for 30 days after an event is complete The company then uses a scheduled job to delete the old leaderboard data

The DynamoDB table is configured with a fixed write capacity. During the months when many events occur, the DynamoDB write API requests are throttled when the scheduled delete job runs.

A developer must create a long-term solution that deletes the old leaderboard data and optimizes write throughput

Which solution meets these requirements?

- A. Configure a TTL attribute for the leaderboard data
- B. Use DynamoDB Streams to schedule and delete the leaderboard data
- C. Use AWS Step Functions to schedule and delete the leaderboard data.
- D. Set a higher write capacity when the scheduled delete job runs

**Answer:** A

**Explanation:**

"deletes the item from your table without consuming any write throughput" <https://docs.aws.amazon.com/amazondynamodb/latest/developerguide/TTL.html>

**NEW QUESTION 86**

A company is running Amazon EC2 instances in multiple AWS accounts. A developer needs to implement an application that collects all the lifecycle events of the EC2 instances. The application needs to store the lifecycle events in a single Amazon Simple Queue Service (Amazon SQS) queue in the company's main AWS account for further processing.

Which solution will meet these requirements?

- A. Configure Amazon EC2 to deliver the EC2 instance lifecycle events from all accounts to the Amazon EventBridge event bus of the main account
- B. Add an EventBridge rule to the event bus of the main account that matches all EC2 instance lifecycle event
- C. Add the SQS queue as a target of the rule.
- D. Use the resource policies of the SQS queue in the main account to give each account permissions to write to that SQS queue
- E. Add to the Amazon EventBridge event bus of each account an EventBridge rule that matches all EC2 instance lifecycle event
- F. Add the SQS queue in the main account as a target of the rule.
- G. Write an AWS Lambda function that scans through all EC2 instances in the company accounts to detect EC2 instance lifecycle change
- H. Configure the Lambda function to write a notification message to the SQS queue in the main account if the function detects an EC2 instance lifecycle change
- I. Add an Amazon EventBridge scheduled rule that invokes the Lambda function every minute.
- J. Configure the permissions on the main account event bus to receive events from all accounts
- K. Create an Amazon EventBridge rule in each account to send all the EC2 instance lifecycle events to the main account event bus
- L. Add an EventBridge rule to the main account event bus that matches all EC2 instance lifecycle event
- M. Set the SQS queue as a target for the rule.

**Answer:** D

**Explanation:**

Amazon EC2 instances can send the state-change notification events to Amazon EventBridge.

<https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/monitoring-instance-state-changes.html> Amazon EventBridge can send and receive events between event buses in AWS accounts. <https://docs.aws.amazon.com/eventbridge/latest/userguide/eb-cross-account.html>

**NEW QUESTION 91**

A developer is deploying an AWS Lambda function. The developer wants the ability to return to older versions of the function quickly and seamlessly.

How can the developer achieve this goal with the LEAST operational overhead?

- A. Use AWS OpsWorks to perform blue/green deployments.
- B. Use a function alias with different versions.
- C. Maintain deployment packages for older versions in Amazon S3.
- D. Use AWS CodePipeline for deployments and rollbacks.

**Answer:** B

**Explanation:**

A function alias is a pointer to a specific Lambda function version. You can use aliases to create different environments for your function, such as development, testing, and production. You can also use aliases to perform blue/green deployments by shifting traffic between two versions of your function gradually. This way, you can easily roll back to a previous version if something goes wrong, without having to redeploy your code or change your configuration. Reference: AWS Lambda function aliases

**NEW QUESTION 96**

A developer has created an AWS Lambda function that makes queries to an Amazon Aurora MySQL DB instance. When the developer performs a test the DB instance shows an error for too many connections.

Which solution will meet these requirements with the LEAST operational effort?

- A. Create a read replica for the DB instance. Query the replica DB instance instead of the primary DB instance.
- B. Migrate the data to an Amazon DynamoDB database.
- C. Configure the Amazon Aurora MySQL DB instance for Multi-AZ deployment.
- D. Create a proxy in Amazon RDS Proxy. Query the proxy instead of the DB instance.

**Answer:** D

**Explanation:**

This solution will meet the requirements by using Amazon RDS Proxy, which is a fully managed, highly available database proxy for Amazon RDS that makes applications more scalable, more resilient to database failures, and more secure. The developer can create a proxy in Amazon RDS Proxy, which sits between the application

and the DB instance and handles connection management, pooling, and routing. The developer can query the proxy instead of the DB instance, which reduces the number of open connections to the DB instance and avoids errors for too many connections. Option A is not optimal because it will create a read replica for the DB instance, which may not solve the problem of too many connections as read replicas also have connection limits and may incur additional costs. Option B is not optimal because it will migrate the data to an Amazon DynamoDB database, which may introduce additional complexity and overhead for migrating and accessing data from a different database service. Option C is not optimal because it will configure the Amazon Aurora MySQL DB instance for Multi-AZ deployment, which may improve availability and durability of the DB instance but not reduce the number of connections.

References: [Amazon RDS Proxy], [Working with Amazon RDS Proxy]

**NEW QUESTION 99**

A developer has an application that is composed of many different AWS Lambda functions. The Lambda functions all use some of the same dependencies. To avoid security issues the developer is constantly updating the dependencies of all of the Lambda functions. The result is duplicated effort to reach function.

How can the developer keep the dependencies of the Lambda functions up to date with the LEAST additional complexity?

- A. Define a maintenance window for the Lambda functions to ensure that the functions get updated copies of the dependencies.
- B. Upgrade the Lambda functions to the most recent runtime version.
- C. Define a Lambda layer that contains all of the shared dependencies.
- D. Use an AWS CodeCommit repository to host the dependencies in a centralized location.

**Answer: C**

**Explanation:**

This solution allows the developer to keep the dependencies of the Lambda functions up to date with the least additional complexity because it eliminates the need to update each function individually. A Lambda layer is a ZIP archive that contains libraries, custom runtimes, or other dependencies. The developer can create a layer that contains all of the shared dependencies and attach it to multiple Lambda functions. When the developer updates the layer, all of the functions that use the layer will have access to the latest version of the dependencies.

Reference: [AWS Lambda layers]

**NEW QUESTION 102**

A company needs to set up secure database credentials for all its AWS Cloud resources. The company's resources include Amazon RDS DB instances Amazon DocumentDB clusters and Amazon Aurora DB instances. The company's security policy mandates that database credentials be encrypted at rest and rotated at a regular interval.

Which solution will meet these requirements MOST securely?

- A. Set up IAM database authentication for token-based access
- B. Generate user tokens to provide centralized access to RDS DB instance
- C. Amazon DocumentDB clusters and Aurora DB instances.
- D. Create parameters for the database credentials in AWS Systems Manager Parameter Store Set the Type parameter to Secure String
- E. Set up automatic rotation on the parameters.
- F. Store the database access credentials as an encrypted Amazon S3 object in an S3 bucket Block all public access on the S3 bucket automatic rotation on the encryption key.
- G. Use S3 server-side encryption to set up
- H. Create an AWS Lambda function by using the SecretsManagerRotationTemplate template in the AWS Secrets Manager console
- I. Create secrets for the database credentials in Secrets Manager Set up secrets rotation on a schedule.

**Answer: D**

**Explanation:**

This solution will meet the requirements by using AWS Secrets Manager, which is a service that helps protect secrets such as database credentials by encrypting them with AWS Key Management Service (AWS KMS) and enabling automatic rotation of secrets. The developer can create an AWS Lambda function by using the SecretsManagerRotationTemplate template in the AWS Secrets Manager console, which provides a sample code for rotating secrets for RDS DB instances, Amazon DocumentDB clusters, and Amazon Aurora DB instances. The developer can also create secrets for the database credentials in Secrets Manager, which encrypts them at rest and provides secure access to them. The developer can set up secrets rotation on a schedule, which changes the database credentials periodically according to a specified interval or event. Option A is not optimal because it will set up IAM database authentication for token-based access, which may not be compatible with all database engines and may require additional configuration and management of IAM roles or users. Option B is not optimal because it will create parameters for the database credentials in AWS Systems Manager Parameter Store, which does not support automatic rotation of secrets. Option C is not optimal because it will store the database access credentials as an encrypted Amazon S3 object in an S3 bucket, which may introduce additional costs and complexity for accessing and securing the data.

References: [AWS Secrets Manager], [Rotating Your AWS Secrets Manager Secrets]

**NEW QUESTION 106**

A developer uses AWS CloudFormation to deploy an Amazon API Gateway API and an AWS Step Functions state machine The state machine must reference the API Gateway API after the CloudFormation template is deployed The developer needs a solution that uses the state machine to reference the API Gateway endpoint.

Which solution will meet these requirements MOST cost-effectively?

- A. Configure the CloudFormation template to reference the API endpoint in the DefinitionSubstitutions property for the AWS StepFunctions StateMachine resource.
- B. Configure the CloudFormation template to store the API endpoint in an environment variable for the AWS::StepFunctions::StateMachine resource Configure the state machine to reference the environment variable
- C. Configure the CloudFormation template to store the API endpoint in a standard AWS: SecretsManager Secret resource Configure the state machine to reference the resource
- D. Configure the CloudFormation template to store the API endpoint in a standard AWS::AppConfig::ConfigurationProfile resource Configure the state machine to reference the resource.

**Answer: A**

**Explanation:**

The most cost-effective solution is to use the DefinitionSubstitutions property of the AWS::StepFunctions::StateMachine resource to inject the API endpoint as a variable in the state machine definition. This way, the developer can use the intrinsic function

Fn::GetAtt to get the API endpoint from the AWS::ApiGateway::RestApi resource, and pass it to the state machine without creating any additional resources or environment variables. The other solutions involve creating and managing extra resources, such as Secrets Manager secrets or AppConfig configuration profiles, which incur additional costs and complexity. References

- ? AWS::StepFunctions::StateMachine - AWS CloudFormation
- ? Call API Gateway with Step Functions - AWS Step Functions
- ? amazon-web-services aws-api-gateway terraform aws-step-functions

**NEW QUESTION 111**

A developer has a legacy application that is hosted on-premises. Other applications hosted on AWS depend on the on-premises application for proper functioning. In case of any application errors, the developer wants to be able to use Amazon CloudWatch to monitor and troubleshoot all applications from one place.

How can the developer accomplish this?

- A. Install an AWS SDK on the on-premises server to automatically send logs to CloudWatch.
- B. Download the CloudWatch agent to the on-premises server
- C. Configure the agent to use IAM user credentials with permissions for CloudWatch.
- D. Upload log files from the on-premises server to Amazon S3 and have CloudWatch read the files.
- E. Upload log files from the on-premises server to an Amazon EC2 instance and have the instance forward the logs to CloudWatch.

**Answer: B**

**Explanation:**

Amazon CloudWatch is a service that monitors AWS resources and applications. The developer can use CloudWatch to monitor and troubleshoot all applications from one place. To do so, the developer needs to download the CloudWatch agent to the on-premises server and configure the agent to use IAM user credentials with permissions for CloudWatch. The agent will collect logs and metrics from the on-premises server and send them to CloudWatch.

References:

? [What Is Amazon CloudWatch? - Amazon CloudWatch]

? [Installing and Configuring the CloudWatch Agent - Amazon CloudWatch]

**NEW QUESTION 115**

A developer deployed an application to an Amazon EC2 instance. The application needs to know the public IPv4 address of the instance. How can the application find this information?

Query the instance metadata from `http://169.254.169.254/latest/meta-data/`.

A: Query the instance user data from `http://169.254.169.254/latest/user-data/`

C. Query the Amazon Machine Image (AMI) information from `http://169.254.169.254/latest/meta-data/ami/`.

D. Check the hosts file of the operating system

**Answer: A**

**Explanation:**

The instance metadata service provides information about the EC2 instance, including the public IPv4 address, which can be obtained by querying the endpoint `http://169.254.169.254/latest/meta-data/public-ipv4`. References

? Instance metadata and user data

? Get Public IP Address on current EC2 Instance

? Get the public ip address of your EC2 instance quickly

**NEW QUESTION 118**

A company's website runs on an Amazon EC2 instance and uses Auto Scaling to scale the environment during peak times. Website users across the world are experiencing high latency due to static content on the EC2 instance, even during non-peak hours. When combination of steps will resolve the latency issue? (Select TWO)

- A. Double the Auto Scaling group's maximum number of servers
- B. Host the application code on AWS Lambda
- C. Scale vertically by resizing the EC2 instances
- D. Create an Amazon CloudFront distribution to cache the static content
- E. Store the application's static content in Amazon S3

**Answer: DE**

**Explanation:**

The combination of steps that will resolve the latency issue is to create an Amazon CloudFront distribution to cache the static content and store the application's static content in Amazon S3. This way, the company can use CloudFront to deliver the static content from edge locations that are closer to the website users, reducing latency and improving performance. The company can also use S3 to store the static content reliably and cost-effectively, and integrate it with CloudFront easily. The other options either do not address the latency issue, or are not necessary or feasible for the given scenario.

Reference: Using Amazon S3 Origins and Custom Origins for Web Distributions

**NEW QUESTION 120**

A developer migrated a legacy application to an AWS Lambda function. The function uses a third-party service to pull data with a series of API calls at the end of each month. The function then processes the data to generate the monthly reports. The function has been working with no issues so far. The third-party service recently issued a restriction to allow a fixed number of API calls each minute and each day. If the API calls exceed the limit for each minute or each day, then the service will produce errors. The API also provides the minute limit and daily limit in the response header. This restriction might extend the overall process to multiple days because the process is consuming more API calls than the available limit. What is the MOST operationally efficient way to refactor the serverless application to accommodate this change?

- A. Use an AWS Step Functions State machine to monitor API failure
- B. Use the Wait state to delay calling the Lambda function.
- C. Use an Amazon Simple Queue Service (Amazon SQS) queue to hold the API call
- D. Configure the Lambda function to poll the queue within the API threshold limits.

Use an Amazon CloudWatch Logs metric to count the number of API call

F: Configure an Amazon CloudWatch alarm that stops the currently running instance of the Lambda function when the metric exceeds the API threshold limits.

G. Use Amazon Kinesis Data Firehose to batch the API calls and deliver them to an Amazon S3 bucket with an event notification to invoke the Lambda function.

**Answer: A**

**Explanation:**

The solution that will meet the requirements is to use an AWS Step Functions state machine to monitor API failures. Use the Wait state to delay calling the Lambda function. This way, the developer can refactor the serverless application to accommodate the change in a way that is automated and scalable. The developer can use Step Functions to orchestrate the Lambda function and handle any errors or retries. The developer can also use the Wait state to pause the execution for a specified duration or until a specified timestamp, which can help avoid exceeding the API limits. The other options either involve using additional services that are not necessary or appropriate for this scenario, or do not address the issue of API failures.

Reference: AWS Step Functions Wait state

**NEW QUESTION 123**

A developer is planning to migrate on-premises company data to Amazon S3. The data must be encrypted, and the encryption Keys must support automate annual rotation. The company must use AWS Key Management Service (AWS KMS) to encrypt the data. When type of keys should the developer use to meet these requirements?

- A. Amazon S3 managed keys
- B. Symmetric customer managed keys with key material that is generated by AWS
- C. Asymmetric customer managed keys with key material that generated by AWS
- D. Symmetric customer managed keys with imported key material

**Answer: B**

**Explanation:**

The type of keys that the developer should use to meet the requirements is symmetric customer managed keys with key material that is generated by AWS. This way, the developer can use AWS Key Management Service (AWS KMS) to encrypt the data with a symmetric key that is managed by the developer. The developer can also enable automatic annual rotation for the key, which creates new key material for the key every year. The other options either involve using Amazon S3 managed keys, which do not support automatic annual rotation, or using asymmetric keys or imported key material, which are not supported by S3 encryption.

Reference: Using AWS KMS keys to encrypt S3 objects

**NEW QUESTION 126**

A company is using Amazon RDS as the Backend database for its application. After a recent marketing campaign, a surge of read requests to the database increased the latency of data retrieval from the database.

The company has decided to implement a caching layer in front of the database. The cached content must be encrypted and must be highly available. Which solution will meet these requirements?

- A. Amazon Cloudfront
- B. Amazon ElastiCache to Memcached
- C. Amazon ElastiCache for Redis in cluster mode
- D. Amazon DynamoDB Accelerate (DAX)

**Answer: C**

**Explanation:**

This solution meets the requirements because it provides a caching layer that can store and retrieve encrypted data from multiple nodes. Amazon ElastiCache for Redis supports encryption at rest and in transit, and can scale horizontally to increase the cache capacity and availability. Amazon ElastiCache for Memcached does not support encryption, Amazon CloudFront is a content delivery network that is not suitable for caching database queries, and Amazon DynamoDB Accelerator (DAX) is a caching service that only works with DynamoDB tables.

Reference: [Amazon ElastiCache for Redis Features], [Choosing a Cluster Engine]

**NEW QUESTION 131**

A developer is creating an AWS Lambda function in VPC mode. An Amazon S3 event will invoke the Lambda function when an object is uploaded into an S3 bucket. The Lambda function will process the object and produce some analytic results that will be recorded into a file. Each processed object will also generate a log entry that will be recorded into a file.

Other Lambda functions, AWS services, and on-premises resources must have access to the result files and log file. Each log entry must also be appended to the same shared log file. The developer needs a solution that can share files and append results into an existing file.

Which solution should the developer use to meet these requirements?

- A. Create an Amazon Elastic File System (Amazon EFS) file system
- B. Mount the EFS file system in Lambda
- C. Store the result files and log file in the mount point
- D. Append the log entries to the log file.
- E. Create an Amazon Elastic Block Store (Amazon EBS) Multi-Attach enabled volume. Attach the EBS volume to all Lambda function
- F. Update the Lambda function code to download the log file, append the log entries, and upload the modified log file to Amazon EBS
- G. Create a reference to the /tmp local directory
- H. Store the result files and log file by using the directory reference
- I. Append the log entry to the log file.
- J. Create a reference to the /opt storage directory. Store the result files and log file by using the directory reference. Append the log entry to the log file.

**Answer: A**

**Explanation:**

<https://aws.amazon.com/blogs/compute/using-amazon-efs-for-aws-lambda-in-your-serverless-applications/>

**NEW QUESTION 135**

An application is using Amazon Cognito user pools and identity pools for secure access. A developer wants to integrate the user-specific file upload and download features in the application with Amazon S3. The developer must ensure that the files are saved and retrieved in a secure manner and that users can access only their own files. The file sizes range from 3 KB to 300 MB.

Which option will meet these requirements with the HIGHEST level of security?

- A. Use S3 Event Notifications to validate the file upload and download requests and update the user interface (UI).
- B. Save the details of the uploaded files in a separate Amazon DynamoDB table.
- C. Filter the list of files in the user interface (UI) by comparing the current user ID with the user ID associated with the file in the table.
- D. Use Amazon API Gateway and an AWS Lambda function to upload and download file.
- E. Validate each request in the Lambda function before performing the requested operation.
- F. Use an IAM policy within the Amazon Cognito identity prefix to restrict users to use their own folders in Amazon S3.

**Answer: D**

**Explanation:**

<https://docs.aws.amazon.com/cognito/latest/developerguide/amazon-cognito-integrating-user-pools-with-identity-pools.html>

#### NEW QUESTION 139

A developer wants to deploy a new version of an AWS Elastic Beanstalk application. During deployment, the application must maintain full capacity and avoid service interruption. Additionally, the developer must minimize the cost of additional resources that support the deployment. Which deployment method should the developer use to meet these requirements?

A.

All at once

- B. Rolling with additional batch
- C. Blue/green
- D. Immutable

**Answer: D**

#### Explanation:

The immutable deployment method is the best option for this scenario, because it meets the requirements of maintaining full capacity, avoiding service interruption, and minimizing the cost of additional resources.

The immutable deployment method creates a new set of instances in a separate Auto Scaling group and deploys the new version of the application to them. Then, it swaps the new instances with the old ones and terminates the old instances. This way, the application maintains full capacity during the deployment and avoids any downtime. The cost of additional resources is also minimized, because the new instances are only created for a short time and then replaced by the old ones. The other deployment methods do not meet all the requirements:

? The all at once method deploys the new version to all instances simultaneously, which causes a short period of downtime and reduced capacity.

? The rolling with additional batch method deploys the new version in batches, but for the first batch it creates new instances instead of using the existing ones. This increases the cost of additional resources and reduces the capacity of the original environment.

? The blue/green method creates a new environment with a new set of instances and deploys the new version to them. Then, it swaps the URLs between the old and new environments. This method maintains full capacity and avoids service interruption, but it also increases the cost of additional resources significantly, because it duplicates the entire environment.

#### NEW QUESTION 140

A developer is creating an AWS Lambda function. The Lambda function needs an external library to connect to a third-party solution. The external library is a collection of files with a total size of 100 MB. The developer needs to make the external library available to the Lambda execution environment and reduce the Lambda package space.

Which solution will meet these requirements with the LEAST operational overhead?

A.

Create a Lambda layer to store the external library Configure the Lambda function to use the layer

- B. Create an Amazon S3 bucket Upload the external library into the S3 bucket
- C. Mount the S3 bucket folder in the Lambda function Import the library by using the proper folder in the mount point.
- D. Load the external library to the Lambda function's /tmp directory during deployment of the Lambda package
- E. Import the library from the /tmp directory.
- F. Create an Amazon Elastic File System (Amazon EFS) volume
- G. Upload the external library to the EFS volume Mount the EFS volume in the Lambda function
- H. Import the library by using the proper folder in the mount point.

**Answer:** A

**Explanation:**

Create a Lambda layer to store the external library. Configure the Lambda function to use the layer. This will allow the developer to make the external library available to the Lambda execution environment without having to include it in the Lambda package, which will reduce the Lambda package space. Using a Lambda layer is a simple and straightforward solution that requires minimal operational overhead. <https://docs.aws.amazon.com/lambda/latest/dg/configuration-layers.html>

**NEW QUESTION 143**

An ecommerce company is using an AWS Lambda function behind Amazon API Gateway

as its application tier. To process orders during checkout, the application calls a POST API from the frontend. The POST API invokes the Lambda function asynchronously. In rare situations, the application has not processed orders. The Lambda application logs show no errors or failures. What should a developer do to solve this problem?

- A. Inspect the frontend logs for API failure
- B. Call the POST API manually by using the requests from the log file.
- C. Create and inspect the Lambda dead-letter queue
- D. Troubleshoot the failed function
- E. Reprocess the events.
- F. Inspect the Lambda logs in Amazon CloudWatch for possible error
- G. Fix the errors.
- H. Make sure that caching is disabled for the POST API in API Gateway.

**Answer:** B

**Explanation:**

The solution that will solve this problem is to create and inspect the Lambda dead-letter queue. Troubleshoot the failed functions. Reprocess the events. This way, the developer can identify and fix any issues that caused the Lambda function to fail when invoked asynchronously by API Gateway. The developer can also reprocess any orders that were not processed due to failures. The other options either do not address the root cause of the problem, or do not help recover from failures.

Reference: Asynchronous invocation

**NEW QUESTION 145**

A developer is creating a mobile app that calls a backend service by using an Amazon API Gateway REST API. For integration testing during the development phase, the developer wants to simulate different backend responses without invoking the backend service.

Which solution will meet these requirements with the LEAST operational overhead?

- A. Create an AWS Lambda function
- B. Use API Gateway proxy integration to return constant HTTP responses.
- C. Create an Amazon EC2 instance that serves the backend REST API by using an AWS CloudFormation template.
- D. Customize the API Gateway stage to select a response type based on the request.
- E. Use a request mapping template to select the mock integration response.

**Answer:** D

**Explanation:**

Amazon API Gateway supports mock integration responses, which are predefined responses that can be returned without sending requests to a backend service. Mock integration responses can be used for testing or prototyping purposes, or for simulating different backend responses based on certain conditions. A request mapping template can be used to select a mock integration response based on an expression that evaluates some aspects of the request, such as headers, query strings, or body content. This solution does not require any additional resources or code changes and has the least operational overhead. Reference: Set up mock integrations for an API Gateway REST API

<https://docs.aws.amazon.com/apigateway/latest/developerguide/how-to-mock-integration.html>

**NEW QUESTION 149**

A company has an application that uses Amazon Cognito user pools as an identity provider. The company must secure access to user records. The company has set up multi-factor authentication (MFA). The company also wants to send a login activity notification by email every time a user logs in.

What is the MOST operationally efficient solution that meets this requirement?

- A. Create an AWS Lambda function that uses Amazon Simple Email Service (Amazon SES) to send the email notification
- B. Add an Amazon API Gateway API to invoke the function
- C. Call the API from the client side when login confirmation is received.
- D. Create an AWS Lambda function that uses Amazon Simple Email Service (Amazon SES) to send the email notification
- E. Add an Amazon Cognito post authentication Lambda trigger for the function.
- F. Create an AWS Lambda function that uses Amazon Simple Email Service (Amazon SES) to send the email notification
- G. Create an Amazon CloudWatch Logs log subscription filter to invoke the function based on the login status.
- H. Configure Amazon Cognito to stream all logs to Amazon Kinesis Data Firehose
- I. Create an AWS Lambda function to process the streamed logs and to send the email notification based on the login status of each user.

**Answer:** B

**Explanation:**

Amazon Cognito user pools support Lambda triggers, which are custom functions that can be executed at various stages of the user pool workflow. A post authentication Lambda trigger can be used to perform custom actions after a user is authenticated, such as sending an email notification. Amazon SES is a cloud-based email sending service that can be used to send transactional or marketing emails. A Lambda function can use the Amazon SES API to send an email to the user's email address after the user logs in successfully. Reference: Post authentication Lambda trigger

**NEW QUESTION 153**

A developer is creating an application that includes an Amazon API Gateway REST API in the us-east-2 Region. The developer wants to use Amazon CloudFront and a custom domain name for the API. The developer has acquired an SSL/TLS certificate for the domain from a third-party provider. How should the developer configure the custom domain for the application?

- A. Import the SSL/TLS certificate into AWS Certificate Manager (ACM) in the same Region as the API
- B. Create a DNS A record for the custom domain.
- C. Import the SSL/TLS certificate into CloudFront
- D. Create a DNS CNAME record for the custom domain.
- E. Import the SSL/TLS certificate into AWS Certificate Manager (ACM) in the same Region as the API
- F. Create a DNS CNAME record for the custom domain.
- G. Import the SSL/TLS certificate into AWS Certificate Manager (ACM) in the us-east-1 Region
- H. Create a DNS CNAME record for the custom domain.

**Answer:** D

**Explanation:**

Amazon API Gateway is a service that enables developers to create, publish, maintain, monitor, and secure APIs at any scale. Amazon CloudFront is a content delivery network (CDN) service that can improve the performance and security of web applications. The developer can use CloudFront and a custom domain name for the API Gateway REST API. To do so, the developer needs to import the SSL/TLS certificate into AWS Certificate Manager (ACM) in the us-east-1 Region. This is because CloudFront requires certificates from ACM to be in this Region. The developer also needs to create a DNS CNAME record for the custom domain that points to the CloudFront distribution.

References:

? [What Is Amazon API Gateway? - Amazon API Gateway]

? [What Is Amazon CloudFront? - Amazon CloudFront]

? [Custom Domain Names for APIs - Amazon API Gateway]

**NEW QUESTION 157**

A mobile app stores blog posts in an Amazon DynamoDB table. Millions of posts are added every day and each post represents a single item in the table. The mobile app requires only recent posts. Any post that is older than 48 hours can be removed. What is the MOST cost-effective way to delete posts that are older than 48 hours?

- A. For each item add a new attribute of type String that has a timestamp that is set to the blog post creation time
- B. Create a script to find old posts with a table scan and remove posts that are older than 48 hours by using the Batch Write Item API operation
- C. Schedule a cron job on an Amazon EC2 instance once an hour to start the script.
- D. For each item add a new attribute of type Number that has a timestamp that is set to 48 hours after the blog post creation time
- E. String that has a timestamp that is set to the blog post creation time
- F. Create a script to find old posts with a table scan and remove posts that are older than 48 hours by using the Batch Write item API operation
- G. Place the script in a container image
- H. Schedule an Amazon Elastic Container Service (Amazon ECS) task on AWS Fargate that invokes the container every 5 minutes.
- I. For each item, add a new attribute of type Date that has a timestamp that is set to 48 hours after the blog post creation time
- J. Create a global secondary index (GSI) that uses the new attribute as a sort key
- K. Create an AWS Lambda function that references the GSI and removes expired items by using the Batch Write item API operation. Schedule the function with an Amazon CloudWatch event every minute.
- L. For each item add a new attribute of type String that has a timestamp that is set to 48 hours after the blog post creation time
- M. Number that has a timestamp that is set to 48 hours after the blog post creation time
- N. Create a global secondary index (GSI) that uses the new attribute as a sort key. Configure the DynamoDB table with a TTL that references the new attribute.

**Answer:** D

**Explanation:**

This solution will meet the requirements by using the Time to Live (TTL) feature of DynamoDB, which enables automatically deleting items from a table after a certain time period. The developer can add a new attribute of type Number that has a timestamp that is set to 48 hours after the blog post creation time, which represents the expiration time of the item. The developer can configure the DynamoDB table with a TTL that references the new attribute, which instructs DynamoDB to delete the item when the current time is greater than or equal to the expiration time. This solution is also cost-effective as it does not incur any additional charges for deleting expired items. Option A is not optimal because it will create a script to find and remove old posts with a table scan and a batch write item API operation, which may consume more read and write capacity units and incur more costs. Option B is not optimal because it will use Amazon Elastic Container Service (Amazon ECS) and AWS Fargate to run the script, which may introduce additional costs and complexity for managing and scaling containers. Option C is not optimal because it will create a global secondary index (GSI) that uses the expiration time as a sort key, which may consume more storage space and incur more costs.  
 References: Time To Live, Managing DynamoDB Time To Live (TTL)

**NEW QUESTION 162**

A company is offering APIs as a service over the internet to provide unauthenticated read access to statistical information that is updated daily. The company uses Amazon API Gateway and AWS Lambda to develop the APIs. The service has become popular, and the company wants to enhance the responsiveness of the APIs. Which action can help the company achieve this goal?

- A. Enable API caching in API Gateway.
- B. Configure API Gateway to use an interface VPC endpoint.
- C. Enable cross-origin resource sharing (CORS) for the APIs.
- D. Configure usage plans and API keys in API Gateway.

**Answer:** A

**Explanation:**

Amazon API Gateway is a service that enables developers to create, publish, maintain, monitor, and secure APIs at any scale. The developer can enable API caching in API Gateway to cache responses from the backend integration point for a specified time-to-live (TTL) period. This can improve the responsiveness of the APIs by reducing the number of calls made to the backend service. References:  
 ? [What Is Amazon API Gateway? - Amazon API Gateway]  
 ? [Enable API Caching to Enhance Responsiveness - Amazon API Gateway]

**NEW QUESTION 165**

A developer at a company recently created a serverless application to process and show data from business reports. The application's user interface (UI) allows users to select and start processing the files. The UI displays a message when the result is available to view. The application uses AWS Step Functions with AWS Lambda functions to process the files. The developer used Amazon API Gateway and Lambda functions to create an API to support the UI. The company's UI team reports that the request to process a file is often returning timeout errors because of the size or complexity of the files. The UI team wants the API to provide an immediate response so that the UI can display a message while the files are being processed. The backend process that is invoked by the API needs to send an email message when the report processing is complete. What should the developer do to configure the API to meet these requirements?

- A. Change the API Gateway route to add an X-Amz-Invocation-Type header with a static value of 'Event' in the integration request. Deploy the API Gateway stage to apply the changes.
- B. Change the configuration of the Lambda function that implements the request to process a file to be asynchronous.
- C. Configure the maximum age of the event so that the Lambda function will run asynchronously.
- D. Change the API Gateway timeout value to match the Lambda function timeout value.
- E. Deploy the API Gateway stage to apply the changes.
- F. Change the API Gateway route to add an X-Amz-Target header with a static value of 'A sync' in the integration request. Deploy the API Gateway stage to apply the changes.

**Answer:** A

**Explanation:**

This solution allows the API to invoke the Lambda function asynchronously, which means that the API will return an immediate response without waiting for the function to complete. The X-Amz-Invocation-Type header specifies the invocation type of the Lambda function, and setting it to 'Event' means that the function will be invoked asynchronously. The function can then use Amazon Simple Email Service (SES) to send an email message when the report processing is complete.  
 Reference: [Asynchronous invocation], [Set up Lambda proxy integrations in API Gateway]

**NEW QUESTION 167**

A company developed an API application on AWS by using Amazon CloudFront, Amazon API Gateway, and AWS Lambda. The API has a minimum of four requests every second. A developer notices that many API users run the same query by using the POST method. The developer wants to cache the POST request to optimize the API resources.

Which solution will meet these requirements?

- A. Configure the CloudFront cache. Update the application to return cached content based upon the default request headers.
- B. Override the cache method in the selected stage of API Gateway. Select the POST method.
- C. Save the latest request response in Lambda /tmp directory. Update the Lambda function to check the /tmp directory.
- D. Save the latest request in AWS Systems Manager Parameter Store. Modify the Lambda function to take the latest request response from Parameter Store.

**Answer:** A

**Explanation:**

This solution will meet the requirements by using Amazon CloudFront, which is a content delivery network (CDN) service that speeds up the delivery of web content and APIs to end users. The developer can configure the CloudFront cache, which is a set of edge locations that store copies of popular or recently accessed content close to the viewers. The developer can also update the application to return cached content based upon the default request headers, which are a set of HTTP headers that CloudFront automatically forwards to the origin server and uses to determine whether an object in an edge location is still valid. By caching the POST requests, the developer can optimize the API resources and reduce the latency for repeated queries. Option B is not optimal because it will override the cache method in the selected stage of API Gateway, which is not possible or effective as API Gateway does not support caching for POST methods by default. Option C is not optimal because it will save the latest request response in Lambda /tmp directory, which is a local storage space that is available for each Lambda function invocation, not a cache that can be shared across multiple invocations or requests. Option D is not optimal because it will save the latest request in AWS Systems Manager Parameter Store, which is a service that provides secure and scalable storage for configuration data and secrets, not a cache for API responses.

References: [Amazon CloudFront], [Caching Content Based on Request Headers]

**NEW QUESTION 169**

A developer is building a microservices-based application by using Python on AWS and several AWS services. The developer must use AWS X-Ray. The developer views the service map by using the console to view the service dependencies. During testing, the developer notices that some services are missing from the service map.

What can the developer do to ensure that all services appear in the X-Ray service map?

- A. Modify the X-Ray Python agent configuration in each service to increase the sampling rate.
- B. Instrument the application by using the X-Ray SDK for Python.
- C. Install the X-Ray SDK for all the services that the application uses.
- D. Enable X-Ray data aggregation in Amazon CloudWatch Logs for all the services that the application uses.
- E. Increase the X-Ray service map timeout value in the X-Ray console.

**Answer:** B

**Explanation:**

The X-Ray SDK for Python provides libraries and tools for instrumenting Python applications that use AWS services and other AWS X-Ray integrations. By installing the X-Ray SDK for all the services that the application uses, the developer can ensure that all the service dependencies are captured and displayed in the X-Ray service map. The other options are not relevant or effective for this scenario. References:

? AWS X-Ray SDK for Python

? Instrumenting a Python Application

**NEW QUESTION 174**

A developer maintains applications that store several secrets in AWS Secrets Manager. The applications use secrets that have changed over time. The developer needs to identify required secrets that are still in use. The developer does not want to cause any application downtime.

What should the developer do to meet these requirements?

- A. Configure an AWS CloudTrail log file delivery to an Amazon S3 bucket.
- B. Create an Amazon CloudWatch alarm for the GetSecretValue.

- C. Secrets Manager API operation requests
- D. Create a secrets manager-secret-unused AWS Config managed rule
- E. Create an Amazon EventBridge rule to initiate notification when the AWS Config managed rule is met.
- F. Deactivate the application secrets and monitor the application error logs temporarily.
- G. Configure AWS X-Ray for the application
- H. Create a sampling rule to match the

GetSecretValue Secrets Manager API operation requests.

**Answer:** B

**Explanation:**

This solution will meet the requirements by using AWS Config to monitor and evaluate whether Secrets Manager secrets are unused or have been deleted, based on specified time periods. The secrets manager-secret-unused managed rule is a predefined rule that checks whether Secrets Manager secrets have been rotated within a specified number of days or have been deleted within a specified number of days after last accessed date. The Amazon EventBridge rule will trigger a notification when the AWS Config managed rule is met, alerting the developer about unused secrets that can be removed without causing application downtime. Option A is not optimal because it will use AWS CloudTrail log file delivery to an Amazon S3 bucket, which will incur additional costs and complexity for storing and analyzing log files that may not contain relevant information about secret usage. Option C is not optimal because it will deactivate the application secrets and monitor the application error logs temporarily, which will cause application downtime and potential data loss. Option D is not optimal because it will use AWS X-Ray to trace secret usage, which will introduce additional overhead and latency for instrumenting and sampling requests that may not be related to secret usage. References: [AWS Config Managed Rules], [Amazon EventBridge]

**NEW QUESTION 175**

A developer is writing a serverless application that requires an AWS Lambda function to be invoked every 10 minutes. What is an automated and serverless way to invoke the function?

- A. Deploy an Amazon EC2 instance based on Linux, and edit its `/etc/crontab` file by adding a command to periodically invoke the lambda function
- B. Configure an environment variable named PERIOD for the Lambda function
- C. Set the value to 600.
- D. Create an Amazon EventBridge rule that runs on a regular schedule to invoke the Lambda function.
- E. Create an Amazon Simple Notification Service (Amazon SNS) topic that has a subscription to the Lambda function with a 600-second timer.

**Answer:** C

**Explanation:**

The solution that will meet the requirements is to create an Amazon EventBridge rule that runs on a regular schedule to invoke the Lambda function. This way, the developer can use an automated and serverless way to invoke the function every 10 minutes. The developer can also use a cron expression or a rate expression to specify the schedule for the rule. The other options either involve using an Amazon EC2 instance, which is not serverless, or using environment variables or query parameters, which do not trigger the function.

Reference: Schedule AWS Lambda functions using EventBridge

#### NEW QUESTION 178

A company has a social media application that receives large amounts of traffic. User posts and interactions are continuously updated in an Amazon RDS database. The data changes frequently, and the data types can be complex. The application must serve read requests with minimal latency. The application's current architecture struggles to deliver these rapid data updates efficiently. The company needs a solution to improve the application's performance.

Which solution will meet these requirements?

- A. Mastered
- B. Not Mastered

**Answer:** A

#### Explanation:

Creating an Amazon ElastiCache for Redis cluster is the best solution for improving the application's performance. Redis is an in-memory data store that can serve read requests with minimal latency and handle complex data types, such as lists, sets, hashes, and streams. By using a write-through caching strategy, the application can ensure that the data in Redis is always consistent with the data in RDS. The application can read the data from Redis instead of RDS, reducing the load on the database and improving the response time. The other solutions are either not feasible or not effective. Amazon DynamoDB Accelerator (DAX) is a caching service that works only with DynamoDB, not RDS. Amazon S3 Transfer Acceleration is a feature that speeds up data transfers between S3 and clients across the internet, not between RDS and the application. Amazon CloudFront is a content delivery network that can cache static content, such as images, videos, or HTML files, but not dynamic content, such as user posts and interactions. References

- ? Amazon ElastiCache for Redis
- ? Caching Strategies and Best Practices - Amazon ElastiCache for Redis
- ? Using Amazon ElastiCache for Redis with Amazon RDS
- ? Amazon DynamoDB Accelerator (DAX)
- ? Amazon S3 Transfer Acceleration
- ? Amazon CloudFront

#### NEW QUESTION 182

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