

# Amazon

## Exam Questions AWS-Certified-DevOps-Engineer-Professional

Amazon AWS Certified DevOps Engineer Professional



### NEW QUESTION 1

A company has an application that runs on AWS Lambda and sends logs to Amazon CloudWatch Logs. An Amazon Kinesis data stream is subscribed to the log groups in CloudWatch Logs. A single consumer Lambda function processes the logs from the data stream and stores the logs in an Amazon S3 bucket. The company's DevOps team has noticed high latency during the processing and ingestion of some logs. Which combination of steps will reduce the latency? (Select THREE.)

- A. Create a data stream consumer with enhanced fan-out
- B. Set the Lambda function that processes the logs as the consumer.
- C. Increase the ParallelizationFactor setting in the Lambda event source mapping.
- D. Configure reserved concurrency for the Lambda function that processes the logs.
- E. Increase the batch size in the Kinesis data stream.
- F. Turn off the ReportBatchItemFailures setting in the Lambda event source mapping.
- G. Increase the number of shards in the Kinesis data stream.

**Answer:** ABC

#### Explanation:

The latency in processing and ingesting logs can be caused by several factors, such as the throughput of the Kinesis data stream, the concurrency of the Lambda function, and the configuration of the event source mapping. To reduce the latency, the following steps can be taken:

? Create a data stream consumer with enhanced fan-out. Set the Lambda function that processes the logs as the consumer. This will allow the Lambda function to receive records from the data stream with dedicated throughput of up to 2 MB per second per shard, independent of other consumers<sup>1</sup>. This will reduce the contention and delay in accessing the data stream.

? Increase the ParallelizationFactor setting in the Lambda event source mapping. This will allow the Lambda service to invoke more instances of the function concurrently to process the records from the data stream<sup>2</sup>. This will increase the processing capacity and reduce the backlog of records in the data stream.

? Configure reserved concurrency for the Lambda function that processes the logs. This will ensure that the function has enough concurrency available to handle the increased load from the data stream<sup>3</sup>. This will prevent the function from being throttled by the account-level concurrency limit.

The other options are not effective or may have negative impacts on the latency. Option D is not suitable because increasing the batch size in the Kinesis data stream will increase the amount of data that the Lambda function has to process in each invocation, which may increase the execution time and latency<sup>4</sup>. Option E is not advisable because turning off the ReportBatchItemFailures setting in the Lambda event source mapping will prevent the Lambda service from retrying the failed records, which may result in data loss. Option F is not necessary because increasing the number of shards in the Kinesis data stream will increase the throughput of the data stream, but it will not affect the processing speed of the Lambda function, which is the bottleneck in this scenario.

References:

- ? 1: Using AWS Lambda with Amazon Kinesis Data Streams - AWS Lambda
- ? 2: AWS Lambda event source mappings - AWS Lambda
- ? 3: Managing concurrency for a Lambda function - AWS Lambda
- ? 4: AWS Lambda function scaling - AWS Lambda
- ? : AWS Lambda event source mappings - AWS Lambda
- ? : Scaling Amazon Kinesis Data Streams with AWS CloudFormation - Amazon Kinesis Data Streams

### NEW QUESTION 2

A DevOps engineer is building an application that uses an AWS Lambda function to query an Amazon Aurora MySQL DB cluster. The Lambda function performs only read queries. Amazon EventBridge events invoke the Lambda function.

As more events invoke the Lambda function each second, the database's latency increases and the database's throughput decreases. The DevOps engineer needs to improve the performance of the application.

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

- A. Use Amazon RDS Proxy to create a proxy
- B. Connect the proxy to the Aurora cluster reader endpoint
- C. Set a maximum connections percentage on the proxy.
- D. Implement database connection pooling inside the Lambda code
- E. Set a maximum number of connections on the database connection pool.
- F. Implement the database connection opening outside the Lambda event handler code.
- G. Implement the database connection opening and closing inside the Lambda event handler code.
- H. Connect to the proxy endpoint from the Lambda function.
- I. Connect to the Aurora cluster endpoint from the Lambda function.

**Answer:** ACE

#### Explanation:

To improve the performance of the application, the DevOps engineer should use Amazon RDS Proxy, implement the database connection opening outside the Lambda event handler code, and connect to the proxy endpoint from the Lambda function. References:

? Amazon RDS Proxy is a fully managed, highly available database proxy for Amazon Relational Database Service (RDS) that makes applications more scalable, more resilient to database failures, and more secure<sup>1</sup>. By using Amazon RDS Proxy, the DevOps engineer can reduce the overhead of opening and closing connections to the database, which can improve latency and throughput<sup>2</sup>.

? The DevOps engineer should connect the proxy to the Aurora cluster reader endpoint, which allows read-only connections to one of the Aurora Replicas in the DB cluster<sup>3</sup>. This can help balance the load across multiple read replicas and improve performance for read-intensive workloads<sup>4</sup>.

? The DevOps engineer should implement the database connection opening outside the Lambda event handler code, which means using a global variable to store the database connection object<sup>5</sup>. This can enable connection reuse across multiple invocations of the Lambda function, which can reduce latency and improve performance.

? The DevOps engineer should connect to the proxy endpoint from the Lambda function, which is a unique URL that represents the proxy. This can allow the Lambda function to access the database through the proxy, which can provide benefits such as connection pooling, load balancing, failover handling, and enhanced security.

? The other options are incorrect because:

### NEW QUESTION 3

A company uses AWS Key Management Service (AWS KMS) keys and manual key rotation to meet regulatory compliance requirements. The security team wants to be notified when any keys have not been rotated after 90 days.

Which solution will accomplish this?

- A. Configure AWS KMS to publish to an Amazon Simple Notification Service (Amazon SNS) topic when keys are more than 90 days old.
- B. Configure an Amazon EventBridge event to launch an AWS Lambda function to call the AWS Trusted Advisor API and publish to an Amazon Simple Notification Service (Amazon SNS) topic.
- C. Develop an AWS Config custom rule that publishes to an Amazon Simple Notification Service (Amazon SNS) topic when keys are more than 90 days old.
- D. Configure AWS Security Hub to publish to an Amazon Simple Notification Service (Amazon SNS) topic when keys are more than 90 days old.

**Answer:** C

**Explanation:**

<https://aws.amazon.com/blogs/security/how-to-use-aws-config-to-determine-compliance-of-aws-kms-key-policies-to-your-specifications/>

**NEW QUESTION 4**

A company is developing a new application. The application uses AWS Lambda functions for its compute tier. The company must use a canary deployment for any changes to the Lambda functions. Automated rollback must occur if any failures are reported.

The company's DevOps team needs to create the infrastructure as code (IaC) and the CI/CD pipeline for this solution.

Which combination of steps will meet these requirements? (Choose three.)

- A. Create an AWS CloudFormation template for the applicatio
- B. Define each Lambda function in the template by using the AWS::Lambda::Function resource typ
- C. In the template, include a version for the Lambda function by using the AWS::Lambda::Version resource typ
- D. Declare the CodeSha256 propert
- E. Configure an AWS::Lambda::Alias resource that references the latest version of the Lambda function.
- F. Create an AWS Serverless Application Model (AWS SAM) template for the applicatio
- G. Define each Lambda function in the template by using the AWS::Serverless::Function resource typ
- H. For each function, include configurations for the AutoPublishAlias property and the DeploymentPreference propert
- I. Configure the deployment configuration type to LambdaCanary10Percent10Minutes.
- J. Create an AWS CodeCommit repositor
- K. Create an AWS CodePipeline pipelin
- L. Use the CodeCommit repository in a new source stage that starts the pipelin
- M. Create an AWS CodeBuild project to deploy the AWS Serverless Application Model (AWS SAM) templat
- N. Upload the template and source code to the CodeCommit repositor
- O. In the CodeCommit repository, create a buildspec.yml file that includes the commands to build and deploy the SAM application.
- P. Create an AWS CodeCommit repositor
- Q. Create an AWS CodePipeline pipelin
- R. Use the CodeCommit repository in a new source stage that starts the pipelin
- S. Create an AWS CodeDeploy deployment group that is configured for canary deployments with a DeploymentPreference type of Canary10Percent10Minute
- T. Upload the AWS CloudFormation template and source code to the CodeCommit repositor
- . In the CodeCommit repository, create an appspec.yml file that includes the commands to deploy the CloudFormation template.
- . Create an Amazon CloudWatch composite alarm for all the Lambda function
- . Configure an evaluation period and dimensions for Lambd
- . Configure the alarm to enter the ALARMstate if any errors are detected or if there is insufficient data.
- . Create an Amazon CloudWatch alarm for each Lambda functio
- . Configure the alarms to enter the ALARM state if any errors are detecte
- . Configure an evaluation period, dimensions for each Lambda function and version, and the namespace as AWS/Lambda on the Errors metric.

**Answer:** BCF

**Explanation:**

The requirement is to create the infrastructure as code (IaC) and the CI/CD pipeline for the Lambda application that uses canary deployment and automated rollback. To do this, the DevOps team needs to use the following steps:

? Create an AWS Serverless Application Model (AWS SAM) template for the application. AWS SAM is a framework that simplifies the development and deployment of serverless applications on AWS. AWS SAM allows customers to define Lambda functions and other resources in a template by using a simplified syntax. For each Lambda function, the DevOps team can include configurations for the AutoPublishAlias property and the DeploymentPreference property. The AutoPublishAlias property specifies the name of the alias that points to the latest version of the function. The DeploymentPreference property specifies how CodeDeploy deploys new versions of the function. By configuring the deployment configuration type to LambdaCanary10Percent10Minutes, the DevOps team can enable canary deployment with 10% of traffic shifted to the new version every 10 minutes.

? Create an AWS CodeCommit repository. Create an AWS CodePipeline pipeline.

Use the CodeCommit repository in a new source stage that starts the pipeline. Create an AWS CodeBuild project to deploy the AWS SAM template. CodeCommit is a fully managed source control service that hosts Git repositories. CodePipeline is a fully managed continuous delivery service that automates the release process of software applications. CodeBuild is a fully managed continuous integration service that compiles source code and runs tests. By using these services, the DevOps team can create a CI/CD pipeline for the Lambda application. The pipeline should use the CodeCommit repository as the source stage, where the DevOps team can upload the SAM template and source code. The pipeline should also use a CodeBuild project as the build stage, where the SAM template can be built and deployed.

? Create an Amazon CloudWatch alarm for each Lambda function. Configure the alarms to enter the ALARM state if any errors are detected. Configure an evaluation period, dimensions for each Lambda function and version, and the namespace as AWS/Lambda on the Errors metric. CloudWatch is a service that monitors and collects metrics from AWS resources and applications. CloudWatch alarms are actions that are triggered when a metric crosses a specified threshold. By creating CloudWatch alarms for each Lambda function, the DevOps team can monitor the health and performance of each function version during deployment. By configuring the alarms to enter the ALARM state if any errors are detected, the DevOps team can enable automated rollback if any failures are reported.

**NEW QUESTION 5**

A company runs an application with an Amazon EC2 and on-premises configuration. A DevOps engineer needs to standardize patching across both environments. Company policy dictates that patching only happens during non-business hours.

Which combination of actions will meet these requirements? (Choose three.)

- A. Add the physical machines into AWS Systems Manager using Systems Manager Hybrid Activations.
- B. Attach an IAM role to the EC2 instances, allowing them to be managed by AWS Systems Manager.
- C. Create IAM access keys for the on-premises machines to interact with AWS Systems Manager.
- D. Run an AWS Systems Manager Automation document to patch the systems every hour.
- E. Use Amazon EventBridge scheduled events to schedule a patch window.
- F. Use AWS Systems Manager Maintenance Windows to schedule a patch window.

**Answer:** ABF

**Explanation:**

<https://docs.aws.amazon.com/systems-manager/latest/userguide/sysman-managed-instance-activation.html>

**NEW QUESTION 6**

A company has an application that runs on a fleet of Amazon EC2 instances. The application requires frequent restarts. The application logs contain error messages when a restart is required. The application logs are published to a log group in Amazon CloudWatch Logs.

An Amazon CloudWatch alarm notifies an application engineer through an Amazon Simple Notification Service (Amazon SNS) topic when the logs contain a large number of restart-related error messages. The application engineer manually restarts the application on the instances after the application engineer receives a notification from the SNS topic.

A DevOps engineer needs to implement a solution to automate the application restart on the instances without restarting the instances.

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

- A. Configure an AWS Systems Manager Automation runbook that runs a script to restart the application on the instance
- B. Configure the SNS topic to invoke the runbook.
- C. Create an AWS Lambda function that restarts the application on the instance
- D. Configure the Lambda function as an event destination of the SNS topic.
- E. Configure an AWS Systems Manager Automation runbook that runs a script to restart the application on the instance
- F. Create an AWS Lambda function to invoke the runbook
- G. Configure the Lambda function as an event destination of the SNS topic.
- H. Configure an AWS Systems Manager Automation runbook that runs a script to restart the application on the instance
- I. Configure an Amazon EventBridge rule that reacts when the CloudWatch alarm enters ALARM state
- J. Specify the runbook as a target of the rule.

**Answer:** D

**Explanation:**

This solution meets the requirements in the most operationally efficient manner by automating the application restart process on the instances without restarting them. When the CloudWatch alarm enters the ALARM state, the EventBridge rule is triggered, which in turn invokes the Systems Manager Automation runbook that contains the script to restart the application on the instances.

**NEW QUESTION 7**

A development team uses AWS CodeCommit, AWS CodePipeline, and AWS CodeBuild to develop and deploy an application. Changes to the code are submitted by pull requests. The development team reviews and merges the pull requests, and then the pipeline builds and tests the application.

Over time, the number of pull requests has increased. The pipeline is frequently blocked because of failing tests. To prevent this blockage, the development team wants to run the unit and integration tests on each pull request before it is merged.

Which solution will meet these requirements?

- A. Create a CodeBuild project to run the unit and integration test
- B. Create a CodeCommit approval rule template
- C. Configure the template to require the successful invocation of the CodeBuild project
- D. Attach the approval rule to the project's CodeCommit repository.
- E. Create an Amazon EventBridge rule to match pullRequestCreated events from CodeCommit. Create a CodeBuild project to run the unit and integration test
- F. Configure the CodeBuild project as a target of the EventBridge rule that includes a custom event payload with the CodeCommit repository and branch information from the event.
- G. Create an Amazon EventBridge rule to match pullRequestCreated events from CodeCommit
- H. Modify the existing CodePipeline pipeline to not run the deploy steps if the build is started from a pull request
- I. Configure the EventBridge rule to run the pipeline with a custom payload that contains the CodeCommit repository and branch information from the event.
- J. Create a CodeBuild project to run the unit and integration test
- K. Create a CodeCommit notification rule that matches when a pull request is created or updated
- L. Configure the notification rule to invoke the CodeBuild project.

**Answer:** B

**Explanation:**

CodeCommit generates events in CloudWatch, CloudWatch triggers the CodeBuild <https://aws.amazon.com/es/blogs/devops/complete-ci-cd-with-aws-codecommit-aws-codebuild-aws-codedeploy-and-aws-codepipeline/>

**NEW QUESTION 8**

A company uses an organization in AWS Organizations to manage its AWS accounts. The company recently acquired another company that has standalone AWS accounts. The acquiring company's DevOps team needs to consolidate the administration of the AWS accounts for both companies and retain full administrative control of the accounts. The DevOps team also needs to collect and group findings across all the accounts to implement and maintain a security posture.

Which combination of steps should the DevOps team take to meet these requirements? (Select TWO.)

- A. Invite the acquired company's AWS accounts to join the organization
- B. Create an SCP that has full administrative privilege
- C. Attach the SCP to the management account.
- D. Invite the acquired company's AWS accounts to join the organization
- E. Create the OrganizationAccountAccessRole IAM role in the invited account
- F. Grant permission to the management account to assume the role.
- G. Use AWS Security Hub to collect and group findings across all accounts
- H. Use Security Hub to automatically detect new accounts as the accounts are added to the organization.
- I. Use AWS Firewall Manager to collect and group findings across all accounts
- J. Enable all features for the organization
- K. Designate an account in the organization as the delegated administrator account for Firewall Manager.
- L. Use Amazon Inspector to collect and group findings across all accounts
- M. Designate an account in the organization as the delegated administrator account for Amazon Inspector.

**Answer:** BC

**Explanation:**

The correct answer is B and C. Option B is correct because inviting the acquired company's AWS accounts to join the organization and creating the OrganizationAccountAccessRole IAM role in the invited accounts allows the management account to assume the role and gain full administrative access to the member accounts. Option C is correct because using AWS Security Hub to collect and group findings across all accounts enables the DevOps team to monitor and improve the security posture of the organization. Security Hub can automatically detect new accounts as the accounts are added to the organization and enable Security Hub for them. Option A is incorrect because creating an SCP that has full administrative privileges and attaching it to the management account does not grant the management account access to the member accounts. SCPs are used to restrict the permissions of the member accounts, not to grant permissions to the management account. Option D is incorrect because using AWS Firewall Manager to collect and group findings across all accounts is not a valid use case for Firewall Manager. Firewall Manager is used to centrally configure and manage firewall rules across the organization, not to collect and group security findings. Option E is incorrect because using Amazon Inspector to collect and group findings across all accounts is not a valid use case for Amazon Inspector. Amazon Inspector is used to assess the security and compliance of applications running on Amazon EC2 instances, not to collect and group security findings across accounts. References:

- ? Inviting an AWS account to join your organization
- ? Enabling and disabling AWS Security Hub
- ? Service control policies
- ? AWS Firewall Manager
- ? Amazon Inspector

**NEW QUESTION 9**

A company is testing a web application that runs on Amazon EC2 instances behind an Application Load Balancer. The instances run in an Auto Scaling group across multiple Availability Zones. The company uses a blue green deployment process with immutable instances when deploying new software. During testing users are being automatically logged out of the application at random times. Testers also report that when a new version of the application is deployed all users are logged out. The development team needs a solution to ensure users remain logged in across scaling events and application deployments. What is the MOST operationally efficient way to ensure users remain logged in?

- A. Enable smart sessions on the load balancer and modify the application to check for an existing session.
- B. Enable session sharing on the load balancer and modify the application to read from the session store.
- C. Store user session information in an Amazon S3 bucket and modify the application to read session information from the bucket.
- D. Modify the application to store user session information in an Amazon ElastiCache cluster.

**Answer:** D

**Explanation:**

<https://aws.amazon.com/caching/session-management/>

**NEW QUESTION 10**

A DevOps engineer is planning to deploy a Ruby-based application to production. The application needs to interact with an Amazon RDS for MySQL database and should have automatic scaling and high availability. The stored data in the database is critical and should persist regardless of the state of the application stack. The DevOps engineer needs to set up an automated deployment strategy for the application with automatic rollbacks. The solution also must alert the application team when a deployment fails.

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

- A. Deploy the application on AWS Elastic Beanstalk
- B. Deploy an Amazon RDS for MySQL DB instance as part of the Elastic Beanstalk configuration.
- C. Deploy the application on AWS Elastic Beanstalk
- D. Deploy a separate Amazon RDS for MySQL DB instance outside of Elastic Beanstalk.
- E. Configure a notification email address that alerts the application team in the AWS Elastic Beanstalk configuration.
- F. Configure an Amazon EventBridge rule to monitor AWS Health event
- G. Use an Amazon Simple Notification Service (Amazon SNS) topic as a target to alert the application team.
- H. Use the immutable deployment method to deploy new application versions.
- I. Use the rolling deployment method to deploy new application versions.

**Answer:** BDE

**Explanation:**

For deploying a Ruby-based application with requirements for interaction with an Amazon RDS for MySQL database, automatic scaling, high availability, and data persistence, the following steps will meet the requirements:

- ? B. Deploy the application on AWS Elastic Beanstalk. Deploy a separate Amazon RDS for MySQL DB instance outside of Elastic Beanstalk. This approach ensures that the database persists independently of the Elastic Beanstalk environment, which can be torn down and recreated without affecting the database123.
- ? E. Use the immutable deployment method to deploy new application versions. Immutable deployments provide a zero-downtime deployment method that ensures that if any part of the deployment process fails, the environment is rolled back to the original state automatically4.
- ? D. Configure an Amazon EventBridge rule to monitor AWS Health events. Use an Amazon Simple Notification Service (Amazon SNS) topic as a target to alert the application team. This setup allows for automated monitoring and alerting of the application team in case of deployment failures or other health events56.

References:

- ? AWS Elastic Beanstalk documentation on deploying Ruby applications1.
- ? AWS documentation on application auto-scaling7.
- ? AWS documentation on automated deployment strategies with automatic rollbacks and alerts456.

**NEW QUESTION 10**

A space exploration company receives telemetry data from multiple satellites. Small packets of data are received through Amazon API Gateway and are placed directly into an Amazon Simple Queue Service (Amazon SQS) standard queue. A custom application is subscribed to the queue and transforms the data into a standard format.

Because of inconsistencies in the data that the satellites produce, the application is occasionally unable to transform the data. In these cases, the messages remain in the SQS queue. A DevOps engineer must develop a solution that retains the failed messages and makes them available to scientists for review and future processing.

Which solution will meet these requirements?

- A. Configure AWS Lambda to poll the SQS queue and invoke a Lambda function to check whether the queue messages are valid
- B. If validation fails, send a copy of the data that is not valid to an Amazon S3 bucket so that the scientists can review and correct the data
- C. When the data is corrected, amend the message in the SQS queue by using a replay Lambda function with the corrected data.
- D. Convert the SQS standard queue to an SQS FIFO queue
- E. Configure AWS Lambda to poll the SQS queue every 10 minutes by using an Amazon EventBridge schedule
- F. Invoke the Lambda function to identify any messages with a SentTimestamp value that is older than 5 minutes, push the data to the same location as the application's output location, and remove the messages from the queue.
- G. Create an SQS dead-letter queue
- H. Modify the existing queue by including a redrive policy that sets the Maximum Receives setting to 1 and sets the dead-letter queue ARN to the ARN of the newly created queue
- I. Instruct the scientists to use the dead-letter queue to review the data that is not valid
- J. Reprocess this data at a later time.
- K. Configure API Gateway to send messages to different SQS virtual queues that are named for each of the satellites
- L. Update the application to use a new virtual queue for any data that it cannot transform, and send the message to the new virtual queue
- M. Instruct the scientists to use the virtual queue to review the data that is not valid
- N. Reprocess this data at a later time.

**Answer: C**

**Explanation:**

Create an SQS dead-letter queue. Modify the existing queue by including a redrive policy that sets the Maximum Receives setting to 1 and sets the dead-letter queue ARN to the ARN of the newly created queue. Instruct the scientists to use the dead-letter queue to review the data that is not valid. Reprocess this data at a later time.

**NEW QUESTION 11**

A company has configured an Amazon S3 event source on an AWS Lambda function. The company needs the Lambda function to run when a new object is created or an existing object is modified in a particular S3 bucket. The Lambda function will use the S3 bucket name and the S3 object key of the incoming event to read the contents of the created or modified S3 object. The Lambda function will parse the contents and save the parsed contents to an Amazon DynamoDB table. The Lambda function's execution role has permissions to read from the S3 bucket and to write to the DynamoDB table. During testing, a DevOps engineer discovers that the Lambda function does not run when objects are added to the S3 bucket or when existing objects are modified. Which solution will resolve this problem?

- A. Increase the memory of the Lambda function to give the function the ability to process large files from the S3 bucket.
- B. Create a resource policy on the Lambda function to grant Amazon S3 the permission to invoke the Lambda function for the S3 bucket.
- C. Configure an Amazon Simple Queue Service (Amazon SQS) queue as an On-Failure destination for the Lambda function.
- D. Provision space in the /tmp folder of the Lambda function to give the function the ability to process large files from the S3 bucket.

**Answer: B**

**Explanation:**

? Option A is incorrect because increasing the memory of the Lambda function does not address the root cause of the problem, which is that the Lambda function is not triggered by the S3 event source. Increasing the memory of the Lambda function might improve its performance or reduce its execution time, but it does not affect its invocation. Moreover, increasing the memory of the Lambda function might incur higher costs, as Lambda charges based on the amount of memory allocated to the function.

? Option B is correct because creating a resource policy on the Lambda function to grant Amazon S3 the permission to invoke the Lambda function for the S3 bucket is a necessary step to configure an S3 event source. A resource policy is a JSON document that defines who can access a Lambda resource and under what conditions. By granting Amazon S3 permission to invoke the Lambda function, the company ensures that the Lambda function runs when a new object is created or an existing object is modified in the S3 bucket.

? Option C is incorrect because configuring an Amazon Simple Queue Service (Amazon SQS) queue as an On-Failure destination for the Lambda function does not help with triggering the Lambda function. An On-Failure destination is a feature that allows Lambda to send events to another service, such as SQS or Amazon Simple Notification Service (Amazon SNS), when a function invocation fails. However, this feature only applies to asynchronous invocations, and S3 event sources use synchronous invocations. Therefore, configuring an SQS queue as an On-Failure destination would have no effect on the problem.

? Option D is incorrect because provisioning space in the /tmp folder of the Lambda function does not address the root cause of the problem, which is that the Lambda function is not triggered by the S3 event source. Provisioning space in the /tmp folder of the Lambda function might help with processing large files from the S3 bucket, as it provides temporary storage for up to 512 MB of data. However, it does not affect the invocation of the Lambda function.

References:

- ? Using AWS Lambda with Amazon S3
- ? Lambda resource access permissions
- ? AWS Lambda destinations
- ? [AWS Lambda file system]

**NEW QUESTION 14**

A company uses AWS CodeCommit for source code control. Developers apply their changes to various feature branches and create pull requests to move those changes to the main branch when the changes are ready for production.

The developers should not be able to push changes directly to the main branch. The company applied the AWSCodeCommitPowerUser managed policy to the developers' IAM role, and now these developers can push changes to the main branch directly on every repository in the AWS account.

What should the company do to restrict the developers' ability to push changes to the main branch directly?

- A. Create an additional policy to include a Deny rule for the GitPush and PutFile action
- B. Include a restriction for the specific repositories in the policy statement with a condition that references the main branch.
- C. Remove the IAM policy, and add an AWSCodeCommitReadOnly managed policy
- D. Add an Allow rule for the GitPush and PutFile actions for the specific repositories in the policy statement with a condition that references the main branch.
- E. Modify the IAM policy. Include a Deny rule for the GitPush and PutFile actions for the specific repositories in the policy statement with a condition that references the main branch.
- F. Create an additional policy to include an Allow rule for the GitPush and PutFile action
- G. Include a restriction for the specific repositories in the policy statement with a condition that references the feature branches.

**Answer:** A

**Explanation:**

By default, the AWSCodeCommitPowerUser managed policy allows users to push changes to any branch in any repository in the AWS account. To restrict the developers' ability to push changes to the main branch directly, an additional policy is needed that explicitly denies these actions for the main branch. The Deny rule should be included in a policy statement that targets the specific repositories and includes a condition that references the main branch. The policy statement should look something like this:

```
{
"Effect": "Deny", "Action": [ "codecommit:GitPush", "codecommit:PutFile"
],
"Resource": "arn:aws:codecommit:<region>:<account-id>:<repository-name>", "Condition": {
"StringEqualsIfExists": { "codecommit:References": [ "refs/heads/main"
]
}
}
}
```

**NEW QUESTION 18**

A company has an application that runs on Amazon EC2 instances that are in an Auto Scaling group. When the application starts up, the application needs to process data from an Amazon S3 bucket before the application can start to serve requests.

The size of the data that is stored in the S3 bucket is growing. When the Auto Scaling group adds new instances, the application now takes several minutes to download and process the data before the application can serve requests. The company must reduce the time that elapses before new EC2 instances are ready to serve requests.

Which solution is the MOST cost-effective way to reduce the application startup time?

- A. Configure a warm pool for the Auto Scaling group with warmed EC2 instances in the Stopped state
- B. Configure an autoscaling:EC2\_INSTANCE\_LAUNCHING lifecycle hook on the Auto Scaling group
- C. Modify the application to complete the lifecycle hook when the application is ready to serve requests.
- D. Increase the maximum instance count of the Auto Scaling group
- E. Configure an autoscaling:EC2\_INSTANCE\_LAUNCHING lifecycle hook on the Auto Scaling group
- F. Modify the application to complete the lifecycle hook when the application is ready to serve requests.
- G. Configure a warm pool for the Auto Scaling group with warmed EC2 instances in the Running state
- H. Configure an autoscaling:EC2\_INSTANCE\_LAUNCHING lifecycle hook on the Auto Scaling group
- I. Modify the application to complete the lifecycle hook when the application is ready to serve requests.
- J. Increase the maximum instance count of the Auto Scaling group
- K. Configure an autoscaling:EC2\_INSTANCE\_LAUNCHING lifecycle hook on the Auto Scaling group
- L. Modify the application to complete the lifecycle hook and to place the new instance in the Standby state when the application is ready to serve requests.

**Answer:** A

**Explanation:**

Option A is the most cost-effective solution. By configuring a warm pool of EC2 instances in the Stopped state, the company can reduce the time it takes for new instances to be ready to serve requests. When the Auto Scaling group launches a new instance, it can attach the stopped EC2 instance from the warm pool. The instance can then be started up immediately, rather than having to wait for the data to be downloaded and processed. This reduces the overall startup time for the application.

**NEW QUESTION 22**

A company uses AWS Directory Service for Microsoft Active Directory as its identity provider (IdP). The company requires all infrastructure to be defined and deployed by AWS CloudFormation.

A DevOps engineer needs to create a fleet of Windows-based Amazon EC2 instances to host an application. The DevOps engineer has created a CloudFormation template that contains an EC2 launch template, IAM role, EC2 security group, and EC2 Auto Scaling group. The DevOps engineer must implement a solution that joins all EC2 instances to the domain of the AWS Managed Microsoft AD directory.

Which solution will meet these requirements with the MOST operational efficiency?

- A. In the CloudFormation template, create an AWS::SSM::Document resource that joins the EC2 instance to the AWS Managed Microsoft AD domain by using the parameters for the existing director
- B. Update the launch template to include the SSMAssociation property to use the new SSM document
- C. Attach the AmazonSSMManagedInstanceCore and AmazonSSMDirectoryServiceAccess AWS managed policies to the IAM role that the EC2 instances use.
- D. In the CloudFormation template, update the launch template to include specific tags that propagate on launch
- E. Create an AWS::SSM::Association resource to associate the AWS- JoinDirectoryServiceDomain Automation runbook with the EC2 instances that have the specified tag
- F. Define the required parameters to join the AWS Managed Microsoft AD director
- G. Attach the AmazonSSMManagedInstanceCore and AmazonSSMDirectoryServiceAccess AWS managed policies to the IAM role that the EC2 instances use.
- H. Store the existing AWS Managed Microsoft AD domain connection details in AWS Secrets Manager
- I. In the CloudFormation template, create an AWS::SSM::Association resource to associate the AWS-CreateManagedWindowsInstanceWithApproval Automation runbook with the EC2 Auto Scaling group
- J. Pass the ARNs for the parameters from Secrets Manager to join the domain
- K. Attach the AmazonSSMDirectoryServiceAccess and SecretsManagerReadWrite AWS managed policies to the IAM role that the EC2 instances use.
- L. Store the existing AWS Managed Microsoft AD domain administrator credentials in AWS Secrets Manager
- M. In the CloudFormation template, update the EC2 launch template to include user data
- N. Configure the user data to pull the administrator credentials from Secrets Manager and to join the AWS Managed Microsoft AD domain
- O. Attach the AmazonSSMManagedInstanceCore and SecretsManagerReadWrite AWS managed policies to the IAM role that the EC2 instances use.

**Answer:** B

**Explanation:**

To meet the requirements, the DevOps engineer needs to create a solution that joins all EC2 instances to the domain of the AWS Managed Microsoft AD directory with the most operational efficiency. The DevOps engineer can use AWS Systems Manager Automation to automate the domain join process using an existing runbook called AWS- JoinDirectoryServiceDomain. This runbook can join Windows instances to an AWS Managed Microsoft AD or Simple AD directory by using PowerShell commands. The DevOps engineer can create an AWS::SSM::Association resource in the CloudFormation template to associate the runbook with the EC2 instances that have specific tags. The tags can be defined in the launch template and propagated on launch to the EC2 instances. The DevOps engineer can also define the required parameters for the runbook, such as the directory ID, directory name, and organizational unit. The DevOps engineer can attach the

AmazonSSMManagedInstanceCore and AmazonSSMDirectoryServiceAccess AWS managed policies to the IAM role that the EC2 instances use. These policies grant the necessary permissions for Systems Manager and Directory Service operations.

#### NEW QUESTION 24

A company builds an application that uses an Application Load Balancer in front of Amazon EC2 instances that are in an Auto Scaling group. The application is stateless. The Auto Scaling group uses a custom AMI that is fully prebuilt. The EC2 instances do not have a custom bootstrapping process. The AMI that the Auto Scaling group uses was recently deleted. The Auto Scaling group's scaling activities show failures because the AMI ID does not exist. Which combination of steps should a DevOps engineer take to meet these requirements? (Select THREE.)

- A. Create a new launch template that uses the new AMI.
- B. Update the Auto Scaling group to use the new launch template.
- C. Reduce the Auto Scaling group's desired capacity to 0.
- D. Increase the Auto Scaling group's desired capacity by 1.
- E. Create a new AMI from a running EC2 instance in the Auto Scaling group.
- F. Create a new AMI by copying the most recent public AMI of the operating system that the EC2 instances use.

**Answer:** ABF

#### Explanation:

To restore the functionality of the Auto Scaling group after the AMI was deleted, the DevOps engineer needs to create a new AMI and update the Auto Scaling group to use it. The DevOps engineer can create a new AMI by copying the most recent public AMI of the operating system that the EC2 instances use. This will ensure that the new AMI has the same operating system as the custom AMI that was deleted. The DevOps engineer can then create a new launch template that uses the new AMI and update the Auto Scaling group to use the new launch template. This will allow the Auto Scaling group to launch new instances with the new AMI.

#### NEW QUESTION 26

A company has developed an AWS Lambda function that handles orders received through an API. The company is using AWS CodeDeploy to deploy the Lambda function as the final stage of a CI/CD pipeline.

A DevOps engineer has noticed there are intermittent failures of the ordering API for a few seconds after deployment. After some investigation the DevOps engineer believes the failures are due to database changes not having fully propagated before the Lambda function is invoked. How should the DevOps engineer overcome this?

- A. Add a BeforeAllowTraffic hook to the AppSpec file that tests and waits for any necessary database changes before traffic can flow to the new version of the Lambda function.
- B. Add an AfterAllowTraffic hook to the AppSpec file that forces traffic to wait for any pending database changes before allowing the new version of the Lambda function to respond.
- C. Add a BeforeAllowTraffic hook to the AppSpec file that tests and waits for any necessary database changes before deploying the new version of the Lambda function.
- D. Add a validateService hook to the AppSpec file that inspects incoming traffic and rejects the payload if dependent services such as the database are not yet ready.

**Answer:** A

#### Explanation:

<https://docs.aws.amazon.com/codedeploy/latest/userguide/reference-appspec-file-structure-hooks.html#appspec-hooks-lambda>

#### NEW QUESTION 30

A company's application uses a fleet of Amazon EC2 On-Demand Instances to analyze and process data. The EC2 instances are in an Auto Scaling group. The Auto Scaling group is a target group for an Application Load Balancer (ALB). The application analyzes critical data that cannot tolerate interruption. The application also analyzes noncritical data that can withstand interruption.

The critical data analysis requires quick scalability in response to real-time application demand. The noncritical data analysis involves memory consumption. A DevOps engineer must implement a solution that reduces scale-out latency for the critical data. The solution also must process the noncritical data.

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

- A. For the critical data, modify the existing Auto Scaling group
- B. Create a warm pool instance in the stopped state
- C. Define the warm pool size
- D. Create a new version of the launch template that has detailed monitoring enabled
- E. Use Spot Instances.
- F. For the critical data, modify the existing Auto Scaling group
- G. Create a warm pool instance in the stopped state
- H. Define the warm pool size
- I. Create a new version of the launch template that has detailed monitoring enabled
- J. Use On-Demand Instances.
- K. For the critical data
- L. Modify the existing Auto Scaling group
- M. Create a lifecycle hook to ensure that bootstrap scripts are completed successfully
- N. Ensure that the application on the instances is ready to accept traffic before the instances are registered
- O. Create a new version of the launch template that has detailed monitoring enabled.
- P. For the noncritical data, create a second Auto Scaling group that uses a launch template
- Q. Configure the launch template to install the unified Amazon CloudWatch agent and to configure the CloudWatch agent with a custom memory utilization metric
- R. Use Spot Instances
- S. Add the new Auto Scaling group as the target group for the ALB
- T. Modify the application to use two target groups for critical data and noncritical data.
- U. For the noncritical data, create a second Auto Scaling group
- V. Choose the predefined memory utilization metric type for the target tracking scaling policy
- W. Use Spot Instances
- X. Add the new Auto Scaling group as the target group for the ALB
- Y. Modify the application to use two target groups for critical data and noncritical data.

**Answer:** BD

**Explanation:**

? For the critical data, using a warm pool<sup>1</sup> can reduce the scale-out latency by having pre-initialized EC2 instances ready to serve the application traffic. Using On-Demand Instances can ensure that the instances are always available and not interrupted by Spot interruptions<sup>2</sup>.

? For the noncritical data, using a second Auto Scaling group with Spot Instances can reduce the cost and leverage the unused capacity of EC2<sup>3</sup>. Using a launch template with the CloudWatch agent<sup>4</sup> can enable the collection of memory utilization metrics, which can be used to scale the group based on the memory demand. Adding the second group as a target group for the ALB and modifying the application to use two target groups can enable routing the traffic based on the data type.

References: 1: Warm pools for Amazon EC2 Auto Scaling 2: Amazon EC2 On-Demand Capacity Reservations 3: Amazon EC2 Spot Instances 4: Metrics collected by the CloudWatch agent

**NEW QUESTION 35**

A company is hosting a static website from an Amazon S3 bucket. The website is available to customers at example.com. The company uses an Amazon Route 53 weighted routing policy with a TTL of 1 day. The company has decided to replace the existing static website with a dynamic web application. The dynamic web application uses an Application Load Balancer (ALB) in front of a fleet of Amazon EC2 instances.

On the day of production launch to customers, the company creates an additional Route 53 weighted DNS record entry that points to the ALB with a weight of 255 and a TTL of 1 hour. Two days later, a DevOps engineer notices that the previous static website is displayed sometimes when customers navigate to example.com.

How can the DevOps engineer ensure that the company serves only dynamic content for example.com?

- A. Delete all objects, including previous versions, from the S3 bucket that contains the static website content.
- B. Update the weighted DNS record entry that points to the S3 bucket.
- C. Apply a weight of 0. Specify the domain reset option to propagate changes immediately.
- D. Configure webpage redirect requests on the S3 bucket with a hostname that redirects to the ALB.
- E. Remove the weighted DNS record entry that points to the S3 bucket from the example.com hosted zone.
- F. Wait for DNS propagation to become complete.

**Answer:** D

**NEW QUESTION 38**

A company uses AWS Storage Gateway in file gateway mode in front of an Amazon S3 bucket that is used by multiple resources. In the morning when business begins, users do not see the objects processed by a third party the previous evening. When a DevOps engineer looks directly at the S3 bucket, the data is there, but it is missing in Storage Gateway.

Which solution ensures that all the updated third-party files are available in the morning?

- A. Configure a nightly Amazon EventBridge event to invoke an AWS Lambda function to run the RefreshCache command for Storage Gateway.
- B. Instruct the third party to put data into the S3 bucket using AWS Transfer for SFTP.
- C. Modify Storage Gateway to run in volume gateway mode.
- D. Use S3 Same-Region Replication to replicate any changes made directly in the S3 bucket to Storage Gateway.

**Answer:** A

**Explanation:**

[https://docs.aws.amazon.com/storagegateway/latest/APIReference/API\\_RefreshCache.html](https://docs.aws.amazon.com/storagegateway/latest/APIReference/API_RefreshCache.html) " It only updates the cached inventory to reflect changes in the inventory of the objects in the S3 bucket. This operation is only supported in the S3 File Gateway types."

**NEW QUESTION 40**

A business has an application that consists of five independent AWS Lambda functions.

The DevOps engineer has built a CI/CD pipeline using AWS CodePipeline and AWS CodeBuild that builds tests packages and deploys each Lambda function in sequence. The pipeline uses an Amazon EventBridge rule to ensure the pipeline starts as quickly as possible after a change is made to the application source code.

After working with the pipeline for a few months the DevOps engineer has noticed the pipeline takes too long to complete.

What should the DevOps engineer implement to BEST improve the speed of the pipeline?

- A. Modify the CodeBuild projects within the pipeline to use a compute type with more available network throughput.
- B. Create a custom CodeBuild execution environment that includes a symmetric multiprocessing configuration to run the builds in parallel.
- C. Modify the CodePipeline configuration to run actions for each Lambda function in parallel by specifying the same runOrder.
- D. Modify each CodeBuild project to run within a VPC and use dedicated instances to increase throughput.

**Answer:** C

**Explanation:**

<https://docs.aws.amazon.com/codepipeline/latest/userguide/reference-pipeline-structure.html>

AWS doc: "To specify parallel actions, use the same integer for each action you want to run in parallel. For example, if you want three actions to run in sequence in a stage, you would give the first action the runOrder value of 1, the second action the runOrder value of 2, and the third the runOrder value of 3. However, if you want the second and third actions to run in parallel, you would give the first action the runOrder value of 1 and both the second and third actions the runOrder value of 2."

**NEW QUESTION 43**

A company has an application that includes AWS Lambda functions. The Lambda functions run Python code that is stored in an AWS CodeCommit repository. The company has recently experienced failures in the production environment because of an error in the Python code. An engineer has written unit tests for the Lambda functions to help avoid releasing any future defects into the production environment.

The company's DevOps team needs to implement a solution to integrate the unit tests into an existing AWS CodePipeline pipeline. The solution must produce reports about the unit tests for the company to view.

Which solution will meet these requirements?

- A. Associate the CodeCommit repository with Amazon CodeGuru Reviewer
- B. Create a new AWS CodeBuild project

- C. In the CodePipeline pipeline, configure a test stage that uses the new CodeBuild project
- D. Create a buildspec.yml file in the CodeCommit repository
- E. In the buildspec.yml file, define the actions to run a CodeGuru review.
- F. Create a new AWS CodeBuild project
- G. In the CodePipeline pipeline, configure a test stage that uses the new CodeBuild project
- H. Create a CodeBuild report group
- I. Create a buildspec.yml file in the CodeCommit repository
- J. In the buildspec.yml file, define the actions to run the unit tests with an output of JUNITXML in the build phase section. Configure the test reports to be uploaded to the new CodeBuild report group.
- K. Create a new AWS CodeArtifact repository
- L. Create a new AWS CodeBuild project
- M. In the CodePipeline pipeline, configure a test stage that uses the new CodeBuild project
- N. Create an appspec.yml file in the original CodeCommit repository
- O. In the appspec.yml file, define the actions to run the unit tests with an output of CUCUMBERJSON in the build phase section
- P. Configure the test reports to be sent to the new CodeArtifact repository.
- Q. Create a new AWS CodeBuild project
- R. In the CodePipeline pipeline, configure a test stage that uses the new CodeBuild project
- S. Create a new Amazon S3 bucket
- T. Create a buildspec.yml file in the CodeCommit repository
- . In the buildspec.yml file, define the actions to run the unit tests with an output of HTML in the phases section
- . In the reports section, upload the test reports to the S3 bucket.

**Answer: B**

**Explanation:**

The correct answer is B. Creating a new AWS CodeBuild project and configuring a test stage in the AWS CodePipeline pipeline that uses the new CodeBuild project is the best way to integrate the unit tests into the existing pipeline. Creating a CodeBuild report group and uploading the test reports to the new CodeBuild report group will produce reports about the unit tests for the company to view. Using JUNITXML as the output format for the unit tests is supported by CodeBuild and will generate a valid report. Option A is incorrect because Amazon CodeGuru Reviewer is a service that provides automated code reviews and recommendations for improving code quality and performance. It is not a tool for running unit tests or producing test reports. Therefore, option A will not meet the requirements.

Option C is incorrect because AWS CodeArtifact is a service that provides secure, scalable, and cost-effective artifact management for software development. It is not a tool for running unit tests or producing test reports. Moreover, option C uses CUCUMBERJSON as the output format for the unit tests, which is not supported by CodeBuild and will not generate a valid report.

Option D is incorrect because uploading the test reports to an Amazon S3 bucket is not the best way to produce reports about the unit tests for the company to view. CodeBuild has a built-in feature to create and manage test reports, which is more convenient and efficient than using S3. Furthermore, option D uses HTML as the output format for the unit tests, which is not supported by CodeBuild and will not generate a valid report.

**NEW QUESTION 44**

The security team depends on AWS CloudTrail to detect sensitive security issues in the company's AWS account. The DevOps engineer needs a solution to auto-remediate CloudTrail being turned off in an AWS account.

What solution ensures the LEAST amount of downtime for the CloudTrail log deliveries?

- A. Create an Amazon EventBridge rule for the CloudTrail StopLogging event
- B. Create an AWS Lambda function that uses the AWS SDK to call StartLogging on the ARN of the resource in which StopLogging was called
- C. Add the Lambda function ARN as a target to the EventBridge rule.
- D. Deploy the AWS-managed CloudTrail-enabled AWS Config rule set with a periodic interval to 1 hour
- E. Create an Amazon EventBridge rule for AWS Config rules compliance changes
- F. Create an AWS Lambda function that uses the AWS SDK to call StartLogging on the ARN of the resource in which StopLogging was called
- G. Add the Lambda function ARN as a target to the EventBridge rule.
- H. Create an Amazon EventBridge rule for a scheduled event every 5 minutes
- I. Create an AWS Lambda function that uses the AWS SDK to call StartLogging on a CloudTrail trail in the AWS account
- J. Add the Lambda function ARN as a target to the EventBridge rule.
- K. Launch a t2 nano instance with a script running every 5 minutes that uses the AWS SDK to query CloudTrail in the current account
- L. If the CloudTrail trail is disabled have the script re-enable the trail.

**Answer: A**

**Explanation:**

<https://aws.amazon.com/blogs/mt/monitor-changes-and-auto-enable-logging-in-aws-cloudtrail/>

**NEW QUESTION 45**

A company must encrypt all AMIs that the company shares across accounts. A DevOps engineer has access to a source account where an unencrypted custom AMI has been built. The DevOps engineer also has access to a target account where an Amazon EC2 Auto Scaling group will launch EC2 instances from the AMI. The DevOps engineer must share the AMI with the target account.

The company has created an AWS Key Management Service (AWS KMS) key in the source account.

Which additional steps should the DevOps engineer perform to meet the requirements? (Choose three.)

- A. In the source account, copy the unencrypted AMI to an encrypted AMI
- B. Specify the KMS key in the copy action.
- C. In the source account, copy the unencrypted AMI to an encrypted AMI
- D. Specify the default Amazon Elastic Block Store (Amazon EBS) encryption key in the copy action.
- E. In the source account, create a KMS grant that delegates permissions to the Auto Scaling group service-linked role in the target account.
- F. In the source account, modify the key policy to give the target account permissions to create a grant
- G. In the target account, create a KMS grant that delegates permissions to the Auto Scaling group service-linked role.
- H. In the source account, share the unencrypted AMI with the target account.
- I. In the source account, share the encrypted AMI with the target account.

**Answer: ADF**

**Explanation:**

The Auto Scaling group service-linked role must have a specific grant in the source account in order to decrypt the encrypted AMI. This is because the service-linked role does not have permissions to assume the default IAM role in the source account. The following steps are required to meet the requirements:

- ? In the source account, copy the unencrypted AMI to an encrypted AMI. Specify the KMS key in the copy action.
- ? In the source account, create a KMS grant that delegates permissions to the Auto Scaling group service-linked role in the target account.
- ? In the source account, share the encrypted AMI with the target account.
- ? In the target account, attach the KMS grant to the Auto Scaling group service-linked role.

The first three steps are the same as the steps that I described earlier. The fourth step is required to grant the Auto Scaling group service-linked role permissions to decrypt the AMI in the target account.

**NEW QUESTION 46**

An online retail company based in the United States plans to expand its operations to Europe and Asia in the next six months. Its product currently runs on Amazon EC2 instances behind an Application Load Balancer. The instances run in an Amazon EC2 Auto Scaling group across multiple Availability Zones. All data is stored in an Amazon Aurora database instance.

When the product is deployed in multiple regions, the company wants a single product catalog across all regions, but for compliance purposes, its customer information and purchases must be kept in each region.

How should the company meet these requirements with the LEAST amount of application changes?

- A. Use Amazon Redshift for the product catalog and Amazon DynamoDB tables for the customer information and purchases.
- B. Use Amazon DynamoDB global tables for the product catalog and regional tables for the customer information and purchases.
- C. Use Aurora with read replicas for the product catalog and additional local Aurora instances in each region for the customer information and purchases.
- D. Use Aurora for the product catalog and Amazon DynamoDB global tables for the customer information and purchases.

**Answer: C**

**NEW QUESTION 49**

A company has a single AWS account that runs hundreds of Amazon EC2 instances in a single AWS Region. New EC2 instances are launched and terminated each hour in the account. The account also includes existing EC2 instances that have been running for longer than a week.

The company's security policy requires all running EC2 instances to use an EC2 instance profile. If an EC2 instance does not have an instance profile attached, the EC2 instance must use a default instance profile that has no IAM permissions assigned.

A DevOps engineer reviews the account and discovers EC2 instances that are running without an instance profile. During the review, the DevOps engineer also observes that new EC2 instances are being launched without an instance profile.

Which solution will ensure that an instance profile is attached to all existing and future EC2 instances in the Region?

- A. Configure an Amazon EventBridge rule that reacts to EC2 RunInstances API call
- B. Configure the rule to invoke an AWS Lambda function to attach the default instance profile to the EC2 instances.
- C. Configure the ec2-instance-profile-attached AWS Config managed rule with a trigger type of configuration change
- D. Configure an automatic remediation action that invokes an AWS Systems Manager Automation runbook to attach the default instance profile to the EC2 instances.
- E. Configure an Amazon EventBridge rule that reacts to EC2 StartInstances API call
- F. Configure the rule to invoke an AWS Systems Manager Automation runbook to attach the default instance profile to the EC2 instances.
- G. Configure the iam-role-managed-policy-check AWS Config managed rule with a trigger type of configuration change
- H. Configure an automatic remediation action that invokes an AWS Lambda function to attach the default instance profile to the EC2 instances.

**Answer: B**

**Explanation:**

<https://docs.aws.amazon.com/config/latest/developerguide/ec2-instance-profile-attached.html>

**NEW QUESTION 54**

A company manages multiple AWS accounts in AWS Organizations. The company's security policy states that AWS account root user credentials for member accounts must not be used. The company monitors access to the root user credentials.

A recent alert shows that the root user in a member account launched an Amazon EC2 instance. A DevOps engineer must create an SCP at the organization's root level that will prevent the root user in member accounts from making any AWS service API calls.

Which SCP will meet these requirements?

A)

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Allow",
      "Action": "*",
      "Resource": "*",
      "Condition": {
        "StringNotLike": { "aws:PrincipalArn": "arn:aws:iam::*:root" }
      }
    }
  ]
}
```

B)

```

"Version": "2012-10-17",
"Statement": [
  {
    "Effect": "Deny",
    "Action": "*",
    "Resource": "*",
    "Principal": { "AWS": "arn:aws:iam::*:root" }
  }
]
}

```

C)

```

{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Deny",
      "Action": "*",
      "Resource": "*",
      "Condition": {
        "StringLike": { "aws:PrincipalArn": "arn:aws:iam::*:root" }
      }
    }
  ]
}

```

D)

```

{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Allow",
      "Action": "*",
      "Resource": "*",
      "Principal": "root"
    }
  ]
}

```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

**Answer: D**

**NEW QUESTION 59**

A company is performing vulnerability scanning for all Amazon EC2 instances across many accounts. The accounts are in an organization in AWS Organizations. Each account's VPCs are attached to a shared transit gateway. The VPCs send traffic to the internet through a central egress VPC. The company has enabled Amazon Inspector in a delegated administrator account and has enabled scanning for all member accounts.

A DevOps engineer discovers that some EC2 instances are listed in the "not scanning" tab in Amazon Inspector.

Which combination of actions should the DevOps engineer take to resolve this issue? (Choose three.)

- A. Verify that AWS Systems Manager Agent is installed and is running on the EC2 instances that Amazon Inspector is not scanning.
- B. Associate the target EC2 instances with security groups that allow outbound communication on port 443 to the AWS Systems Manager service endpoint.
- C. Grant inspector: StartAssessmentRun permissions to the IAM role that the DevOps engineer is using.
- D. Configure EC2 Instance Connect for the EC2 instances that Amazon Inspector is not scanning.
- E. Associate the target EC2 instances with instance profiles that grant permissions to communicate with AWS Systems Manager.
- F. Create a managed-instance activation
- G. Use the Activation Code and the Activation ID to register the EC2 instances.

**Answer: ABE**

**Explanation:**

<https://docs.aws.amazon.com/inspector/latest/user/scanning-ec2.html>

#### NEW QUESTION 60

A company has a guideline that every Amazon EC2 instance must be launched from an AMI that the company's security team produces. Every month the security team sends an email message with the latest approved AMIs to all the development teams.

The development teams use AWS CloudFormation to deploy their applications. When developers launch a new service they have to search their email for the latest AMIs that the security department sent. A DevOps engineer wants to automate the process that the security team uses to provide the AMI IDs to the development teams.

What is the MOST scalable solution that meets these requirements?

- A. Direct the security team to use CloudFormation to create new versions of the AMIs and to list the AMI ARNs in an encrypted Amazon S3 object as part of the stack's Outputs Section. Instruct the developers to use a cross-stack reference to load the encrypted S3 object and obtain the most recent AMI ARNs.
- B. Direct the security team to use a CloudFormation stack to create an AWS CodePipeline pipeline that builds new AMIs and places the latest AMI ARNs in an encrypted Amazon S3 object as part of the pipeline output. Instruct the developers to use a cross-stack reference within their own CloudFormation template to obtain the S3 object location and the most recent AMI ARNs.
- C. Direct the security team to use Amazon EC2 Image Builder to create new AMIs and to place the AMI ARNs as parameters in AWS Systems Manager Parameter Store. Instruct the developers to specify a parameter of type SSM in their CloudFormation stack to obtain the most recent AMI ARNs from Parameter Store.
- D. Direct the security team to use Amazon EC2 Image Builder to create new AMIs and to create an Amazon Simple Notification Service (Amazon SNS) topic so that every development team can receive notification.
- E. When the development teams receive a notification, instruct them to write an AWS Lambda function that will update their CloudFormation stack with the most recent AMI ARNs.

**Answer:** C

#### Explanation:

<https://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/dynamic-references.html>

#### NEW QUESTION 64

A company has its AWS accounts in an organization in AWS Organizations. AWS Config is manually configured in each AWS account. The company needs to implement a solution to centrally configure AWS Config for all accounts in the organization. The solution also must record resource changes to a central account. Which combination of actions should a DevOps engineer perform to meet these requirements? (Choose two.)

- A. Configure a delegated administrator account for AWS Config
- B. Enable trusted access for AWS Config in the organization.
- C. Configure a delegated administrator account for AWS Config
- D. Create a service-linked role for AWS Config in the organization's management account.
- E. Create an AWS CloudFormation template to create an AWS Config aggregator
- F. Configure a CloudFormation stack set to deploy the template to all accounts in the organization.
- G. Create an AWS Config organization aggregator in the organization's management account
- H. Configure data collection from all AWS accounts in the organization and from all AWS Regions.
- I. Create an AWS Config organization aggregator in the delegated administrator account
- J. Configure data collection from all AWS accounts in the organization and from all AWS Regions.

**Answer:** AE

#### Explanation:

<https://aws.amazon.com/blogs/mt/org-aggregator-delegated-admin/> <https://docs.aws.amazon.com/organizations/latest/userguide/services-that-can-integrate-config.html>

#### NEW QUESTION 66

A company that runs many workloads on AWS has an Amazon EBS spend that has increased over time. The DevOps team notices there are many unattached EBS volumes. Although there are workloads where volumes are detached, volumes over 14 days old are stale and no longer needed. A DevOps engineer has been tasked with creating automation that deletes unattached EBS volumes that have been unattached for 14 days.

Which solution will accomplish this?

- A. Configure the AWS Config `ec2-volume-in-use-check` managed rule with a configuration changes trigger type and an Amazon EC2 volume resource target
- B. Create a new Amazon CloudWatch Events rule scheduled to execute an AWS Lambda function in 14 days to delete the specified EBS volume.
- C. Use Amazon EC2 and Amazon Data Lifecycle Manager to configure a volume lifecycle policy
- D. Set the interval period for unattached EBS volumes to 14 days and set the retention rule to delete
- E. Set the policy target volumes as `*`.
- F. Create an Amazon CloudWatch Events rule to execute an AWS Lambda function daily
- G. The Lambda function should find unattached EBS volumes and tag them with the current date, and delete unattached volumes that have tags with dates that are more than 14 days old.
- H. Use AWS Trusted Advisor to detect EBS volumes that have been detached for more than 14 days
- I. Execute an AWS Lambda function that creates a snapshot and then deletes the EBS volume.

**Answer:** C

#### Explanation:

The requirement is to create automation that deletes unattached EBS volumes that have been unattached for 14 days. To do this, the DevOps engineer needs to use the following steps:

? Create an Amazon CloudWatch Events rule to execute an AWS Lambda function

daily. CloudWatch Events is a service that enables event-driven architectures by delivering events from various sources to targets. Lambda is a service that lets you

run code without provisioning or managing servers. By creating a CloudWatch Events rule that executes a Lambda function daily, the DevOps engineer can schedule a recurring task to check and delete unattached EBS volumes.

? The Lambda function should find unattached EBS volumes and tag them with the

current date, and delete unattached volumes that have tags with dates that are more than 14 days old. The Lambda function can use the EC2 API to list and filter unattached EBS volumes based on their state and tags. The function can then tag each unattached volume with the current date using the `create-tags` command. The function can also compare the tag value with the current date and delete any unattached volume that has been tagged more than 14 days ago using the `delete-volume` command.

### NEW QUESTION 67

A company is implementing AWS CodePipeline to automate its testing process. The company wants to be notified when the execution state fails and used the following custom event pattern in Amazon EventBridge:

```
{
  "source": [
    "aws.codepipeline"
  ],
  "detail-type": [
    "CodePipeline Action Execution State Change"
  ],
  "detail": {
    "state": [
      "FAILED"
    ]
  },
  "type": {
    "category": ["Approval"]
  }
}
```

Which type of events will match this event pattern?

- A. Failed deploy and build actions across all the pipelines
- B. All rejected or failed approval actions across all the pipelines
- C. All the events across all pipelines
- D. Approval actions across all the pipelines

**Answer: B**

#### Explanation:

Action-level states in events Action state Description

STARTED The action is currently running. SUCCEEDED The action was completed successfully.

FAILED For Approval actions, the FAILED state means the action was either rejected by the reviewer or failed due to an incorrect action configuration.

CANCELED The action was canceled because the pipeline structure was updated.

### NEW QUESTION 69

To run an application, a DevOps engineer launches an Amazon EC2 instance with public IP addresses in a public subnet. A user data script obtains the application artifacts and installs them on the instances upon launch. A change to the security classification of the application now requires the instances to run with no access to the internet. While the instances launch successfully and show as healthy, the application does not seem to be installed.

Which of the following should successfully install the application while complying with the new rule?

- A. Launch the instances in a public subnet with Elastic IP addresses attached
- B. Once the application is installed and running, run a script to disassociate the Elastic IP addresses afterwards.
- C. Set up a NAT gateway
- D. Deploy the EC2 instances to a private subnet
- E. Update the private subnet's route table to use the NAT gateway as the default route.
- F. Publish the application artifacts to an Amazon S3 bucket and create a VPC endpoint for S3. Assign an IAM instance profile to the EC2 instances so they can read the application artifacts from the S3 bucket.
- G. Create a security group for the application instances and allow only outbound traffic to the artifact repository
- H. Remove the security group rule once the install is complete.

**Answer: C**

#### Explanation:

EC2 instances running in private subnets of a VPC can now have controlled access to S3 buckets, objects, and API functions that are in the same region as the VPC. You can use an S3 bucket policy to indicate which VPCs and which VPC Endpoints have access to your S3 buckets 1-

<https://aws.amazon.com/pt/blogs/aws/new-vpc-endpoint-for-amazon-s3/>

### NEW QUESTION 72

A company deploys updates to its Amazon API Gateway API several times a week by using an AWS CodePipeline pipeline. As part of the update process the company exports the JavaScript SDK for the API from the API Gateway console and uploads the SDK to an Amazon S3 bucket

The company has configured an Amazon CloudFront distribution that uses the S3 bucket as an origin. Web clients then download the SDK by using the CloudFront distribution's endpoint. A DevOps engineer needs to implement a solution to make the new SDK available automatically during new API deployments.

Which solution will meet these requirements?

- A. Create a CodePipeline action immediately after the deployment stage of the API
- B. Configure the action to invoke an AWS Lambda function
- C. Configure the Lambda function to download the SDK from API Gateway, upload the SDK to the S3 bucket and create a CloudFront invalidation for the SDK path.
- D. Create a CodePipeline action immediately after the deployment stage of the API. Configure the action to use the CodePipeline integration with API Gateway to export the SDK to Amazon S3. Create another action that uses the CodePipeline integration with Amazon S3 to invalidate the cache for the SDK path.
- E. Gateway to export the SDK to Amazon S3. Create another action that uses the CodePipeline integration with Amazon S3 to invalidate the cache for the SDK path.
- F. Create an Amazon EventBridge rule that reacts to UpdateStage events from aws apigateway. Configure the rule to invoke an AWS Lambda function to download

- the SDK from API Gateway upload the SDK to the S3 bucket and call the CloudFront API to create an invalidation for the SDK path.
- G. Create an Amazon EventBridge rule that reacts to Create
  - H. Deployment events from aws apigatewa
  - I. Configure the rule to invoke an AWS Lambda function to download the SDK from AP
  - J. Gateway upload the SDK to the S3 bucket and call the S3 API to invalidate the cache for the SDK path.

**Answer:** A

**Explanation:**

This solution would allow the company to automate the process of updating the SDK and making it available to web clients. By adding a CodePipeline action immediately after the deployment stage of the API, the Lambda function will be invoked automatically each time the API is updated. The Lambda function should be able to download the new SDK from API Gateway, upload it to the S3 bucket and also create a CloudFront invalidation for the SDK path so that the latest version of the SDK is available for the web clients. This is the most straight forward solution and it will meet the requirements.

**NEW QUESTION 73**

A company's security policies require the use of security hardened AMIs in production environments. A DevOps engineer has used EC2 Image Builder to create a pipeline that builds the AMIs on a recurring schedule. The DevOps engineer needs to update the launch templates of the company's Auto Scaling groups. The Auto Scaling groups must use the newest AMIs during the launch of Amazon EC2 instances. Which solution will meet these requirements with the MOST operational efficiency?

- A. Configure an Amazon EventBridge rule to receive new AMI events from Image Builder
- B. Target an AWS Systems Manager Run Command document that updates the launch templates of the Auto Scaling groups with the newest AMI ID.
- C. Configure an Amazon EventBridge rule to receive new AMI events from Image Builder
- D. Target an AWS Lambda function that updates the launch templates of the Auto Scaling groups with the newest AMI ID.
- E. Configure the launch template to use a value from AWS Systems Manager Parameter Store for the AMI ID
- F. Configure the Image Builder pipeline to update the Parameter Store value with the newest AMI ID.
- G. Configure the Image Builder distribution settings to update the launch templates with the newest AMI ID
- H. Configure the Auto Scaling groups to use the newest version of the launch template.

**Answer:** C

**Explanation:**

? The most operationally efficient solution is to use AWS Systems Manager Parameter Store<sup>1</sup> to store the AMI ID and reference it in the launch template<sup>2</sup>. This way, the launch template does not need to be updated every time a new AMI is created by Image Builder. Instead, the Image Builder pipeline can update the Parameter Store value with the newest AMI ID<sup>3</sup>, and the Auto Scaling group can launch instances using the latest value from Parameter Store. ? The other solutions require updating the launch template or creating a new version of it every time a new AMI is created, which adds complexity and overhead. Additionally, using EventBridge rules and Lambda functions or Run Command documents introduces additional dependencies and potential points of failure. References: 1: AWS Systems Manager Parameter Store 2: Using AWS Systems Manager parameters instead of AMI IDs in launch templates 3: Update an SSM parameter with Image Builder

**NEW QUESTION 78**

A company needs to implement failover for its application. The application includes an Amazon CloudFront distribution and a public Application Load Balancer (ALB) in an AWS Region. The company has configured the ALB as the default origin for the distribution. After some recent application outages, the company wants a zero-second RTO. The company deploys the application to a secondary Region in a warm standby configuration. A DevOps engineer needs to automate the failover of the application to the secondary Region so that HTTP GET requests meet the desired RTO. Which solution will meet these requirements?

- A. Create a second CloudFront distribution that has the secondary ALB as the default origin
- B. Create Amazon Route 53 alias records that have a failover policy and Evaluate Target Health set to Yes for both CloudFront distribution
- C. Update the application to use the new record set.
- D. Create a new origin on the distribution for the secondary ALB
- E. Create a new origin group
- F. Set the original ALB as the primary origin
- G. Configure the origin group to fail over for HTTP 5xx status code
- H. Update the default behavior to use the origin group.
- I. Create Amazon Route 53 alias records that have a failover policy and Evaluate Target Health set to Yes for both ALB
- J. Set the TTL of both records to
- K. Update the distribution's origin to use the new record set.
- L. Create a CloudFront function that detects HTTP 5xx status code
- M. Configure the function to return a 307 Temporary Redirect error response to the secondary ALB if the function detects 5xx status code
- N. Update the distribution's default behavior to send origin responses to the function.

**Answer:** B

**Explanation:**

To implement failover for the application to the secondary Region so that HTTP GET requests meet the desired RTO, the DevOps engineer should use the following solution: ? Create a new origin on the distribution for the secondary ALB. A CloudFront origin is the source of the content that CloudFront delivers to viewers. By creating a new origin for the secondary ALB, the DevOps engineer can configure CloudFront to route traffic to the secondary Region when the primary Region is unavailable<sup>1</sup> ? Create a new origin group. Set the original ALB as the primary origin. Configure the origin group to fail over for HTTP 5xx status codes. An origin group is a logical grouping of two origins: a primary origin and a secondary origin. By creating an origin group, the DevOps engineer can specify which origin CloudFront should use as a fallback when the primary origin fails. The DevOps engineer can also define which HTTP status codes should trigger a failover from the primary origin to the secondary origin. By setting the original ALB as the primary origin and configuring the origin group to fail over for HTTP 5xx status codes, the DevOps engineer can ensure that CloudFront will switch to the secondary ALB when the primary ALB returns server errors<sup>2</sup> ? Update the default behavior to use the origin group. A behavior is a set of rules that CloudFront applies when it receives requests for specific URLs or file types. The default behavior applies to all requests that do not match any other behaviors. By updating the default behavior to use the origin group, the DevOps engineer can enable failover routing for all requests that are sent to the

distribution3

This solution will meet the requirements because it will automate the failover of the application to the secondary Region with zero-second RTO. When CloudFront receives an HTTP GET request, it will first try to route it to the primary ALB in the primary Region. If the primary ALB is healthy and returns a successful response, CloudFront will deliver it to the viewer. If the primary ALB is unhealthy or returns an HTTP 5xx status code, CloudFront will automatically route the request to the secondary ALB in the secondary Region and deliver its response to the viewer. The other options are not correct because they either do not provide zero-second RTO or do not work as expected. Creating a second CloudFront distribution that has the secondary ALB as the default origin and creating Amazon Route 53 alias records that have a failover policy is not a good option because it will introduce additional latency and complexity to the solution. Route 53 health checks and DNS propagation can take several minutes or longer, which means that viewers might experience delays or errors when accessing the application during a failover event. Creating Amazon Route 53 alias records that have a failover policy and Evaluate Target Health set to Yes for both ALBs and setting the TTL of both records to 0 is not a valid option because it will not work with CloudFront distributions. Route 53 does not support health checks for alias records that point to CloudFront distributions, so it cannot detect if an ALB behind a distribution is healthy or not. Creating a CloudFront function that detects HTTP 5xx status codes and returns a 307 Temporary Redirect error response to the secondary ALB is not a valid option because it will not provide zero-second RTO. A 307 Temporary Redirect error response tells viewers to retry their requests with a different URL, which means that viewers will have to make an additional request and wait for another response from CloudFront before reaching the secondary ALB.

References:

- ? 1: Adding, Editing, and Deleting Origins - Amazon CloudFront
- ? 2: Configuring Origin Failover - Amazon CloudFront
- ? 3: Creating or Updating a Cache Behavior - Amazon CloudFront

### NEW QUESTION 80

A company's DevOps engineer is creating an AWS Lambda function to process notifications from an Amazon Simple Notification Service (Amazon SNS) topic. The Lambda function will process the notification messages and will write the contents of the notification messages to an Amazon RDS Multi-AZ DB instance. During testing a database administrator accidentally shut down the DB instance. While the database was down the company lost several of the SNS notification messages that were delivered during that time.

The DevOps engineer needs to prevent the loss of notification messages in the future Which solutions will meet this requirement? (Select TWO.)

- A. Replace the RDS Multi-AZ DB instance with an Amazon DynamoDB table.
- B. Configure an Amazon Simple Queue Service (Amazon SQS) queue as a destination of the Lambda function.
- C. Configure an Amazon Simple Queue Service (Amazon SQS) dead-letter queue for the SNS topic.
- D. Subscribe an Amazon Simple Queue Service (Amazon SQS) queue to the SNS topic Configure the Lambda function to process messages from the SQS queue.
- E. Replace the SNS topic with an Amazon EventBridge event bus Configure an EventBridge rule on the new event bus to invoke the Lambda function for each event.

**Answer:** CD

### Explanation:

These solutions will meet the requirement because they will prevent the loss of notification messages in the future. An Amazon SQS queue is a service that provides a reliable, scalable, and secure message queue for asynchronous communication between distributed components. You can use an SQS queue to buffer messages from an SNS topic and ensure that they are delivered and processed by a Lambda function, even if the function or the database is temporarily unavailable.

Option C will configure an SQS dead-letter queue for the SNS topic. A dead-letter queue is a queue that receives messages that could not be delivered to any subscriber after a specified number of retries. You can use a dead-letter queue to store and analyze failed messages, or to reprocess them later. This way, you can avoid losing messages that could not be delivered to the Lambda function due to network errors, throttling, or other issues. Option D will subscribe an SQS queue to the SNS topic and configure the Lambda function to process messages from the SQS queue. This will decouple the SNS topic from the Lambda function and provide more flexibility and control over the message delivery and processing. You can use an SQS queue to store messages from the SNS topic until they are ready to be processed by the Lambda function, and also to retry processing in case of failures. This way, you can avoid losing messages that could not be processed by the Lambda function due to database errors, timeouts, or other issues.

### NEW QUESTION 82

A company's application development team uses Linux-based Amazon EC2 instances as bastion hosts. Inbound SSH access to the bastion hosts is restricted to specific IP addresses, as defined in the associated security groups. The company's security team wants to receive a notification if the security group rules are modified to allow SSH access from any IP address.

What should a DevOps engineer do to meet this requirement?

- A. Create an Amazon EventBridge rule with a source of aws.cloudtrail and the event name AuthorizeSecurityGroupIngress
- B. Define an Amazon Simple Notification Service (Amazon SNS) topic as the target.
- C. Enable Amazon GuardDuty and check the findings for security groups in AWS Security Hub
- D. Configure an Amazon EventBridge rule with a custom pattern that matches GuardDuty events with an output of NON\_COMPLIANT
- E. Define an Amazon Simple Notification Service (Amazon SNS) topic as the target.
- F. Create an AWS Config rule by using the restricted-ssh managed rule to check whether security groups disallow unrestricted incoming SSH traffic
- G. Configure automatic remediation to publish a message to an Amazon Simple Notification Service (Amazon SNS) topic.
- H. Enable Amazon Inspector
- I. Include the Common Vulnerabilities and Exposures-1.1 rules package to check the security groups that are associated with the bastion host
- J. Configure Amazon Inspector to publish a message to an Amazon Simple Notification Service (Amazon SNS) topic.

**Answer:** A

### Explanation:

<https://aws.amazon.com/premiumsupport/knowledge-center/monitor-security-group-changes-ec2/>

### NEW QUESTION 87

A company recently migrated its legacy application from on-premises to AWS. The application is hosted on Amazon EC2 instances behind an Application Load Balancer which is behind Amazon API Gateway. The company wants to ensure users experience minimal disruptions during any deployment of a new version of the application. The company also wants to ensure it can quickly roll back updates if there is an issue.

Which solution will meet these requirements with MINIMAL changes to the application?

- A. Introduce changes as a separate environment parallel to the existing one Configure API Gateway to use a canary release deployment to send a small subset of user traffic to the new environment.
- B. Introduce changes as a separate environment parallel to the existing one Update the application's DNS alias records to point to the new environment.

- C. Introduce changes as a separate target group behind the existing Application Load Balancer Configure API Gateway to route user traffic to the new target group in steps.
- D. Introduce changes as a separate target group behind the existing Application Load Balancer Configure API Gateway to route all traffic to the Application Load Balancer which then sends the traffic to the new target group.

**Answer:** A

**Explanation:**

API Gateway supports canary deployment on a deployment stage before you direct all traffic to that stage. A parallel environment means we will create a new ALB and a target group that will target a new set of EC2 instances on which the newer version of the app will be deployed. So the canary setting associated to the new version of the API will connect with the new ALB instance which in turn will direct the traffic to the new EC2 instances on which the newer version of the application is deployed.

**NEW QUESTION 90**

A DevOps team uses AWS CodePipeline, AWS CodeBuild, and AWS CodeDeploy to deploy an application. The application is a REST API that uses AWS Lambda functions and Amazon API Gateway Recent deployments have introduced errors that have affected many customers. The DevOps team needs a solution that reverts to the most recent stable version of the application when an error is detected. The solution must affect the fewest customers possible. Which solution Will meet these requirements With the MOST operational efficiency?

- A. Set the deployment configuration in CodeDeploy to LambdaAllAtOnce Configure automatic rollbacks on the deployment group Create an Amazon CloudWatch alarm that detects HTTP Bad Gateway errors on API Gateway Configure the deployment group to roll back when the number of alarms meets the alarm threshold
- B. Set the deployment configuration in CodeDeploy to LambdaCanary10Percent10Minute
- C. Configure automatic rollbacks on the deployment group Create an Amazon CloudWatch alarm that detects HTTP Bad Gateway errors on API Gateway Configure the deployment group to roll back when the number of alarms meets the alarm threshold
- D. Set the deployment configuration in CodeDeploy to LambdaAllAtOnce Configure manual rollbacks on the deployment group
- E. Create an Amazon Simple Notification Service (Amazon SNS) topic to send notifications every time a deployment fails
- F. Configure the SNS topic to Invoke a new Lambda function that stops the current deployment and starts the most recent successful deployment
- G. Set the deployment configuration in CodeDeploy to LambdaCanary10Percent10Minutes Configure manual rollbacks on the deployment group Create a metric filter on an Amazon CloudWatch log group for API Gateway to monitor HTTP Bad Gateway error
- H. Configure the metric filter to Invoke a new Lambda function that stops the current deployment and starts the most recent successful deployment

**Answer:** B

**Explanation:**

? Option A is incorrect because setting the deployment configuration to LambdaAllAtOnce means that the new version of the application will be deployed to all Lambda functions at once, affecting all customers. This does not meet the requirement of affecting the fewest customers possible. Moreover, configuring automatic rollbacks on the deployment group is not operationally efficient, as it requires manual intervention to fix the errors and redeploy the application.

? Option B is correct because setting the deployment configuration to LambdaCanary10Percent10Minutes means that the new version of the application will be deployed to 10 percent of the Lambda functions first, and then to the remaining 90 percent after 10 minutes. This minimizes the impact of errors on customers, as only 10 percent of them will be affected by a faulty deployment. Configuring automatic rollbacks on the deployment group also meets the requirement of reverting to the most recent stable version of the application when an error is detected. Creating a CloudWatch alarm that detects HTTP Bad Gateway errors on API Gateway is a valid way to monitor the health of the application and trigger a rollback if needed.

? Option C is incorrect because setting the deployment configuration to LambdaAllAtOnce means that the new version of the application will be deployed to all Lambda functions at once, affecting all customers. This does not meet the requirement of affecting the fewest customers possible. Moreover, configuring manual rollbacks on the deployment group is not operationally efficient, as it requires human intervention to stop the current deployment and start a new one. Creating an SNS topic to send notifications every time a deployment fails is not sufficient to detect errors in the application, as it does not monitor the API Gateway responses.

? Option D is incorrect because configuring manual rollbacks on the deployment group is not operationally efficient, as it requires human intervention to stop the current deployment and start a new one. Creating a metric filter on a CloudWatch log group for API Gateway to monitor HTTP Bad Gateway errors is a valid way to monitor the health of the application, but invoking a new Lambda function to perform a rollback is unnecessary and complex, as CodeDeploy already provides automatic rollback functionality.

References:

- ? AWS CodeDeploy Deployment Configurations
- ? [AWS CodeDeploy Rollbacks]
- ? Amazon CloudWatch Alarms

**NEW QUESTION 91**

An Amazon EC2 instance is running in a VPC and needs to download an object from a restricted Amazon S3 bucket. When the DevOps engineer tries to download the object, an AccessDenied error is received, What are the possible causes for this error? (Select TWO,)

- A. The S3 bucket default encryption is enabled.
- B. There is an error in the S3 bucket policy.
- C. The object has been moved to S3 Glacier.
- D. There is an error in the IAM role configuration.
- E. S3 Versioning is enabled.

**Answer:** BD

**Explanation:**

These are the possible causes for the AccessDenied error because they affect the permissions to access the S3 object from the EC2 instance. An S3 bucket policy is a resource-based policy that defines who can access the bucket and its objects, and what actions they can perform. An IAM role is an identity that can be assumed by an EC2 instance to grant it permissions to access AWS services and resources. If there is an error in the S3 bucket policy or the IAM role configuration, such as a missing or incorrect statement, condition, or principal, then the EC2 instance may not have the necessary permissions to download the object from the S3 bucket . <https://docs.aws.amazon.com/AmazonS3/latest/userguide/example-bucket-policies.html> <https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/iam-roles-for-amazon-ec2.html>

**NEW QUESTION 93**

A DevOps engineer needs to back up sensitive Amazon S3 objects that are stored within an S3 bucket with a private bucket policy using S3 cross-Region replication functionality. The objects need to be copied to a target bucket in a different AWS Region and account.

Which combination of actions should be performed to enable this replication? (Choose three.)

- A. Create a replication IAM role in the source account
- B. Create a replication IAM role in the target account.
- C. Add statements to the source bucket policy allowing the replication IAM role to replicate objects.
- D. Add statements to the target bucket policy allowing the replication IAM role to replicate objects.
- E. Create a replication rule in the source bucket to enable the replication.
- F. Create a replication rule in the target bucket to enable the replication.

**Answer:** ADE

**Explanation:**

S3 cross-Region replication (CRR) automatically replicates data between buckets across different AWS Regions. To enable CRR, you need to add a replication configuration to your source bucket that specifies the destination bucket, the IAM role, and the encryption type (optional). You also need to grant permissions to the IAM role to perform replication actions on both the source and destination buckets. Additionally, you can choose the destination storage class and enable additional replication options such as S3 Replication Time Control (S3 RTC) or S3 Batch Replication. <https://medium.com/cloud-techies/s3-same-region-replication-srr-and-cross-region-replication-crr-34d446806bab> <https://aws.amazon.com/getting-started/hands-on/replicate-data-using-amazon-s3-replication/> <https://docs.aws.amazon.com/AmazonS3/latest/userguide/replication.html>

**NEW QUESTION 96**

A company has chosen AWS to host a new application. The company needs to implement a multi-account strategy. A DevOps engineer creates a new AWS account and an organization in AWS Organizations. The DevOps engineer also creates the OU structure for the organization and sets up a landing zone by using AWS Control Tower.

The DevOps engineer must implement a solution that automatically deploys resources for new accounts that users create through AWS Control Tower Account Factory. When a user creates a new account, the solution must apply AWS CloudFormation templates and SCPs that are customized for the OU or the account to automatically deploy all the resources that are attached to the account. All the OUs are enrolled in AWS Control Tower.

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

- A. Use AWS Service Catalog with AWS Control Tower
- B. Create portfolios and products in AWS Service Catalog
- C. Grant granular permissions to provision these resources
- D. Deploy SCPs by using the AWS CLI and JSON documents.
- E. Deploy CloudFormation stack sets by using the required template
- F. Enable automatic deployments
- G. Deploy stack instances to the required account
- H. Deploy a CloudFormation stack set to the organization's management account to deploy SCPs.
- I. Create an Amazon EventBridge rule to detect the CreateManagedAccount event
- J. Configure AWS Service Catalog as the target to deploy resources to any new account
- K. Deploy SCPs by using the AWS CLI and JSON documents.
- L. Deploy the Customizations for AWS Control Tower (CfCT) solution
- M. Use an AWS CodeCommit repository as the source
- N. In the repository, create a custom package that includes the CloudFormation templates and the SCP JSON documents.

**Answer:** D

**Explanation:**

The CfCT solution is designed for the exact purpose stated in the question. It extends the capabilities of AWS Control Tower by providing you with a way to automate resource provisioning and apply custom configurations across all AWS accounts created in the Control Tower environment. This enables the company to implement additional account customizations when new accounts are provisioned via the Control Tower Account Factory. The CloudFormation templates and SCPs can be added to a CodeCommit repository and will be automatically deployed to new accounts when they are created. This provides a highly automated solution that does not require manual intervention to deploy resources and SCPs to new accounts.

**NEW QUESTION 97**

A company manages AWS accounts for application teams in AWS Control Tower. Individual application teams are responsible for securing their respective AWS accounts.

A DevOps engineer needs to enable Amazon GuardDuty for all AWS accounts in which the application teams have not already enabled GuardDuty. The DevOps engineer is using AWS CloudFormation StackSets from the AWS Control Tower management account.

How should the DevOps engineer configure the CloudFormation template to prevent failure during the StackSets deployment?

- A. Create a CloudFormation custom resource that invokes an AWS Lambda function
- B. Configure the Lambda function to conditionally enable GuardDuty if GuardDuty is not already enabled in the accounts.
- C. Use the Conditions section of the CloudFormation template to enable GuardDuty in accounts where GuardDuty is not already enabled.
- D. Use the CloudFormation Fn::ImportValue function
- E. Use the GetAtt intrinsic function to check whether GuardDuty is already enabled. If GuardDuty is not already enabled, use the Resources section of the CloudFormation template to enable GuardDuty.
- F. Manually discover the list of AWS account IDs where GuardDuty is not enabled. Use the CloudFormation Fn::ImportValue intrinsic function to import the list of account IDs into the CloudFormation template to skip deployment for the listed AWS accounts.

**Answer:** A

**Explanation:**

This solution will meet the requirements because it will use a CloudFormation custom resource to execute custom logic during the stack set operation. A custom resource is a resource that you define in your template and that is associated with an AWS Lambda function. The Lambda function runs whenever the custom resource is created, updated, or deleted, and can perform any actions that are supported by the AWS SDK. In this case, the Lambda function can use the GuardDuty API to check whether GuardDuty is already enabled in each target account, and if not, enable it. This way, the DevOps engineer can avoid deploying the stack set to accounts that already have GuardDuty enabled, and prevent failure during the deployment.

**NEW QUESTION 100**

A company uses an Amazon API Gateway regional REST API to host its application API. The REST API has a custom domain. The REST API's default endpoint is deactivated.

The company's internal teams consume the API. The company wants to use mutual TLS between the API and the internal teams as an additional layer of authentication.

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

- A. Use AWS Certificate Manager (ACM) to create a private certificate authority (CA). Provision a client certificate that is signed by the private CA.
- B. Provision a client certificate that is signed by a public certificate authority (CA). Import the certificate into AWS Certificate Manager (ACM).
- C. Upload the provisioned client certificate to an Amazon S3 bucket
- D. Configure the API Gateway mutual TLS to use the client certificate that is stored in the S3 bucket as the trust store.
- E. Upload the provisioned client certificate private key to an Amazon S3 bucket
- F. Configure the API Gateway mutual TLS to use the private key that is stored in the S3 bucket as the trust store.
- G. Upload the root private certificate authority (CA) certificate to an Amazon S3 bucket
- H. Configure the API Gateway mutual TLS to use the private CA certificate that is stored in the S3 bucket as the trust store.

**Answer:** AE

**Explanation:**

Mutual TLS (mTLS) authentication requires two-way authentication between the client and the server. For Amazon API Gateway, you can enable mTLS for a custom domain name, which requires clients to present X.509 certificates to verify their identity to access your API. To set up mTLS, you would typically use AWS Certificate Manager (ACM) to create a private certificate authority (CA) and provision a client certificate signed by this private CA. The root CA certificate is then uploaded to an Amazon S3 bucket and configured in API Gateway as the trust store<sup>12</sup>.

References:

- ? Introducing mutual TLS authentication for Amazon API Gateway<sup>1</sup>.
- ? Configuring mutual TLS authentication for a REST API<sup>2</sup>.
- ? AWS Private Certificate Authority details<sup>3</sup>.
- ? AWS Certificate Manager Private Certificate Authority updates<sup>4</sup>.

**NEW QUESTION 104**

A company is launching an application. The application must use only approved AWS services. The account that runs the application was created less than 1 year ago and is assigned to an AWS Organizations OU.

The company needs to create a new Organizations account structure. The account structure must have an appropriate SCP that supports the use of only services that are currently active in the AWS account.

The company will use AWS Identity and Access Management (IAM) Access Analyzer in the solution.

Which solution will meet these requirements?

- A. Create an SCP that allows the services that IAM Access Analyzer identifies
- B. Create an OU for the account
- C. Move the account into the new OU
- D. Attach the new SCP to the new OU
- E. Detach the default FullAWSAccess SCP from the new OU.
- F. Create an SCP that denies the services that IAM Access Analyzer identifies
- G. Create an OU for the account
- H. Move the account into the new OU
- I. Attach the new SCP to the new OU.
- J. Create an SCP that allows the services that IAM Access Analyzer identifies
- K. Attach the new SCP to the organization's root.
- L. Create an SCP that allows the services that IAM Access Analyzer identifies
- M. Create an OU for the account
- N. Move the account into the new OU
- O. Attach the new SCP to the management account
- P. Detach the default FullAWSAccess SCP from the new OU.

**Answer:** A

**Explanation:**

To meet the requirements of creating a new Organizations account structure with an appropriate SCP that supports the use of only services that are currently active in the AWS account, the company should use the following solution:

? Create an SCP that allows the services that IAM Access Analyzer identifies. IAM Access Analyzer is a service that helps identify potential resource-access risks by analyzing resource-based policies in the AWS environment. IAM Access Analyzer can also generate IAM policies based on access activity in the AWS CloudTrail logs. By using IAM Access Analyzer, the company can create an SCP that grants only the permissions that are required for the application to run, and denies all other services. This way, the company can enforce the use of only approved AWS services and reduce the risk of unauthorized access<sup>12</sup>

? Create an OU for the account. Move the account into the new OU. An OU is a container for accounts within an organization that enables you to group accounts that have similar business or security requirements. By creating an OU for the account, the company can apply policies and manage settings for the account as a group. The company should move the account into the new OU to make it subject to the policies attached to the OU<sup>3</sup>

? Attach the new SCP to the new OU. Detach the default FullAWSAccess SCP from the new OU. An SCP is a type of policy that specifies the maximum permissions for an organization or organizational unit (OU). By attaching the new SCP to the new OU, the company can restrict the services that are available to all accounts in that OU, including the account that runs the application. The company should also detach the default FullAWSAccess SCP from the new OU, because this policy allows all actions on all AWS services and might override or conflict with the new SCP<sup>45</sup>

The other options are not correct because they do not meet the requirements or follow best practices. Creating an SCP that denies the services that IAM Access Analyzer identifies is not a good option because it might not cover all possible services that are not approved or required for the application. A deny policy is also more difficult to maintain and update than an allow policy. Creating an SCP that allows the services that IAM Access Analyzer identifies and attaching it to the organization's root is not a good option because it might affect other accounts and OUs in the organization that have different service requirements or approvals. Creating an SCP that allows the services that IAM Access Analyzer identifies and attaching it to the management account is not a valid option because SCPs cannot be attached directly to accounts, only to OUs or roots.

References:

- ? 1: Using AWS Identity and Access Management Access Analyzer - AWS Identity and Access Management
- ? 2: Generate a policy based on access activity - AWS Identity and Access Management
- ? 3: Organizing your accounts into OUs - AWS Organizations
- ? 4: Service control policies - AWS Organizations
- ? 5: How SCPs work - AWS Organizations

**NEW QUESTION 108**

A DevOps engineer has developed an AWS Lambda function. The Lambda function starts an AWS CloudFormation drift detection operation on all supported resources for a specific CloudFormation stack. The Lambda function then exits its invocation. The DevOps engineer has created an Amazon EventBridge scheduled rule that invokes the Lambda function every hour. An Amazon Simple Notification Service (Amazon SNS) topic already exists in the AWS account. The DevOps engineer has subscribed to the SNS topic to receive notifications. The DevOps engineer needs to receive a notification as soon as possible when drift is detected in this specific stack configuration. Which solution will meet these requirements?

- A. Configure the existing EventBridge rule to also target the SNS topic. Configure an SNS subscription filter policy to match the CloudFormation stack.
- B. Attach the subscription filter policy to the SNS topic.
- C. Create a second Lambda function to query the CloudFormation API for the drift detection results for the stack. Configure the second Lambda function to publish a message to the SNS topic. If drift is detected, adjust the existing EventBridge rule to also target the second Lambda function.
- D. Configure Amazon GuardDuty in the account with drift detection for all CloudFormation stacks.
- E. Create a second EventBridge rule that reacts to the GuardDuty drift detection event finding for the specific CloudFormation stack.
- F. Configure the SNS topic as a target of the second EventBridge rule.
- G. Configure AWS Config in the account.
- H. Use the cloudformation-stack-drift-detection-check-managed-rule.
- I. Create a second EventBridge rule that reacts to a compliance change event for the CloudFormation stack.
- J. Configure the SNS topic as a target of the second EventBridge rule.

**Answer: D**

**Explanation:**

A comprehensive and detailed explanation is:

? Option A is incorrect because EventBridge rules cannot filter events based on the message body or attributes of the target service. Therefore, configuring an SNS subscription filter policy to match the CloudFormation stack will not work. The SNS topic will receive all events from the EventBridge rule, regardless of the stack name or drift status.

? Option B is incorrect because it introduces unnecessary complexity and cost.

Creating a second Lambda function to query the CloudFormation API for the drift detection results is redundant, since CloudFormation already publishes drift detection events to EventBridge. Moreover, invoking two Lambda functions every hour will incur more charges than invoking one.

? Option C is incorrect because GuardDuty does not provide drift detection for CloudFormation stacks. GuardDuty is a threat detection service that monitors for malicious activity and unauthorized behavior in AWS accounts and workloads. It does not monitor or report on configuration changes or drifts in CloudFormation stacks.

? Option D is correct because it leverages AWS Config and its managed rule for drift detection. AWS Config is a service that enables you to assess, audit, and evaluate the configurations of your AWS resources. It can detect configuration changes and drifts in CloudFormation stacks using the cloudformation-stack-drift-detection-check-managed-rule. This rule triggers an AWS Config event when a stack drifts from its expected template configuration. By creating a second EventBridge rule that reacts to this event for the specific stack, the DevOps engineer can configure the SNS topic as a target and receive a notification as soon as possible when drift is detected.

References:

? AWS Config

? Amazon SNS subscription filter policies

? Amazon EventBridge rules

**NEW QUESTION 109**

A company has multiple member accounts that are part of an organization in AWS Organizations. The security team needs to review every Amazon EC2 security group and their inbound and outbound rules. The security team wants to programmatically retrieve this information from the member accounts using an AWS Lambda function in the management account of the organization.

Which combination of access changes will meet these requirements? (Choose three.)

- A. Create a trust relationship that allows users in the member accounts to assume the management account IAM role.
- B. Create a trust relationship that allows users in the management account to assume the IAM roles of the member accounts.
- C. Create an IAM role in each member account that has access to the AmazonEC2ReadOnlyAccess managed policy.
- D. Create an IAM role in each member account to allow the sts:AssumeRole action against the management account IAM role's ARN.
- E. Create an IAM role in the management account that allows the sts:AssumeRole action against the member account IAM role's ARN.
- F. Create an IAM role in the management account that has access to the AmazonEC2ReadOnlyAccess managed policy.

**Answer: BCE**

**Explanation:**

<https://aws.amazon.com/premiumsupport/knowledge-center/lambda-function-assume-iam-role/> <https://kreuzwerker.de/post/aws-multi-account-setups-reloaded>

**NEW QUESTION 110**

A company has enabled all features for its organization in AWS Organizations. The organization contains 10 AWS accounts. The company has turned on AWS CloudTrail in all the accounts. The company expects the number of AWS accounts in the organization to increase to 500 during the next year. The company plans to use multiple OUs for these accounts.

The company has enabled AWS Config in each existing AWS account in the organization.

A DevOps engineer must implement a solution that enables AWS Config automatically for all future AWS accounts that are created in the organization.

Which solution will meet this requirement?

- A. In the organization's management account, create an Amazon EventBridge rule that reacts to a CreateAccount API call.
- B. Configure the rule to invoke an AWS Lambda function that enables trusted access to AWS Config for the organization.
- C. In the organization's management account, create an AWS CloudFormation stack set to enable AWS Config.
- D. Configure the stack set to deploy automatically when an account is created through Organizations.
- E. In the organization's management account, create an SCP that allows the appropriate AWS Config API calls to enable AWS Config.
- F. Apply the SCP to the root-level OU.
- G. In the organization's management account, create an Amazon EventBridge rule that reacts to a CreateAccount API call.
- H. Configure the rule to invoke an AWS Systems Manager Automation runbook to enable AWS Config for the account.

**Answer: B**

**Explanation:**

<https://aws.amazon.com/about-aws/whats-new/2020/02/aws-cloudformation-stacksets-introduces-automatic-deployments-across-accounts-and-regions-through->

aws- organizations/

### NEW QUESTION 113

A company runs a workload on Amazon EC2 instances. The company needs a control that requires the use of Instance Metadata Service Version 2 (IMDSv2) on all EC2 instances in the AWS account. If an EC2 instance does not prevent the use of Instance Metadata Service Version 1 (IMDSv1), the EC2 instance must be terminated.

Which solution will meet these requirements?

- A. Set up AWS Config in the account
- B. Use a managed rule to check EC2 instance
- C. Configure the rule to remediate the findings by using AWS Systems Manager Automation to terminate the instance.
- D. Create a permissions boundary that prevents the ec2:RunInstance action if the ec2:MetadataHttpTokens condition key is not set to a value of required
- E. Attach the permissions boundary to the IAM role that was used to launch the instance.
- F. Set up Amazon Inspector in the account
- G. Configure Amazon Inspector to activate deep inspection for EC2 instance
- H. Create an Amazon EventBridge rule for an Inspector2 finding
- I. Set an AWS Lambda function as the target to terminate the instance.
- J. Create an Amazon EventBridge rule for the EC2 instance launch successful event
- K. Send the event to an AWS Lambda function to inspect the EC2 metadata and to terminate the instance.

**Answer: B**

#### Explanation:

To implement a control that requires the use of IMDSv2 on all EC2 instances in the account, the DevOps engineer can use a permissions boundary. A permissions boundary is a policy that defines the maximum permissions that an IAM entity can have. The DevOps engineer can create a permissions boundary that prevents the ec2:RunInstance action if the ec2:MetadataHttpTokens condition key is not set to a value of required. This condition key enforces the use of IMDSv2 on EC2 instances. The DevOps engineer can attach the permissions boundary to the IAM role that was used to launch the instance. This way, any attempt to launch an EC2 instance without using IMDSv2 will be denied by the permissions boundary.

### NEW QUESTION 118

A company manages multiple AWS accounts by using AWS Organizations with OUs for the different business divisions. The company is updating their corporate network to use new IP address ranges. The company has 10 Amazon S3 buckets in different AWS accounts. The S3 buckets store reports for the different divisions. The S3 bucket configurations allow only private corporate network IP addresses to access the S3 buckets.

A DevOps engineer needs to change the range of IP addresses that have permission to access the contents of the S3 buckets. The DevOps engineer also needs to revoke the permissions of two OUs in the company.

Which solution will meet these requirements?

- A. Create a new SCP that has two statements, one that allows access to the new range of IP addresses for all the S3 buckets and one that denies access to the old range of IP addresses for all the S3 buckets
- B. Set a permissions boundary for the OrganizationAccountAccessRole role in the two OUs to deny access to the S3 buckets.
- C. Create a new SCP that has a statement that allows only the new range of IP addresses to access the S3 buckets
- D. Create another SCP that denies access to the S3 buckets
- E. Attach the second SCP to the two OUs
- F. On all the S3 buckets, configure resource-based policies that allow only the new range of IP addresses to access the S3 buckets
- G. Create a new SCP that denies access to the S3 buckets
- H. Attach the SCP to the two OUs.
- I. On all the S3 buckets, configure resource-based policies that allow only the new range of IP addresses to access the S3 buckets
- J. Set a permissions boundary for the OrganizationAccountAccessRole role in the two OUs to deny access to the S3 buckets.

**Answer: C**

#### Explanation:

The correct answer is C.

A comprehensive and detailed explanation is:

? Option A is incorrect because creating a new SCP that has two statements, one that allows access to the new range of IP addresses for all the S3 buckets and one that denies access to the old range of IP addresses for all the S3 buckets, is not a valid solution. SCPs are not resource-based policies, and they cannot specify the S3 buckets or the IP addresses as resources or conditions. SCPs can only control the actions that can be performed by the principals in the organization, not the access to specific resources. Moreover, setting a permissions boundary for the OrganizationAccountAccessRole role in the two OUs to deny access to the S3 buckets is not sufficient to revoke the permissions of the two OUs, as there might be other roles or users in those OUs that can still access the S3 buckets.

? Option B is incorrect because creating a new SCP that has a statement that allows only the new range of IP addresses to access the S3 buckets is not a valid solution, for the same reason as option A. SCPs are not resource-based policies, and they cannot specify the S3 buckets or the IP addresses as resources or conditions. Creating another SCP that denies access to the S3 buckets and attaching it to the two OUs is also not a valid solution, as SCPs cannot specify the S3 buckets as resources either.

? Option C is correct because it meets both requirements of changing the range of IP addresses that have permission to access the contents of the S3 buckets and revoking the permissions of two OUs in the company. On all the S3 buckets, configuring resource-based policies that allow only the new range of IP addresses to access the S3 buckets is a valid way to update the IP address ranges, as resource-based policies can specify both resources and conditions. Creating a new SCP that denies access to the S3 buckets and attaching it to the two OUs is also a valid way to revoke the permissions of those OUs, as SCPs can deny actions such as s3:PutObject or s3:GetObject on any resource.

? Option D is incorrect because setting a permissions boundary for the OrganizationAccountAccessRole role in the two OUs to deny access to the S3 buckets is not sufficient to revoke the permissions of the two OUs, as there might be other roles or users in those OUs that can still access the S3 buckets. A permissions boundary is a policy that defines the maximum permissions that an IAM entity can have. However, it does not revoke any existing permissions that are granted by other policies.

References:

- ? AWS Organizations
- ? S3 Bucket Policies
- ? Service Control Policies
- ? Permissions Boundaries

### NEW QUESTION 122

A company recently launched multiple applications that use Application Load Balancers. Application response time often slows down when the applications experience problems. A DevOps engineer needs to implement a monitoring solution that alerts the company when the applications begin to perform slowly. The DevOps engineer creates an Amazon Simple Notification Service (Amazon SNS) topic and subscribes the company's email address to the topic. What should the DevOps engineer do next to meet the requirements?

- A. Create an Amazon EventBridge rule that invokes an AWS Lambda function to query the applications on a 5-minute interval. Configure the Lambda function to publish a notification to the SNS topic when the applications return errors.
- B. Create an Amazon CloudWatch Synthetics canary that runs a custom script to query the applications on a 5-minute interval.
- C. Configure the canary to use the SNS topic when the applications return errors.
- D. Create an Amazon CloudWatch alarm that uses the AWS/ApplicationELB namespace RequestCountPerTarget metric. Configure the CloudWatch alarm to send a notification when the number of connections becomes greater than the configured number of threads that the application supports. Configure the CloudWatch alarm to use the SNS topic.
- E. Create an Amazon CloudWatch alarm that uses the AWS/ApplicationELB namespace RequestCountPerTarget metric. Configure the CloudWatch alarm to send a notification when the average response time becomes greater than the longest response time that the application supports. Configure the CloudWatch alarm to use the SNS topic.

**Answer: B**

**Explanation:**

? Option A is incorrect because creating an Amazon EventBridge rule that invokes an AWS Lambda function to query the applications on a 5-minute interval is not a valid solution. EventBridge rules can only trigger Lambda functions based on events, not on time intervals. Moreover, querying the applications on a 5-minute interval might incur unnecessary costs and network overhead, and might not detect performance issues in real time.

? Option B is correct because creating an Amazon CloudWatch Synthetics canary that runs a custom script to query the applications on a 5-minute interval is a valid solution. CloudWatch Synthetics canaries are configurable scripts that monitor endpoints and APIs by simulating customer behavior. Canaries can run as often as once per minute, and can measure the latency and availability of the applications. Canaries can also send notifications to an Amazon SNS topic when they detect errors or performance issues<sup>1</sup>.

? Option C is incorrect because creating an Amazon CloudWatch alarm that uses the AWS/ApplicationELB namespace RequestCountPerTarget metric is not a valid solution. The RequestCountPerTarget metric measures the number of requests completed or connections made per target in a target group<sup>2</sup>. This metric does not reflect the application response time, which is the requirement. Moreover, configuring the CloudWatch alarm to send a notification when the number of connections becomes greater than the configured number of threads that the application supports is not a valid way to measure the application performance, as it depends on the application design and implementation.

? Option D is incorrect because creating an Amazon CloudWatch alarm that uses the AWS/ApplicationELB namespace RequestCountPerTarget metric is not a valid solution, for the same reason as option C. The RequestCountPerTarget metric does not reflect the application response time, which is the requirement. Moreover, configuring the CloudWatch alarm to send a notification when the average response time becomes greater than the longest response time that the application supports is not a valid way to measure the application performance, as it does not account for variability or outliers in the response time distribution.

References:

? 1: Using synthetic monitoring

? 2: Application Load Balancer metrics

**NEW QUESTION 126**

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