

# Amazon

## Exam Questions AWS-Certified-Developer-Associate

Amazon AWS Certified Developer - Associate



**NEW QUESTION 1**

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 instance
- B. Deploy a file system on the EBS volum
- C. Use the host operating system to share a folde
- 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 volum
- F. Use the host operating system to share a folde
- G. Update the application code to read and write configuration files from the shared folder.
- H. Create an Amazon S3 bucket to host the repositor
- I. Migrate the existing .xml files to the S3 bucke
- 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 repositor
- L. Migrate the existing .xml files to the S3 bucke
- M. Mount the S3 bucket to the EC2 instances as a local volum
- 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 2**

A developer is troubleshooting an Amazon API Gateway API Clients are receiving HTTP 400 response errors when the clients try to access an endpoint of the API. How can the developer determine the cause of these errors?

- A. Create an Amazon Kinesis Data Firehose delivery stream to receive API call logs from API Gatewa
- B. Configure Amazon CloudWatch Logs as the delivery stream's destination.
- C. Turn on AWS CloudTrail Insights and create a trail Specify the Amazon Resource Name (ARN) of the trail for the stage of the API.
- D. Turn on AWS X-Ray for the API stage Create an Amazon CtoudWalch Logs log group Specify the Amazon Resource Name (ARN) of the log group for the API stage.
- E. Turn on execution logging and access logging in Amazon CloudWatch Logs for the API stag
- F. Create a CloudWatch Logs log grou
- G. Specify the Amazon Resource Name (ARN) of the log group for the API stage.

**Answer:** D

**Explanation:**

This solution will meet the requirements by using Amazon CloudWatch Logs to capture and analyze the logs from API Gateway. Amazon CloudWatch Logs is a service that monitors, stores, and accesses log files from AWS resources. The developer can turn on execution logging and access logging in Amazon CloudWatch Logs for the API stage, which enables logging information about API execution and client access to the API. The developer can create a CloudWatch Logs log group, which is a collection of log streams that share the same retention, monitoring, and access control settings. The developer can specify the Amazon Resource Name (ARN) of the log group for the API stage, which instructs API Gateway to send the logs to the specified log group. The developer can then examine the logs to determine the cause of the HTTP 400 response errors. Option A is not optimal because it will create an Amazon Kinesis Data Firehose delivery stream to receive API call logs from API Gateway, which may introduce additional costs and complexity for delivering and processing streaming data. Option B is not optimal because it will turn on AWS CloudTrail Insights and create a trail, which is a feature that helps identify and troubleshoot unusual API activity or operational issues, not HTTP response errors. Option C is not optimal because it will turn on AWS X-Ray for the API stage, which is a service that helps analyze and debug distributed applications, not HTTP response errors. References: [Setting Up CloudWatch Logging for a REST API], [CloudWatch Logs Concepts]

**NEW QUESTION 3**

A company needs to deploy all its cloud resources by using AWS CloudFormation templates A developer must create an Amazon Simple Notification Service (Amazon SNS) automatic notification to help enforce this rule. The developer creates an SNS topic and subscribes the email address of the company's security team to the SNS topic.

The security team must receive a notification immediately if an IAM role is created without the use of CloudFormation.

Which solution will meet this requirement?

- A. Create an AWS Lambda function to filter events from CloudTrail if a role was created without CloudFormation Configure the Lambda function to publish to the SNS topi
- B. Create an Amazon EventBridge schedule to invoke the Lambda function every 15 minutes
- C. Create an AWS Fargate task in Amazon Elastic Container Service (Amazon ECS) to filter events from CloudTrail if a role was created without CloudFormation Configure the Fargate task to publish to the SNS topic Create an Amazon EventBridge schedule to run the Fargate task every 15 minutes
- D. Launch an Amazon EC2 instance that includes a script to filter events from CloudTrail if a role was created without CloudFormatio
- E. Configure the script to publish to the SNS topi
- F. Create a cron job to run the script on the EC2 instance every 15 minutes.
- G. Create an Amazon EventBridge rule to filter events from CloudTrail if a role was created without CloudFormation Specify the SNS topic as the target of the EventBridge rule.

**Answer:** D

**Explanation:**

Creating an Amazon EventBridge rule is the most efficient and scalable way to monitor and react to events from CloudTrail, such as the creation of an IAM role without CloudFormation. EventBridge allows you to specify a filter pattern to match the events you are interested in, and then specify an SNS topic as the target to send notifications. This solution does not require any additional resources or code, and it can trigger notifications in near real-time. The other solutions involve creating and managing additional resources, such as Lambda functions, Fargate tasks, or EC2 instances, and they rely on polling CloudTrail events every 15 minutes, which can introduce delays and increase costs. References

- ? Using Amazon EventBridge rules to process AWS CloudTrail events
- ? Using AWS CloudFormation to create and manage AWS Batch resources
- ? How to use AWS CloudFormation to configure auto scaling for Amazon Cognito and AWS AppSync
- ? Using AWS CloudFormation to automate the creation of AWS WAF web ACLs, rules, and conditions

#### NEW QUESTION 4

An application that runs on AWS receives messages from an Amazon Simple Queue Service (Amazon SQS) queue and processes the messages in batches. The application sends the data to another SQS queue to be consumed by another legacy application. The legacy system can take up to 5 minutes to process some transaction data.

A developer wants to ensure that there are no out-of-order updates in the legacy system. The developer cannot alter the behavior of the legacy system. Which solution will meet these requirements?

- A. Use an SQS FIFO queue
- B. Configure the visibility timeout value.
- C. Use an SQS standard queue with a SendMessageBatchRequestEntry data type
- D. Configure the DelaySeconds values.
- E. Use an SQS standard queue with a SendMessageBatchRequestEntry data type
- F. Configure the visibility timeout value.
- G. Use an SQS FIFO queue
- H. Configure the DelaySeconds value.

**Answer:** A

#### Explanation:

? An SQS FIFO queue is a type of queue that preserves the order of messages and ensures that each message is delivered and processed only once<sup>1</sup>. This is suitable for the scenario where the developer wants to ensure that there are no out-of-order updates in the legacy system.

? The visibility timeout value is the amount of time that a message is invisible in the queue after a consumer receives it<sup>2</sup>. This prevents other consumers from processing the same message simultaneously. If the consumer does not delete the message before the visibility timeout expires, the message becomes visible again and another consumer can receive it<sup>2</sup>.

? In this scenario, the developer needs to configure the visibility timeout value to be longer than the maximum processing time of the legacy system, which is 5 minutes. This will ensure that the message remains invisible in the queue until the legacy system finishes processing it and deletes it. This will prevent duplicate or out-of-order processing of messages by the legacy system.

#### NEW QUESTION 5

A company runs a payment application on Amazon EC2 instances behind an Application Load Balance. The EC2 instances run in an Auto Scaling group across multiple Availability Zones. The application needs to retrieve application secrets during the application startup and export the secrets as environment variables. These secrets must be encrypted at rest and need to be rotated every month. Which solution will meet these requirements with the LEAST development effort?

- A. Save the secrets in a text file and store the text file in Amazon S3. Provision a customer managed key. Use the key for secret encryption in Amazon S3. Read the contents of the text file and read the export as environment variables. Configure S3 Object Lambda to rotate the text file every month.
- B. Save the secrets as strings in AWS Systems Manager Parameter Store and use the default AWS Key Management Service (AWS KMS) key. Configure an Amazon EC2 user data script to retrieve the secrets during the startup and export as environment variables. Configure an AWS Lambda function to rotate the secrets in Parameter Store every month.
- C. Save the secrets as base64 encoded environment variables in the application properties.
- D. Retrieve the secrets during the application startup.
- E. Reference the secrets in the application code.
- F. Write a script to rotate the secrets saved as environment variables.
- G. Store the secrets in AWS Secrets Manager. Provision a new customer master key. Use the key to encrypt the secrets. Enable automatic rotation. Configure an Amazon EC2 user data script to programmatically retrieve the secrets during the startup and export as environment variables.

**Answer:** D

#### Explanation:

AWS Secrets Manager is a service that enables the secure management and rotation of secrets, such as database credentials, API keys, or passwords. By using Secrets Manager, the company can avoid hardcoding secrets in the application code or properties files, and instead retrieve them programmatically during the application startup. Secrets Manager also supports automatic rotation of secrets by using AWS Lambda functions or built-in rotation templates. The company can provision a customer master key (CMK) to encrypt the secrets and use the AWS SDK or CLI to export the secrets as environment variables. References:

- ? What Is AWS Secrets Manager? - AWS Secrets Manager
- ? Rotating Your AWS Secrets Manager Secrets - AWS Secrets Manager
- ? Retrieving a Secret - AWS Secrets Manager

#### NEW QUESTION 6

A company uses Amazon API Gateway to expose a set of APIs to customers. The APIs have caching enabled in API Gateway. Customers need a way to invalidate the cache for each API when they test the API.

What should a developer do to give customers the ability to invalidate the API cache?

- A. Ask the customers to use AWS credentials to call the InvalidateCache API operation.
- B. Attach an InvalidateCache policy to the IAM execution role that the customers use to invoke the API.
- C. Ask the customers to send a request that contains the HTTP header when they make an API call.
- D. Ask the customers to use the AWS SDK API Gateway class to invoke the InvalidateCache API operation.
- E. Attach an InvalidateCache policy to the IAM execution role that the customers use to invoke the API.
- F. Ask the customers to add the INVALIDATE\_CACHE query string parameter when they make an API call.

**Answer:** D

#### NEW QUESTION 7

A developer is creating an AWS CloudFormation template to deploy Amazon EC2 instances across multiple AWS accounts. The developer must choose the EC2 instances from a list of approved instance types.

How can the developer incorporate the list of approved instance types in the CloudFormation template?

- A. Create a separate CloudFormation template for each EC2 instance type in the list.
- B. In the Resources section of the CloudFormation template, create resources for each EC2 instance type in the list.
- C. In the CloudFormation template, create a separate parameter for each EC2 instance type in the list.
- D. In the CloudFormation template, create a parameter with the list of EC2 instance types as AllowedValues.

**Answer:** D

#### Explanation:

In the CloudFormation template, the developer should create a parameter with the list of approved EC2 instance types as AllowedValues. This way, users can select the instance type they want to use when launching the CloudFormation stack, but only from the approved list.

#### NEW QUESTION 8

A company uses a custom root certificate authority certificate chain (Root CA Cert) that is 10 KB in size generate SSL certificates for its on-premises HTTPS endpoints. One of the company's cloud based applications has hundreds of AWS Lambda functions that pull data from these endpoints. A developer updated the trust store of the Lambda execution environment to use the Root CA Cert when the Lambda execution environment is initialized. The developer bundled the Root CA Cert as a text file in the Lambdas deployment bundle.

After 3 months of development the root CA Cert is no longer valid and must be updated. The developer needs a more efficient solution to update the Root CA Cert for all deployed Lambda functions. The solution must not include rebuilding or updating all Lambda functions that use the Root CA Cert. The solution must also work for all development, testing and production environment. Each environment is managed in a separate AWS account.

When combination of steps Would the developer take to meet these environments MOST cost-effectively? (Select TWO)

- A. Mastered
- B. Not Mastered

**Answer:** A

#### Explanation:

This solution will meet the requirements by storing the Root CA Cert as a Secure String parameter in AWS Systems Manager Parameter Store, which is a secure and scalable service for storing and managing configuration data and secrets. The resource-based policy will allow IAM users in different AWS accounts and environments to access the parameter without requiring cross-account roles or permissions. 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 use AWS Secrets Manager instead of AWS Systems Manager Parameter Store, which will incur additional costs and complexity for storing and managing a non-secret configuration data such as Root CA Cert. 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 modify the runtime trust store inside the Lambda function handler, which will degrade performance and increase latency by repeating unnecessary operations for each invocation of the Lambda function.

References: AWS Systems Manager Parameter Store, [Using SSL/TLS to Encrypt a Connection to a DB Instance]

#### NEW QUESTION 9

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 10

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 10**

A company has an existing application that has hardcoded database credentials. A developer needs to modify the existing application. The application is deployed in two AWS Regions with an active-passive failover configuration to meet company's disaster recovery strategy.

The developer needs a solution to store the credentials outside the code. The solution must comply with the company's disaster recovery strategy.

Which solution will meet these requirements in the MOST secure way?

- A. Store the credentials in AWS Secrets Manager in the primary Region.
- B. Enable secret replication to the secondary Region. Update the application to use the Amazon Resource Name (ARN) based on the Region.
- C. Store credentials in AWS Systems Manager Parameter Store in the primary Region.
- D. Enable parameter replication to the secondary Region.
- E. Update the application to use the Amazon Resource Name (ARN) based on the Region.
- F. Store credentials in a config file.
- G. Upload the config file to an S3 bucket in the primary Region.
- H. Enable Cross-Region Replication (CRR) to an S3 bucket in the secondary region.
- I. Update the application to access the config file from the S3 bucket based on the Region.
- J. Store credentials in a config file.
- K. Upload the config file to an Amazon Elastic File System (Amazon EFS) file system.
- L. Update the application to use the Amazon EFS file system Regional endpoints to access the config file in the primary and secondary Regions.

**Answer:** A

**Explanation:**

AWS Secrets Manager is a service that allows you to store and manage secrets, such as database credentials, API keys, and passwords, in a secure and centralized way. It also provides features such as automatic secret rotation, auditing, and monitoring<sup>1</sup>. By using AWS Secrets Manager, you can avoid hardcoding credentials in your code, which is a bad security practice and makes it difficult to update them. You can also replicate your secrets to another Region, which is useful for disaster recovery purposes<sup>2</sup>. To access your secrets from your application, you can use the ARN of the secret, which is a unique identifier that includes the Region name. This way, your application can use the appropriate secret based on the Region where it is deployed<sup>3</sup>.

References:

- ? AWS Secrets Manager
- ? Replicating and sharing secrets
- ? Using your own encryption keys

**NEW QUESTION 12**

A developer is working on an ecommerce platform that communicates with several third-party payment processing APIs. The third-party payment services do not provide a test environment.

The developer needs to validate the ecommerce platform's integration with the third-party payment processing APIs. The developer must test the API integration code without invoking the third-party payment processing APIs.

Which solution will meet these requirements'?

- A. Set up an Amazon API Gateway REST API with a gateway response configured for status code 200. Add response templates that contain sample responses captured from the real third-party API.
- B. Set up an AWS AppSync GraphQL API with a data source configured for each third-party API. Specify an integration type of Mock. Configure integration responses by using sample responses captured from the real third-party API.
- C. Create an AWS Lambda function for each third-party API.
- D. Embed responses captured from the real third-party API.
- E. Configure Amazon Route 53 Resolver with an inbound endpoint for each Lambda function's Amazon Resource Name (ARN).
- F. Set up an Amazon API Gateway REST API for each third-party API. Specify an integration request type of Mock. Configure integration responses by using sample responses captured from the real third-party API.

**Answer:** D

**Explanation:**

Amazon API Gateway can mock responses for testing purposes without requiring any integration backend. This allows the developer to test the API integration code without invoking the third-party payment processing APIs. The developer can configure integration responses by using sample responses captured from the real third-party API. References:

- ? Mocking Integration Responses in API Gateway
- ? Set up Mock Integrations for an API in API Gateway

**NEW QUESTION 15**

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 an 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 19**

A financial company must store original customer records for 10 years for legal reasons. A complete record contains personally identifiable information (PII).

According to local regulations, PII is available to only certain people in the company and must not be shared with third parties. The company needs to make the records available to third-party organizations for statistical analysis without sharing the PII.

A developer wants to store the original immutable record in Amazon S3. Depending on who accesses the S3 document, the document should be returned as is or with all the PII removed. The developer has written an AWS Lambda function to remove the PII from the document. The function is named `removePii`.

What should the developer do so that the company can meet the PII requirements while maintaining only one copy of the document?

- A. Set up an S3 event notification that invokes the `removePii` function when an S3 GET request is made
- B. Call Amazon S3 by using a GET request to access the object without PII.
- C. Set up an S3 event notification that invokes the `removePii` function when an S3 PUT request is made
- D. Call Amazon S3 by using a PUT request to access the object without PII.
- E. Create an S3 Object Lambda access point from the S3 console
- F. Select the `removePii` function
- G. Use S3 Access Points to access the object without PII.
- H. Create an S3 access point from the S3 console
- I. Use the access point name to call the `GetObjectLegalHold` S3 API function
- J. Pass in the `removePii` function name to access the object without PII.

**Answer: C**

**Explanation:**

S3 Object Lambda allows you to add your own code to process data retrieved from S3 before returning it to an application. You can use an AWS Lambda function to modify the data, such as removing PII, redacting confidential information, or resizing images. You can create an S3 Object Lambda access point and associate it with your Lambda function. Then, you can use the access point to request objects from S3 and get the modified data back. This way, you can maintain only one copy of the original

document in S3 and apply different transformations depending on who accesses it. Reference: Using AWS Lambda with Amazon S3

**NEW QUESTION 24**

A company runs an application on AWS. The application stores data in an Amazon DynamoDB table. Some queries are taking a long time to run. These slow queries involve an attribute that is not the table's partition key or sort key.

The amount of data that the application stores in the DynamoDB table is expected to increase significantly. A developer must increase the performance of the queries.

Which solution will meet these requirements?

- A. Increase the page size for each request by setting the `Limit` parameter to be higher than the default value. Configure the application to retry any request that exceeds the provisioned throughput.
- B. Create a global secondary index (GSI). Set query attribute to be the partition key of the index.
- C. Perform a parallel scan operation by issuing individual scan requests in the parameters specify the segment for the scan requests and the total number of segments for the parallel scan.
- D. Turn on read capacity auto scaling for the DynamoDB table.
- E. Increase the maximum read capacity units (RCUs).

**Answer: B**

**Explanation:**

Creating a global secondary index (GSI) is the best solution to improve the performance of the queries that involve an attribute that is not the table's partition key or sort key. A GSI allows you to define an alternate key for your table and query the data using that key. This way, you can avoid scanning the entire table and

reduce the latency and cost of your queries. You should also follow the best practices for designing and using GSIs in DynamoDB<sup>12</sup>. References

- ? Working with Global Secondary Indexes - Amazon DynamoDB
- ? DynamoDB Performance & Latency - Everything You Need To Know

#### NEW QUESTION 29

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 parameter
- 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 30

A company needs to distribute firmware updates to its customers around the world.

Which service will allow easy and secure control of the access to the downloads at the lowest cost?

- A. Use Amazon CloudFront with signed URLs for Amazon S3.
- B. Create a dedicated Amazon CloudFront Distribution for each customer.
- C. Use Amazon CloudFront with AWS Lambda@Edge.
- D. Use Amazon API Gateway and AWS Lambda to control access to an S3 bucket.

**Answer:** A

#### Explanation:

This solution allows easy and secure control of access to the downloads at the lowest cost because it uses a content delivery network (CDN) that can cache and distribute firmware updates to customers around the world, and uses a mechanism that can restrict access to specific files or versions. Amazon CloudFront is a CDN that can improve performance, availability, and security of web applications by delivering content from edge locations closer to customers. Amazon S3 is a storage service that can store firmware updates in buckets and objects. Signed URLs are URLs that include additional information, such as an expiration date and time, that give users temporary access to specific objects in S3 buckets. The developer can use CloudFront to serve firmware updates from S3 buckets and use signed URLs to control who can download them and for how long. Creating a dedicated CloudFront distribution for each customer will incur unnecessary costs and complexity. Using Amazon CloudFront with AWS Lambda@Edge will require additional programming overhead to implement custom logic at the edge locations. Using Amazon API Gateway and AWS Lambda to control access to an S3 bucket will also require additional programming overhead and may not provide optimal performance or availability.

Reference: [Serving Private Content through CloudFront], [Using CloudFront with Amazon S3]

#### NEW QUESTION 31

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 32**

A developer is building a new application on AWS. The application uses an AWS Lambda function that retrieves information from an Amazon DynamoDB table. The developer hard coded the DynamoDB table name into the Lambda function code. The table name might change over time. The developer does not want to modify the Lambda code if the table name changes.

Which solution will meet these requirements MOST efficiently?

- A. Create a Lambda environment variable to store the table name
- B. Use the standard method for the programming language to retrieve the variable.
- C. Store the table name in a file
- D. Store the file in the /tmp folder
- E. Use the SDK for the programming language to retrieve the table name.
- F. Create a file to store the table name
- G. Zip the file and upload the file to the Lambda layer
- H. Use the SDK for the programming language to retrieve the table name.
- I. Create a global variable that is outside the handler in the Lambda function to store the table name.

**Answer:** A

**Explanation:**

The solution that will meet the requirements most efficiently is to create a Lambda environment variable to store the table name. Use the standard method for the programming language to retrieve the variable. This way, the developer can avoid hard-coding the table name in the Lambda function code and easily change the table name by updating the environment variable. The other options either involve storing the table name in a file, which is less efficient and secure than using an environment variable, or creating a global variable, which is not recommended as it can cause concurrency issues.

Reference: Using AWS Lambda environment variables

**NEW QUESTION 34**

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 36

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 38

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
- D. Retrieve the token from Parameter Store with the decrypt flag enable
- E. Use 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 41

A developer is writing an AWS Lambda function. The developer wants to log key events that occur while the Lambda function runs. The developer wants to include a unique identifier to associate the events with a specific function invocation. The developer adds the following code to the Lambda function:

```
function handler(event, context) {  
  
}
```

Which solution will meet this requirement?

- A. Obtain the request identifier from the AWS request ID field in the context object.
- B. Configure the application to write logs to standard output.
- C. Obtain the request identifier from the AWS request ID field in the event object.
- D. Configure the application to write logs to a file.
- E. Obtain the request identifier from the AWS request ID field in the event object.
- F. Configure the application to write logs to standard output.
- G. Obtain the request identifier from the AWS request ID field in the context object.
- H. Configure the application to write logs to a file.

**Answer:** A

**Explanation:**

<https://docs.aws.amazon.com/lambda/latest/dg/nodejs-context.html> <https://docs.aws.amazon.com/lambda/latest/dg/nodejs-logging.html>

There is no explicit information for the runtime, the code is written in Node.js.

AWS Lambda is a service that lets developers run code without provisioning or managing servers. The developer can use the AWS request ID field in the context object to obtain a unique identifier for each function invocation. The developer can configure the application to write logs to standard output, which will be captured by Amazon CloudWatch Logs. This solution will meet the requirement of logging key events with a unique identifier.

References:

? [What Is AWS Lambda? - AWS Lambda]

? [AWS Lambda Function Handler in Node.js - AWS Lambda]

? [Using Amazon CloudWatch - AWS Lambda]

**NEW QUESTION 46**

A company has installed smart meters in all its customer locations. The smart meter's measure power usage at 1-minute intervals and send the usage readings to a remote endpoint for collection. The company needs to create an endpoint that will receive the smart meter readings and store the readings in a database. The company wants to store the location ID and timestamp information.

The company wants to give its customers low-latency access to their current usage and historical usage on demand. The company expects demand to increase significantly. The solution must not impact performance or include downtime while seeing.

When solution will meet these requirements MOST cost-effectively?

- A. Store the smart meter readings in an Amazon RDS database.
- B. Create an index on the location ID and timestamp columns. Use the columns to filter on the customers' data.
- C. Store the smart meter readings in an Amazon DynamoDB table. Create a composite key by using the location ID and timestamp column.
- D. Use the columns to filter on the customers' data.
- E. Store the smart meter readings in Amazon ElastiCache for Redis. Create a Sorted Set key by using the location ID and timestamp column.
- F. Use the columns to filter on the customers' data.
- G. Store the smart meter readings in Amazon S3. Partition the data by using the location ID and timestamp column.
- H. Use Amazon Athena to filter on the customers' data.

**Answer:** B

**Explanation:**

The solution that will meet the requirements most cost-effectively is to store the smart meter readings in an Amazon DynamoDB table. Create a composite key by using the location ID and timestamp columns. Use the columns to filter on the customers' data. This way, the company can leverage the scalability, performance, and low latency of DynamoDB to store and retrieve the smart meter readings. The company can also use the composite key to query the data by location ID and timestamp efficiently. The other options either involve more expensive or less scalable services, or do not provide low-latency access to the current usage.

Reference: Working with Queries in DynamoDB

**NEW QUESTION 51**

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:** 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 53**

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:dynamodb: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.amazonaws.com.

**Answer: C**

**Explanation:**

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

**NEW QUESTION 56**

A company has a web application that runs on Amazon EC2 instances with a custom Amazon Machine Image (AMI). The company uses AWS CloudFormation to provision the application. The application runs in the us-east-1 Region, and the company needs to deploy the application to the us-west-1 Region. An attempt to create the AWS CloudFormation stack in us-west-1 fails. An error message states that the AMI ID does not exist. A developer must resolve this error with a solution that uses the least amount of operational overhead. Which solution meets these requirements?

- A. Change the AWS CloudFormation templates for us-east-1 and us-west-1 to use an AWS AMI
- B. Relaunch the stack for both Regions.
- C. Copy the custom AMI from us-east-1 to us-west-1. Update the AWS CloudFormation template for us-west-1 to refer to AMI ID for the copied AMI. Relaunch the stack.
- D. Build the custom AMI in us-west-1. Create a new AWS CloudFormation template to launch the stack in us-west-1 with the new AMI ID.
- E. Manually deploy the application outside AWS CloudFormation in us-west-1.

**Answer: B**

**Explanation:**

<https://aws.amazon.com/blogs/aws/ec2-ami-copy-between-regions/>

**NEW QUESTION 57**

A developer is creating a service that uses an Amazon S3 bucket for image uploads. The service will use an AWS Lambda function to create a thumbnail of each image. Each time an image is uploaded, the service needs to send an email notification and create the thumbnail. The developer needs to configure the image processing and email notifications setup.

Which solution will meet these requirements?

- A. Create an Amazon Simple Notification Service (Amazon SNS) topic. Configure S3 event notifications with a destination of the SNS topic. Subscribe the Lambda function to the SNS topic. Create an email notification subscription to the SNS topic.
- B. Create an Amazon Simple Notification Service (Amazon SNS) topic. Configure S3 event notifications with a destination of the SNS topic. Subscribe the Lambda function to the SNS topic.
- C. Configure S3 event notifications with a destination of the SNS topic. Subscribe the Lambda function to the SNS topic.
- D. Subscribe the Lambda function to the SNS topic. Create an email notification subscription to the SNS topic.
- E. Create an Amazon Simple Queue Service (Amazon SQS) queue. Subscribe the SQS queue to the SNS topic. Create an email notification subscription to the SQS queue.
- F. Create an Amazon Simple Queue Service (Amazon SQS) queue. Configure S3 event notifications with a destination of the SQS queue. Subscribe the Lambda function to the SQS queue. Create an email notification subscription to the SQS queue.
- G. Create an Amazon Simple Queue Service (Amazon SQS) queue. Send S3 event notifications to Amazon EventBridge.
- H. Send S3 event notifications to Amazon EventBridge. Create an EventBridge rule that runs the Lambda function when images are uploaded to the S3 bucket. Create an EventBridge rule that sends notifications to the SQS queue. Create an email notification subscription to the SQS queue.
- I. Create an EventBridge rule that runs the Lambda function when images are uploaded to the S3 bucket. Create an EventBridge rule that sends notifications to the SQS queue. Create an email notification subscription to the SQS queue.

**Answer: A**

**Explanation:**

This solution will allow the developer to receive notifications for each image uploaded to the S3 bucket, and also create a thumbnail using the Lambda function. The SNS topic will serve as a trigger for both the Lambda function and the email notification subscription. When an image is uploaded, S3 will send a notification to the SNS topic, which will trigger the Lambda function to create the thumbnail and also send an email notification to the specified email address.

**NEW QUESTION 62**

A company has an application that stores data in Amazon RDS instances. The application periodically experiences surges of high traffic that cause performance problems. During periods of peak traffic, a developer notices a reduction in query speed in all database queries. The team's technical lead determines that a multi-threaded and scalable caching solution should be used to offload the heavy read traffic. The solution needs to improve performance.



Which solution will meet these requirements with the LEAST complexity?

- A. Use Amazon ElastiCache for Memcached to offload read requests from the main database.
- B. Replicate the data to Amazon DynamoD
- C. Set up a DynamoDB Accelerator (DAX) cluster.
- D. Configure the Amazon RDS instances to use Multi-AZ deployment with one standby instanc
- E. Offload read requests from the main database to the standby instance.
- F. Use Amazon ElastiCache for Redis to offload read requests from the main database.

**Answer:** A

**Explanation:**

? Amazon ElastiCache for Memcached is a fully managed, multithreaded, and scalable in-memory key-value store that can be used to cache frequently accessed data and improve application performance<sup>1</sup>. By using Amazon ElastiCache for Memcached, the developer can reduce the load on the main database and handle high traffic surges more efficiently.

? To use Amazon ElastiCache for Memcached, the developer needs to create a cache cluster with one or more nodes, and configure the application to store and retrieve data from the cache cluster<sup>2</sup>. The developer can use any of the supported Memcached clients to interact with the cache cluster<sup>3</sup>. The developer can also use Auto Discovery to dynamically discover and connect to all cache nodes in a cluster<sup>4</sup>.

? Amazon ElastiCache for Memcached is compatible with the Memcached protocol, which means that the developer can use existing tools and libraries that work with

Memcached<sup>1</sup>. Amazon ElastiCache for Memcached also supports data partitioning, which allows the developer to distribute data among multiple nodes and scale out the cache cluster as needed.

? Using Amazon ElastiCache for Memcached is a simple and effective solution that meets the requirements with the least complexity. The developer does not need to change the database schema, migrate data to a different service, or use a different caching model. The developer can leverage the existing Memcached ecosystem and easily integrate it with the application.

**NEW QUESTION 63**

A developer is building a serverless application by using AWS Serverless Application Model (AWS SAM) on multiple AWS Lambda functions.

When the application is deployed, the developer wants to shift 10% of the traffic to the new deployment of the application for the first 10 minutes after deployment.

If there are no issues, all traffic must switch over to the new version.

Which change to the AWS SAM template will meet these requirements?

- A. Set the Deployment Preference Type to Canary10Percent10Minute  
AutoPublishAlias property to the Lambda alias.
- ~~B. Set the~~ Set the Deployment Preference Type to LinearIOPercentEvery10Minute
- D. Set AutoPublishAlias property to the Lambda alias.
- E. Set the Deployment Preference Type to CanaryIOPercentIOMinute
- F. Set the PreTraffic and PostTraffic properties to the Lambda alias.
- G. Set the Deployment Preference Type to LinearIOPercentEveryIOMinute
- H. Set PreTraffic and Post Traffic properties to the Lambda alias.

**Answer:** A

**Explanation:**

The AWS Serverless Application Model (AWS SAM) comes built-in with CodeDeploy to provide gradual AWS Lambda deployments<sup>1</sup>.

The DeploymentPreference property in AWS SAM allows you to specify the type of deployment that you want. The Canary10Percent10Minutes option means that 10 percent of your customer traffic is immediately shifted to your new version. After 10 minutes, all traffic is shifted to the new version<sup>1</sup>. The AutoPublishAlias property in AWS SAM allows AWS SAM to automatically create an alias that points to the updated version of the Lambda function<sup>1</sup>. Therefore, option A is correct.

**NEW QUESTION 66**

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 account
- 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 70**

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 74**

A developer created an AWS Lambda function that performs a series of operations that involve multiple AWS services. The function's duration time is higher than normal. To determine the cause of the issue, the developer must investigate traffic between the services without changing the function code. Which solution will meet these requirements?

- A. Mastered
- B. Not Mastered

**Answer:** A

**Explanation:**

AWS X-Ray is a service that helps you analyze and debug your applications. You can use X-Ray to trace requests made to your Lambda function and other AWS services, and identify performance bottlenecks and errors. Enabling active tracing in your Lambda function allows X-Ray to collect data from the function invocation and the downstream services that it calls. You can then review the logs and service maps in X-Ray to diagnose the issue. References

? Monitoring and troubleshooting Lambda functions - AWS Lambda

? Using AWS Lambda with AWS X-Ray

? Troubleshoot Lambda function cold start issues | AWS re:Post

**NEW QUESTION 79**

A team of developers is using an AWS CodePipeline pipeline as a continuous integration and continuous delivery (CI/CD) mechanism for a web application. A developer has written unit tests to programmatically test the functionality of the application code. The unit tests produce a test report that shows the results of each individual check. The developer now wants to run these tests automatically during the CI/CD process.

- A. Write a Git pre-commit hook that runs the test before every commit
- B. Ensure that each developer who is working on the project has the pre-commit hook installed locally
- C. Review the test report and resolve any issues before pushing changes to AWS CodeCommit.
- D. Add a new stage to the pipeline
- E. Use AWS CodeBuild as the provider
- F. Add the new stage after the stage that deploys code revisions to the test environment
- G. Write a buildspec that fails the CodeBuild stage if any test does not pass
- H. Use the test reports feature of CodeBuild to integrate the report with the CodeBuild console
- I. View the test results in CodeBuild. Resolve any issues.
- J. Add a new stage to the pipeline
- K. Use AWS CodeBuild as the provider
- L. Add the new stage before the stage that deploys code revisions to the test environment
- M. Write a buildspec that fails the CodeBuild stage if any test does not pass
- N. Use the test reports feature of CodeBuild to integrate the report with the CodeBuild console
- O. View the test results in CodeBuild. Resolve any issues.
- P. Add a new stage to the pipeline
- Q. Use Jenkins as the provider
- R. Configure CodePipeline to use Jenkins to run the unit test
- S. Write a Jenkinsfile that fails the stage if any test does not pass
- T. Use the test report plugin for Jenkins to integrate the report with the Jenkins dashboard
- . View the test results in Jenkins
- . Resolve any issues.

**Answer:** C

**Explanation:**

The solution that will meet the requirements is to add a new stage to the pipeline. Use AWS CodeBuild as the provider. Add the new stage before the stage that deploys code revisions to the test environment. Write a buildspec that fails the CodeBuild stage if any test does not pass. Use the test reports feature of CodeBuild to integrate the report with the CodeBuild console. View the test results in CodeBuild. Resolve any issues. This way, the developer can run the unit tests automatically during the CI/CD process and catch any bugs before deploying to the test environment. The developer can also use the test reports feature of CodeBuild to view and analyze the test results in a graphical interface. The other options either involve running the tests manually, running them after deployment, or using a different provider that requires additional configuration and integration.

Reference: Test reports for CodeBuild

**NEW QUESTION 84**

A developer wants to add request validation to a production environment Amazon API Gateway API. The developer needs to test the changes before the API is deployed to the production environment. For the least the developer will send test requests to the API through a testing tool. Which solution will meet these requirements with the LEAST operational overhead?

- A. Export the existing API to an OpenAPI file
- B. Create a new API Import the OpenAPI file Modify the new API to add request validation

- C. Perform the tests Modify the existing API to add request validation
- D. Deploy the existing API to production.
- E. Modify the existing API to add request validation
- F. Deploy the updated API to a new API Gateway stage Perform the tests Deploy the updated API to the API Gateway production stage.
- G. Create a new API Add the necessary resources and methods including new request validation
- H. Perform the tests Modify the existing API to add request validation
- I. Deploy the existing API to production.
- J. Clone the existing API Modify the new API to add request validation  
Modify the existing API to add request validation Deploy the existing API to production.
- K. Perform the tests

**Answer:** D

**Explanation:**

This solution allows the developer to test the changes without affecting the production environment. Cloning an API creates a copy of the API definition that can be modified independently. The developer can then add request validation to the new API and test it using a testing tool. After verifying that the changes work as expected, the developer can apply the same changes to the existing API and deploy it to production.

Reference: Clone an API, [Enable Request Validation for an API in API Gateway]

**NEW QUESTION 86**

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 90**

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 95**

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  
download the log file, append the log entries, and upload the modified log file to Amazon EBS
- F. Update the Lambda function code to
- 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 100**

A company has built an AWS Lambda function to convert large image files into output files that can be used in a third-party viewer application. The company recently added a new module to the function to improve the output of the generated files. However, the new module has increased the bundle size and has increased the time that is needed to deploy changes to the function code. How can a developer increase the speed of the Lambda function deployment?

- A. Use AWS CodeDeploy to deploy the function code
- B. Use Lambda layers to package and load dependencies.
- C. Increase the memory size of the function.
- D. Use Amazon S3 to host the function dependencies

**Answer: B**

**Explanation:**

Using Lambda layers is a way to reduce the size of the deployment package and speed up the deployment process. Lambda layers are reusable components that can contain libraries, custom runtimes, or other dependencies. By using layers, the developer can separate the core function logic from the dependencies, and avoid uploading them every time the function code changes. Layers can also be shared across multiple functions or accounts, which can improve consistency and maintainability. References

? Working with AWS Lambda layers

? AWS Lambda Layers Best Practices

? Best practices for working with AWS Lambda functions

**NEW QUESTION 103**

A company is developing an ecommerce application that uses Amazon API Gateway APIs. The application uses AWS Lambda as a backend. The company needs to test the code in a dedicated, monitored test environment before the company releases the code to the production environment. When solution will meet these requirements?

- A. Use a single stage in API Gateway
- B. Create a Lambda function for each environment
- C. Configure API clients to send a query parameter that indicates the environment and the specific lambda function.
- D. Use multiple stages in API Gateway
- E. Create a single Lambda function for all environment
- F. Add different code blocks for different environments in the Lambda function based on Lambda environment variables.
- G. Use multiple stages in API Gateway
- H. Create a Lambda function for each environment
- I. Configure API Gateway stage variables to route traffic to the Lambda function in different environments.
- J. Use a single stage in API Gateway
- K. Configure a API client to send a query parameter that indicated the environment
- L. Add different code blocks for different environments in the Lambda function to match the value of the query parameter.

**Answer: C**

**Explanation:**

The solution that will meet the requirements is to use multiple stages in API Gateway. Create a Lambda function for each environment. Configure API Gateway stage variables to route traffic to the Lambda function in different environments. This way, the company can test the code in a dedicated, monitored test environment before releasing it to the production environment. The company can also use stage variables to specify the Lambda function version or alias for each stage, and avoid hard-coding the Lambda function name in the API Gateway integration. The other options either involve using a single stage in API Gateway, which does not allow testing in different environments, or adding different code blocks for different environments in the Lambda function, which increases complexity and maintenance.

Reference: Set up stage variables for a REST API in API Gateway

**NEW QUESTION 107**

A developer is working on an ecommerce website. The developer wants to review server logs without logging in to each of the application servers individually. The website runs on multiple Amazon EC2 instances, is written in Python, and needs to be highly available. How can the developer update the application to meet these requirements with MINIMUM changes?

- A. Rewrite the application to be cloud native and to run on AWS Lambda, where the logs can be reviewed in Amazon CloudWatch
- B. Set up centralized logging by using Amazon OpenSearch Service, Logstash, and OpenSearch Dashboards
- C. Scale down the application to one larger EC2 instance where only one instance is recording logs
- D. Install the unified Amazon CloudWatch agent on the EC2 instances. Configure the agent to push the application logs to CloudWatch

**Answer: D**

**Explanation:**

The unified Amazon CloudWatch agent can collect both system metrics and log files from Amazon EC2 instances and on-premises servers. By installing and configuring the agent on the EC2 instances, the developer can easily access and analyze the application logs in CloudWatch without logging in to each server individually. This option requires minimum changes to the existing application and does not affect its availability or scalability. References

? Using the CloudWatch Agent

? Collecting Metrics and Logs from Amazon EC2 Instances and On-Premises Servers with the CloudWatch Agent

**NEW QUESTION 108**

A developer is creating an Amazon DynamoDB table by using the AWS CLI. The DynamoDB table must use server-side encryption with an AWS owned encryption key. How should the developer create the DynamoDB table to meet these requirements?

- A. Create an AWS Key Management Service (AWS KMS) customer managed key

- B. Provide the key's Amazon Resource Name (ARN) in the KMSMasterKeyId parameter during creation of the DynamoDB table
- C. Create an AWS Key Management Service (AWS KMS) AWS managed key Provide the key's Amazon Resource Name (ARN) in the KMSMasterKeyId parameter during creation of the DynamoDB table
- D. Create an AWS owned key Provide the key's Amazon Resource Name (ARN) in the KMSMasterKeyId parameter during creation of the DynamoDB table.
- E. Create the DynamoDB table with the default encryption options

**Answer:** D

**Explanation:**

When creating an Amazon DynamoDB table using the AWS CLI, server-side encryption with an AWS owned encryption key is enabled by default. Therefore, the developer does not need to create an AWS KMS key or specify the KMSMasterKeyId parameter. Option A and B are incorrect because they suggest creating customer- managed and AWS-managed KMS keys, which are not needed in this scenario. Option C is also incorrect because AWS owned keys are automatically used for server-side encryption by default.

**NEW QUESTION 111**

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 116**

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 cach

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

**Answer: B**

**Explanation:**

Amazon API Gateway provides tools for creating and documenting web APIs that route HTTP requests to Lambda functions<sup>2</sup>. You can secure access to your API with authentication and authorization controls. Your APIs can serve traffic over the internet or can be accessible only within your VPC<sup>2</sup>. You can override the cache method in the selected stage of API Gateway<sup>2</sup>. Therefore, option B is correct.

**NEW QUESTION 119**

A developer is building an application that gives users the ability to view bank account from multiple sources in a single dashboard. The developer has automated the process to retrieve API credentials for these sources. The process invokes an AWS Lambda function that is associated with an AWS CloudFormation cotton resource.

The developer wants a solution that will store the API credentials with minimal operational overhead.

When solution will meet these requirements?

- A. Add an AWS Secrets Manager GenerateSecretString resource to the CloudFormation templat
- B. Set the value to reference new credentials to the Cloudformation resource.
- C. Use the AWS SDK ssm PutParameter operation in the Lambda function from the existing, custom resource to store the credentials as a paramete
- D. Set the parameter value to reference the new credential
- E. Set ma parameter type to SecureString.
- F. Add an AWS Systems Manager Parameter Store resource to the CloudFormation templat
- G. Set the CloudFormation resource value to reference the new credentials Set the resource NoEcho attribute to true.
- H. Use the AWS SDK ssm PutParameter operation in the Lambda function from the existing custom resources to store the credentials as a paramete
- I. Set the parameter value to reference the new credential
- J. Set the parameter NoEcho attribute to true.

**Answer: B**

**Explanation:**

The solution that will meet the requirements is to use the AWS SDK ssm PutParameter operation in the Lambda function from the existing custom resource to store the credentials as a parameter. Set the parameter value to reference the new credentials. Set the parameter type to SecureString. This way, the developer can store the API credentials with minimal operational overhead, as AWS Systems Manager Parameter Store provides secure and scalable storage for configuration data. The SecureString parameter type encrypts the parameter value with AWS Key Management Service (AWS KMS). The other options either involve adding additional resources to the CloudFormation template, which increases complexity and cost, or do not encrypt the parameter value, which reduces security.

Reference: Creating Systems Manager parameters

**NEW QUESTION 124**

A company is planning to use AWS CodeDeploy to deploy an application to Amazon Elastic Container Service (Amazon ECS) During the deployment of a new version of the application, the company initially must expose only 10% of live traffic to the new version of the deployed application. Then, after 15 minutes elapse, the company must route all the remaining live traffic to the new version of the deployed application.

Which CodeDeploy predefined configuration will meet these requirements?

- A. CodeDeployDefault ECSCanary10Percent15Minutes
- B. CodeDeployDefault LambdaCanary10Percent5Minutes
- C. CodeDeployDefault LambdaCanary10Percent15Minutes
- D. CodeDeployDefault ECSLinear10PercentEvery1 Minutes

**Answer: A**



**Explanation:**

The predefined configuration "CodeDeployDefault.ECSCanary10Percent15Minutes" is designed for Amazon Elastic Container Service (Amazon ECS) deployments and meets the specified requirements. It will perform a canary deployment, which means it will initially route 10% of live traffic to the new version of the application, and then after 15 minutes elapse, it will automatically route all the remaining live traffic to the new version. This gradual deployment approach allows

the company to verify the health and performance of the new version with a small portion of traffic before fully deploying it to all users.

**NEW QUESTION 125**

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 130**

An ecommerce application is running behind an Application Load Balancer. A developer observes some unexpected load on the application during non-peak hours. The developer wants to analyze patterns for the client IP addresses that use the application. Which HTTP header should the developer use for this

analysis?

- A. The X-Forwarded-Proto header
- B. The X-F Forwarded-Host header
- C. The X-Forwarded-For header
- D. The X-Forwarded-Port header

**Answer: C**

**Explanation:**

The HTTP header that the developer should use for this analysis is the X- Forwarded-For header. This header contains the IP address of the client that made the request to the Application Load Balancer. The developer can use this header to analyze patterns for the client IP addresses that use the application. The other headers either contain information about the protocol, host, or port of the request, which are not relevant for the analysis.

Reference: How Application Load Balancer works with your applications

**NEW QUESTION 133**

A data visualization company wants to strengthen the security of its core applications. The applications are deployed on AWS across its development staging, pre-production, and production environments. The company needs to encrypt all of its stored sensitive credentials. The sensitive credentials need to be automatically rotated. A version of the sensitive credentials need to be stored for each environment.

Which solution will meet these requirements in the MOST operationally efficient way?

- A. Configure AWS Secrets Manager versions to store different copies of the same credentials across multiple environments.
- B. Create a new parameter version in AWS Systems Manager Parameter Store for each environment. Store the environment-specific credentials in the parameter version.
- C. Configure the environment variables in the application code. Use different names for each environment type. Store the environment-specific credentials in the secret.
- D. Configure AWS Secrets Manager to create a new secret for each environment type.

**Answer: D**

**Explanation:**

AWS Secrets Manager is the best option for managing sensitive credentials across multiple environments, as it provides automatic secret rotation, auditing, and monitoring features. It also allows storing environment-specific credentials in separate secrets, which can be accessed by the applications using the SDK or CLI. AWS Systems Manager Parameter Store does not have built-in secret rotation capability, and it requires creating individual parameters or storing the entire credential set as a JSON object. Configuring the environment variables in the application code is not a secure or scalable solution, as it exposes the credentials to anyone who can access the code. References

? AWS Secrets Manager vs. Systems Manager Parameter Store

? AWS Systems Manager Parameter Store vs. Secrets Manager vs. Environment Variables in Lambda, when to use which

? AWS Secrets Manager vs. Parameter Store: Features, Cost & More

**NEW QUESTION 134**

A developer is incorporating AWS X-Ray into an application that handles personal

identifiable information (PII). The application is hosted on Amazon EC2 instances. The application trace messages include encrypted PII and go to Amazon CloudWatch. The developer needs to ensure that no PII goes outside of the EC2 instances.

Which solution will meet these requirements?

- A. Manually instrument the X-Ray SDK in the application code.
- B. Use the X-Ray auto-instrumentation agent.
- C. Use Amazon Macie to detect and hide PII.
- D. Call the X-Ray API from AWS Lambda.
- E. Use AWS Distro for Open Telemetry.

**Answer: A**

**Explanation:**

This solution will meet the requirements by allowing the developer to control what data is sent to X-Ray and CloudWatch from the application code. The developer can filter out any PII from the trace messages before sending them to X-Ray and CloudWatch, ensuring that no PII goes outside of the EC2 instances. Option B is not optimal because it will automatically instrument all incoming and outgoing requests from the application, which may include PII in the trace messages. Option C is not optimal because it will require additional services and costs to use Amazon Macie and AWS Lambda, which may not be able to detect and hide all PII from the trace messages. Option D is not optimal because it will use Open Telemetry instead of X-Ray, which may not be compatible with CloudWatch and other AWS services.

References: [AWS X-Ray SDKs]

**NEW QUESTION 136**

A developer is deploying a company's application to Amazon EC2 instances. The application generates gigabytes of data files each day. The files are rarely accessed but the files must be available to the application's users within minutes of a request during the first year of storage. The company must retain the files for 7 years.

How can the developer implement the application to meet these requirements MOST cost-effectively?

- A. Store the files in an Amazon S3 bucket. Use the S3 Glacier Instant Retrieval storage class. Create an S3 Lifecycle policy to transition the files to the S3 Glacier Deep Archive storage class after 1 year.
- B. Store the files in an Amazon S3 bucket.
- C. Use the S3 Standard storage class.
- D. Create an S3 Lifecycle policy to transition the files to the S3 Glacier Flexible Retrieval storage class after 1 year.
- E. Store the files on an Amazon Elastic Block Store (Amazon EBS) volume. Use Amazon Data Lifecycle Manager (Amazon DLM) to create snapshots of the EBS volumes and to store those snapshots in Amazon S3.
- F. Store the files on an Amazon Elastic File System (Amazon EFS) mount.
- G. Configure EFS lifecycle management to transition the files to the EFS Standard-Infrequent Access (Standard-IA) storage class after 1 year.

**Answer: A**

**Explanation:**

Amazon S3 Glacier Instant Retrieval is an archive storage class that delivers the lowest-cost storage for long-lived data that is rarely accessed and requires retrieval in milliseconds. With S3 Glacier Instant Retrieval, you can save up to 68% on storage costs compared to using the S3 Standard-Infrequent Access (S3 Standard-IA) storage class, when your data is accessed once per quarter. <https://aws.amazon.com/s3/storage-classes/glacier/instant-retrieval/>

**NEW QUESTION 138**

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 notificatio
- B. Add an Amazon API Gateway API to invoke the functio
- 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 notificatio
- 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 notificatio
- 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 Firehos
- 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 139**

A developer is building an application that uses AWS API Gateway APIs, AWS Lambda function, and AWS Dynamic DB tables. The developer uses the AWS Serverless Application Model (AWS SAM) to build and run serverless applications on AWS. Each time the developer pushes of changes for only to the Lambda functions, all the artifacts in the application are rebuilt.

The developer wants to implement AWS SAM Accelerate by running a command to only redeploy the Lambda functions that have changed. Which command will meet these requirements?

- A. sam deploy -force-upload
- B. sam deploy -no-execute-changeset
- C. sam package
- D. sam sync -watch

**Answer: D**

**Explanation:**

The command that will meet the requirements is sam sync -watch. This command enables AWS SAM Accelerate mode, which allows the developer to only redeploy the Lambda functions that have changed. The -watch flag enables file watching, which automatically detects changes in the source code and triggers a redeployment. The other commands either do not enable AWS SAM Accelerate mode, or do not redeploy the Lambda functions automatically. Reference: AWS SAM Accelerate

**NEW QUESTION 143**

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 AP
- B. Create a DNS A record for the custom domain.
- C. Import the SSL/TLS certificate into CloudFron
- 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 AP
- 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 Regio
- 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 146**

A developer is deploying a new application to Amazon Elastic Container Service (Amazon ECS). The developer needs to securely store and retrieve different types of variables. These variables include authentication information for a remote API, the URL for the API, and credentials. The authentication information and API URL must be available to all current and future deployed versions of the application across development, testing, and production environments. How should the developer retrieve the variables with the FEWEST application changes?

- A. Update the application to retrieve the variables from AWS Systems Manager Parameter Store
- B. Use unique paths in Parameter Store for each variable in each environment
- C. Store the credentials in AWS Secrets Manager in each environment.
- D. Update the application to retrieve the variables from AWS Key Management Service (AWS KMS). Store the API URL and credentials as unique keys for each environment.
- E. Update the application to retrieve the variables from an encrypted file that is stored with the application
- F. Store the API URL and credentials in unique files for each environment.
- G. Update the application to retrieve the variables from each of the deployed environment
- H. Define the authentication information and API URL in the ECS task definition as unique names during the deployment process.

**Answer:** A

**Explanation:**

AWS Systems Manager Parameter Store is a service that provides secure, hierarchical storage for configuration data management and secrets management. The developer can update the application to retrieve the variables from Parameter Store by using the AWS SDK or the AWS CLI. The developer can use unique paths in Parameter Store for each variable in each environment, such as /dev/api-url, /test/api-url, and /prod/api-url. The developer can also store the credentials in AWS Secrets Manager, which is integrated with Parameter Store and provides additional features such as automatic rotation and encryption.

References:

? [What Is AWS Systems Manager? - AWS Systems Manager]

? [Parameter Store - AWS Systems Manager]

? [What Is AWS Secrets Manager? - AWS Secrets Manager]

**NEW QUESTION 150**

A developer needs to deploy an application running on AWS Fargate using Amazon ECS. The application has environment variables that must be passed to a container for the application to initialize.

How should the environment variables be passed to the container?

- A. Define an array that includes the environment variables under the environment parameter within the service definition.
- B. Define an array that includes the environment variables under the environment parameter within the task definition.
- C. Define an array that includes the environment variables under the entryPoint parameter within the task definition.
- D. Define an array that includes the environment variables under the entryPoint parameter within the service definition.

**Answer:** B

**Explanation:**

This solution allows the environment variables to be passed to the container when it is launched by AWS Fargate using Amazon ECS. The task definition is a text file that describes one or more containers that form an application. It contains various parameters for configuring the containers, such as CPU and memory requirements, network mode, and environment variables. The environment parameter is an array of key-value pairs that specify environment variables to pass to a container. Defining an array that includes the environment variables under the entryPoint parameter within the task definition

will not pass them to the container, but use them as command-line arguments for overriding the default entry point of a container.

Defining an array that includes the environment variables under the environment or entryPoint parameter within the service definition will not pass them to the container, but cause an error because these parameters are not valid for a service definition.

Reference: [Task Definition Parameters], [Environment Variables]

**NEW QUESTION 155**

A company runs an application on AWS. The application uses an AWS Lambda function that is configured with an Amazon Simple Queue Service (Amazon SQS) queue called high priority queue as the event source. A developer is updating the Lambda function with another SQS queue called low priority queue as the event source. The Lambda function must always read up to 10 simultaneous messages from the high priority queue before processing messages from low priority queue. The Lambda function must be limited to 100 simultaneous invocations.

Which solution will meet these requirements?

- A. Set the event source mapping batch size to 10 for the high priority queue and to 90 for the low priority queue
- B. Set the delivery delay to 0 seconds for the high priority queue and to 10 seconds for the low priority queue
- C. Set the event source mapping maximum concurrency to 10 for the high priority queue and to 90 for the low priority queue
- D. Set the event source mapping batch window to 10 for the high priority queue and to 90 for the low priority queue

**Answer:** C

**Explanation:**

Setting the event source mapping maximum concurrency is the best way to control how many messages from each queue are processed by the Lambda function. The maximum concurrency setting limits the number of batches that can be processed concurrently from the same event source.

By setting it to 10 for the high priority queue and to 90 for the low priority queue, the developer can ensure that the Lambda function always reads up to 10 simultaneous messages from the high priority queue before processing messages from the low priority queue, and that the total number of concurrent invocations does not exceed 100. The other solutions are either not effective or not relevant. The batch size setting controls how many messages are sent to the Lambda function in a single invocation, not how many invocations are allowed at a time. The delivery delay setting controls how long a message is invisible in the queue after it is sent, not how often it is processed by the Lambda function. The batch window setting controls how long the event source mapping can buffer messages before sending a batch, not how many batches are processed concurrently. References

? Using AWS Lambda with Amazon SQS

? AWS Lambda Event Source Mapping - Examples and best practices | Shisho Dojo

? Lambda event source mappings - AWS Lambda

? aws\_lambda\_event\_source\_mapping - Terraform Registry

**NEW QUESTION 159**

A developer is testing a RESTful application that is deployed by using Amazon API Gateway and AWS Lambda. When the developer tests the user login by using

credentials that are not valid, the developer receives an HTTP 405 METHOD\_NOT\_ALLOWED error. The developer has verified that the test is sending the correct request for the resource. Which HTTP error should the application return in response to the request?

- A. HTTP 401
- B. HTTP 404
- C. HTTP 503
- D. HTTP 505

**Answer:** A

**Explanation:**

The HTTP 401 error indicates that the request has not been applied because it lacks valid authentication credentials for the target resource. This is the appropriate error code to return when the user login fails due to invalid credentials. The HTTP 405 error means that the method specified in the request is not allowed for the resource identified by the request URI, which is not the case here. The other error codes are not relevant to the authentication failure scenario.

References

? HTTP Status Codes

? AWS Lambda Function Errors in API Gateway

**NEW QUESTION 163**

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 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.
- 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 value of 'AWS::Lambda::Function' 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 168**

A company is building a serverless application on AWS. The application uses an AWS Lambda function to process customer orders 24 hours a day, 7 days a week. The Lambda function calls an external vendor's HTTP API to process payments.

During load tests, a developer discovers that the external vendor payment processing API occasionally times out and returns errors. The company expects that some payment processing API calls will return errors.

The company wants the support team to receive notifications in near real time only when

the payment processing external API error rate exceeds 5% of the total number of transactions in an hour. Developers need to use an existing Amazon Simple Notification Service (Amazon SNS) topic that is configured to notify the support team.

Which solution will meet these requirements?

- A. Write the results of payment processing API calls to Amazon CloudWatch.
- B. Use Amazon CloudWatch Logs Insights to query the CloudWatch log.
- C. Schedule the Lambda function to check the CloudWatch logs and notify the existing SNS topic.
- D. Publish custom metrics to CloudWatch that record the failures of the external payment processing API call.
- E. Configure a CloudWatch alarm to notify the existing SNS topic when error rate exceeds the specified rate.
- F. Publish the results of the external payment processing API calls to a new Amazon SNS topic.
- G. Subscribe the support team members to the new SNS topic.
- H. Write the results of the external payment processing API calls to Amazon S3. Schedule an Amazon Athena query to run at regular intervals.
- I. Configure Athena to send notifications to the existing SNS topic when the error rate exceeds the specified rate.

**Answer:** B

**Explanation:**

Amazon CloudWatch is a service that monitors AWS resources and applications. The developer can publish custom metrics to CloudWatch that record the failures of the external payment processing API calls. The developer can configure a CloudWatch alarm to notify the existing SNS topic when the error rate exceeds 5% of the total number of transactions in an hour. This solution will meet the requirements in a near real-time and scalable way.

References:

? [What Is Amazon CloudWatch? - Amazon CloudWatch]

? [Publishing Custom Metrics - Amazon CloudWatch]

? [Creating Amazon CloudWatch Alarms - Amazon CloudWatch]

**NEW QUESTION 169**

A developer is testing a new file storage application that uses an Amazon CloudFront distribution to serve content from an Amazon S3 bucket. The distribution accesses the S3 bucket by using an origin access identity (OAI). The S3 bucket's permissions explicitly deny access to all other users.

The application prompts users to authenticate on a login page and then uses signed cookies to allow users to access their personal storage directories. The developer has configured the distribution to use its default cache behavior with restricted viewer access and has set the origin to point to the S3 bucket. However, when the developer tries to navigate to the login page, the developer receives a 403 Forbidden error. The developer needs to implement a solution to allow unauthenticated access to the login page. The solution also must keep all private content secure. Which solution will meet these requirements?

- A. Add a second cache behavior to the distribution with the same origin as the default cache behavior
- B. Set the path pattern for the second cache behavior to the path of the login page, and make viewer access unrestricted
- C. Keep the default cache behavior's settings unchanged.
- D. Add a second cache behavior to the distribution with the same origin as the default cache behavior
- E. Set the path pattern for the second cache behavior to \*, and make viewer access restricted
- F. Change the default cache behavior's path pattern to the path of the login page, and make viewer access unrestricted.
- G. Add a second origin as a failover origin to the default cache behavior
- H. Point the failover origin to the S3 bucket
- I. Set the path pattern for the primary origin to \*, and make viewer access restricted
- J. Set the path pattern for the failover origin to the path of the login page, and make viewer access unrestricted.
- K. Add a bucket policy to the S3 bucket to allow read access
- L. Set the resource on the policy to the Amazon Resource Name (ARN) of the login page object in the S3 bucket
- M. Add a CloudFront function to the default cache behavior to redirect unauthorized requests to the login page's S3 URL.

**Answer:** A

**Explanation:**

The solution that will meet the requirements is to add a second cache behavior to the distribution with the same origin as the default cache behavior. Set the path pattern for the second cache behavior to the path of the login page, and make viewer access unrestricted. Keep the default cache behavior's settings unchanged. This way, the login page can be accessed without authentication, while all other content remains secure and requires signed cookies. The other options either do not allow unauthenticated access to the login page, or expose private content to unauthorized users.

Reference: Restricting Access to Amazon S3 Content by Using an Origin Access Identity

**NEW QUESTION 172**

A company hosts its application on AWS. The application runs on an Amazon Elastic Container Service (Amazon ECS) cluster that uses AWS Fargate. The cluster runs behind an Application Load Balancer. The application stores data in an Amazon Aurora database. A developer encrypts and manages database credentials inside the application.

The company wants to use a more secure credential storage method and implement periodic credential rotation.

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

- A. Migrate the secret credentials to Amazon RDS parameter group
- B. Encrypt the parameter by using an AWS Key Management Service (AWS KMS) key. Turn on secret rotation.
- C. Use IAM policies and roles to grant AWS KMS permissions to access Amazon RDS.
- D. Migrate the credentials to AWS Systems Manager Parameter Store
- E. Encrypt the parameter by using an AWS Key Management Service (AWS KMS) key
- F. Turn on secret rotation
- G. Use IAM policies and roles to grant Amazon ECS Fargate permissions to access to AWS Secrets Manager
- H. Migrate the credentials to ECS Fargate environment variable
- I. Encrypt the credentials by using an AWS Key Management Service (AWS KMS) key. Turn on secret rotation
- J. Use IAM policies and roles to grant Amazon ECS Fargate permissions to access to AWS Secrets Manager.
- K. Migrate the credentials to AWS Secrets Manager
- L. Encrypt the credentials by using an AWS Key Management Service (AWS KMS) key. Turn on secret rotation. Use IAM policies and roles to grant Amazon ECS Fargate permissions to access to AWS Secrets Manager by using keys.

**Answer:** D

**Explanation:**

AWS Secrets Manager is a service that helps you store, distribute, and rotate secrets securely. You can use Secrets Manager to migrate your credentials from your application code to a secure and encrypted storage. You can also enable automatic rotation of your secrets by using AWS Lambda functions or custom logic. You can use IAM policies and roles to grant your Amazon ECS Fargate tasks permissions to access your secrets from Secrets Manager. This solution minimizes the operational overhead of managing your credentials and enhances the security of your application. References



- ? AWS Secrets Manager: Store, Distribute, and Rotate Credentials Securely | AWS News Blog
- ? Why You Should Audit and Rotate Your AWS Credentials Periodically - Cloud Academy
- ? Top 5 AWS root account best practices - TheServerSide

#### NEW QUESTION 175

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