

Amazon

DVA-C01

AWS Certified Developer Associate



QUESTION & ANSWERS

QUESTION 1

A company has three AWS Lambda functions that are written in Node.js. The Lambda functions include a mix of custom code and open-source modules. When bugs are occasionally detected in the open-source modules, all three Lambda functions must be patched.

What is the MOST operationally efficient solution to deploy a patched open-source library for all three Lambda functions?

- A. Create a custom AWS CloudFormation public registry extension. Reference a GitHub repository that hosts the open-source modules in the extension. Configure CloudFormation to scan the repository once each day. Write an AWS Serverless Application Model (AWS SAM) template to redeploy the three Lambda functions upon a scan notification change.
- B. Create an Amazon CloudFront distribution with an Amazon S3 bucket as the origin. Upload the patched modules to Amazon S3 when needed. Modify each Lambda function to download the patched modules from the CloudFront distribution during the cold start.
- C. Launch an Amazon EC2 instance. Host a private open-source module registry on the EC2 instance. Upload the modified open-source modules to the private registry when needed. Modify each Lambda function deployment script to download the modules from the private registry. Redeploy the three new Lambda functions.
- D. Create a Lambda layer with the open-source modules. Modify all three Lambda functions to depend on the layer. Remove the open-source modules from each Lambda function. Patch the Lambda layer with the modified open-source modules when needed. Update the Lambda functions to reference the new layer version.

Correct Answer: D

QUESTION 2

A developer is building an application that processes a stream of user-supplied data. The data stream must be consumed by multiple Amazon EC2 based processing applications in parallel and in real time. Each processor must be able to resume without losing data if there is a service interruption. The Application Architect plans to add other processors in the near future, and wants to minimize the amount of data duplication involved.

Which solution will satisfy these requirements?

- A. Publish the data to Amazon SQS
- B. Publish the data to Amazon Kinesis Data Firehose
- C. Publish the data to Amazon CloudWatch Events.
- D. Publish the data to Amazon Kinesis Data Streams.

Correct Answer: A

QUESTION 3

A developer is building a WebSocket API using Amazon API Gateway. The payload sent to this API is JSON that includes an action key. This key can have three different values: create, update, and remove. The developer must integrate with different routes based on the value of the action key of the incoming JSON payload.

How can the developer accomplish this task with the LEAST amount of configuration?

- A. Deploy the WebSocket API to three stages for the respective routes: create, update, and remove.
- B. Create a new route key and set the name as action.
- C. Set the value of the route selection expression to action.
- D. Set the value of the route selection expression to `$request.body.action`.

Correct Answer: D

QUESTION 4

A developer is using AWS CodeDeploy to deploy an application running on Amazon EC2. The developer wants to change the file permissions for a specific deployment file. Which lifecycle event should a developer use to meet this requirement?

- A. `AfterInstall`
- B. `DownloadBundle`
- C. `BeforeInstall`
- D. `ValidateService`

Correct Answer: A

QUESTION 5

A developer is trying to monitor an application's status by running a cron job that returns 1 if the service is up and 0 if the service is down. The developer created code that uses an AWS CLI `put-metric-alarm` command to publish the custom metrics to Amazon CloudWatch and create an alarm. However, the developer is unable to create an alarm as the custom metrics do not appear in the CloudWatch console.

What is causing this issue?

- A. Sending custom metrics using the CLI is not supported.
- B. The developer needs to use the `put-metric-data` command.
- C. The developer must use a unified CloudWatch agent to publish custom metrics.
- D. The code is not running on an Amazon EC2 instance.

Correct Answer: B

QUESTION 6

A company has developed a new serverless application using AWS Lambda functions that will be deployed using the AWS Serverless Application Model (AWS SAM) CLI. Which step should the developer complete prior to deploying the application?

- A. Compress the application to a .zip file and upload it into AWS Lambda
- B. Test the new AWS Lambda function by first tracing it in AWS X-Ray.
- C. Bundle the serverless application using a SAM package
- D. Create the application environment using the `eb create my-env` command.

Correct Answer: B

QUESTION 7

A company is developing a web application that allows its employees to upload a profile picture to a private Amazon S3 bucket. There is no size limit for the profile pictures, which should be displayed every time an employee logs in. For security reasons, the pictures cannot be publicly accessible. What is a viable long-term solution for this scenario?"

- A. Generate a presigned URL when a picture is uploaded. Save the URL in an Amazon DynamoDB table. Return the URL to the browser when the employee logs in.
- B. Save the picture's S3 key in an Amazon DynamoDB table. Create an Amazon S3 VPC endpoint to allow the employees to download pictures once they log in.
- C. Encode a picture using base64. Save the base64 string in an Amazon DynamoDB table. Allow the browser to retrieve the string and convert it to a picture.
- D. Save the picture's S3 key in an Amazon DynamoDB table. Use a function to generate a presigned URL every time an employee logs in. Return the URL to the browser.

Correct Answer: B

QUESTION 8

A Developer is making changes to a custom application that is currently using AWS Elastic Beanstalk. After the Developer completes the changes, what solutions will update the Elastic Beanstalk environment with the new application version? (Choose two.)

- A. Package the application code into a .zip file, and upload, then deploy the packaged application from the AWS Management Console
- B. Package the application code into a .tar file, create a new application version from the AWS Management Console, then update the environment by using AWS CLI
- C. Package the application code into a .tar file, and upload and deploy the packaged application from the AWS Management Console
- D. Package the application code into a .zip file, create a new application version from the packaged application by using AWS CLI, then update the environment by using AWS CLI
- E. Package the application code into a .zip file, create a new application version from the AWS Management Console, then rebuild the environment by using AWS CLI

Correct Answer: C,D

QUESTION 9

The upload of a 15 GB object to Amazon S3 fails. The error message reads: "Your proposed upload exceeds the maximum allowed object size."

What technique will allow the Developer to upload this object?

- A. Upload the object using the multi-part upload API.
- B. Upload the object over an AWS Direct Connect connection.
- C. Contact AWS Support to increase the object size limit.
- D. Upload the object to another AWS region.

Correct Answer: A

Explanation/Reference:

Explanation:

<https://docs.aws.amazon.com/AmazonS3/latest/dev/UploadingObjects.html>

QUESTION 10

A company has multiple Developers located across the globe who are updating code incrementally for a development project. When Developers upload code concurrently, internet connectivity is slow, and it is taking a long time to upload code for deployment in AWS Elastic Beanstalk.

Which step will result in minimized upload and deployment time with the LEAST amount of administrative effort?

- A. Allow the Developers to upload the code to an Amazon S3 bucket, and deploy it directly to Elastic Beanstalk.
- B. Allow the Developers to upload the code to a central FTP server to deploy the application to Elastic Beanstalk.
- C. Create an AWS CodeCommit repository, allow the Developers to commit code to it, and then

directly deploy the code to Elastic Beanstalk.

- D. Create a code repository on an Amazon EC2 instance so that all Developers can update the code, and deploy the application from the instance to Elastic Beanstalk.

Correct Answer: B

Explanation/Reference:

Explanation:

<https://aws.amazon.com/premiumsupport/knowledge-center/deploy-codecommit-elastic-beanstalk/>

QUESTION 11

A company is developing an application that will run on several Amazon EC2 instances in an Auto Scaling group and can access a database running on Amazon EC2. The application needs to store secrets required to connect to the database. The application must allow for periodic secret rotation, and there should be no changes to the application when a secret changes.

What is the SAFEST way to meet these requirements?

- A. Associate an IAM role to the EC2 instance where the application is running with permission to access the database.
- B. Use AWS Systems Manager Parameter Store with the SecureString data type to store secrets.
- C. Configure the application to store secrets in Amazon S3 object metadata.
- D. Hard code the database secrets in the application code itself.

Correct Answer: B

QUESTION 12

A Developer created a Lambda function for a web application backend. When testing the Lambda function from the AWS Lambda console, the Developer can see that the function is being executed, but there is no log data being generated in Amazon CloudWatch Logs, even after several minutes.

What could cause this situation?

- A. The Lambda function does not have any explicit log statements for the log data to send it to CloudWatch Logs.
- B. The Lambda function is missing CloudWatch Logs as a source trigger to send log data.
- C. The execution role for the Lambda function is missing permissions to write log data to the CloudWatch Logs.
- D. The Lambda function is missing a target CloudWatch Log group.

Correct Answer: C

Explanation/Reference:

Explanation:

<https://docs.aws.amazon.com/lambda/latest/dg/lambda-monitoring.html>

QUESTION 13

When using a large Scan operation in DynamoDB, what technique can be used to minimize the impact of a scan on a table's provisioned throughput?

- A. Set a smaller page size for the scan
- B. Use parallel scans
- C. Define a range index on the table
- D. Prewarm the table by updating all items

Correct Answer: A

Explanation/Reference:

Explanation:

<https://docs.aws.amazon.com/amazondynamodb/latest/developerguide/bp-query-scan.html>

Because a Scan operation reads an entire page (by default, 1 MB), you can reduce the impact of the scan operation by setting a smaller page size. The Scan operation provides a Limit parameter that you can use to set the page size for your request. Each Scan or Query request that has a smaller page size uses fewer read operations and creates a 'pause' between each request. For example, if each item is 4 KB and you set the page size to 40 items, then a Query request would consume only 40 strongly consistent read operations or 20 eventually consistent read operations. A larger number of smaller Scan or Query operations would allow your other critical requests to succeed without throttling.

QUESTION 14

A company needs to ingest terabytes of data each hour from thousands of sources that are delivered almost continually throughout the day. The volume of messages generated varies over the course of the day. Messages must be delivered in real time for fraud detection and live operational dashboards. Which approach will meet these requirements?

- A. Send the messages to an Amazon SQS queue, then process the messages by using a fleet of Amazon EC2 instances
- B. Use the Amazon S3 API to write messages to an S3 bucket, then process the messages by using Amazon Redshift
- C. Use AWS Data Pipeline to automate the movement and transformation of data
- D. Use Amazon Kinesis Data Streams with Kinesis Client Library to ingest and deliver messages

Correct Answer: D

Explanation/Reference:

<https://aws.amazon.com/streaming-data/>

QUESTION 15

A developer has written code for an application and wants to share it with other developers on the team to receive feedback. The shared application code needs to be stored long-term with multiple versions and batch change tracking.

Which AWS service should the developer use?

- A. AWSCodeBuild
- B. Amazon S3
- C. AWS CodeCommit
- D. AWS Cloud9

Correct Answer: C

QUESTION 16

A company provides APIs as a service and commits to a service level agreement (SLA) with all its users.

To comply with each SLA, what should the company do?

- A. Enable throttling limits for each method in Amazon API Gateway.
- B. Create a usage plan for each user and request API keys to access the APIs.
- C. Enable API rate limiting in Amazon cognito for each user.
- D. Enable default throttling limits for each stage after deploying the APIs.

Correct Answer: D

QUESTION 17

What are the steps to using the AWS CLI to launch a templated serverless application?

- A. Use AWS CloudFormation get-template then CloudFormation execute-change-set.
- B. Use AWS CloudFormation validate-template then CloudFormation create-change-set.
- C. Use AWS CloudFormation package then CloudFormation deploy.
- D. Use AWS CloudFormation create-stack then CloudFormation update-stack.

Correct Answer: C

Explanation/Reference:

<https://docs.aws.amazon.com/cli/latest/reference/cloudformation/package.html>

QUESTION 18

A company is using AWS CodeBuild to compile a website from source code stored in AWS CodeCommit. A recent change to the source code has resulted in the CodeBuild project being unable to successfully compile the website.

How should the Developer identify the cause of the failures?

- A. Modify the buildspec.yml file to include steps to send the output of build commands to AmazonCloudWatch.
- B. Use a custom Docker image that includes the AWS X-Ray agent in the AWS CodeBuild project configuration.
- C. Check the build logs of the failed phase in the last build attempt in the AWS CodeBuild project build history.
- D. Manually re-run the build process on a local machine so that the output can be visualized.

Correct Answer: A

QUESTION 19

A Development team currently supports an application that uses an in-memory store to save accumulated game results. Individual results are stored in a database. As part of migrating to AWS, the team needs to use automatic scaling. The team knows this will yield inconsistent results. Where should the team store these accumulated game results to BEST allow for consistent results without impacting performance?

- A. Amazon S3
- B. Amazon RDS
- C. Amazon ElastiCache
- D. Amazon Kinesis

Correct Answer: C

QUESTION 20

A Developer will be using the AWS CLI on a local development server to manage AWS services.

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What can be done to ensure that the CLI uses the Developer's IAM permissions when making commands?

- A. Specify the Developer's IAM access key ID and secret access key as parameters for each CLI command.
- B. Run the aws configure CLI command, and provide the Developer's IAM access key ID and secret access key.
- C. Specify the Developer's IAM user name and password as parameters for each CLI command.
- D. Use the Developer's IAM role when making the CLI command.

Correct Answer: B

Explanation/Reference:

<https://medium.com/faun/setting-up-a-production-environment-using-our-local-development-server-and-aws-f5eea3b5be60>

QUESTION 21

A developer is building an application integrating an Amazon API Gateway with an AWS Lambda function. When calling the API, the developer receives the following error. Wed Nov 03 01:13:00 UTC 2017 : Method completed with status: 502 What should the developer do to resolve the error?

- A. Change the HTTP endpoint of the API to an HTTPS endpoint.
- B. Change the format of the payload sent to the API Gateway.
- C. Change the format of the Lambda function response to the API call.
- D. Change the authorization header in the API call to access the Lambda function.

Correct Answer: C

QUESTION 22

A company has written a Java AWS Lambda function to be triggered whenever a user uploads an image to an Amazon S3 bucket. The function converts the original image to several different formats and then copies the resulting images to another Amazon S3 bucket.

The Developers find that no images are being copied to the second Amazon S3 bucket. They have tested the code on an Amazon EC2 instance with 1GB of RAM, and it takes an average of 500 seconds to complete.

What is the MOST likely cause of the problem?

- A. The Lambda function has insufficient memory and needs to be increased to 1 GB to match the Amazon EC2 instance
- B. Files need to be copied to the same Amazon S3 bucket for processing, so the second bucket needs to be deleted.
- C. Lambda functions have a maximum execution limit of 300 seconds, therefore the function is not

completing.

- D. There is a problem with the Java runtime for Lambda, and the function needs to be converted to node.js.

Correct Answer: C

QUESTION 23

A company

experienced partial downtime during the last deployment of a new application AWS Elastic Beanstalk split the environment's Amazon EC2 instances into batches and deployed a new version one batch at a time after taking them out of service. Therefore, full capacity was not maintained during deployment.

The developer plans to release a new version of the application, and is looking for a policy that will maintain full capacity and minimize the impact of the failed deployment

Which deployment policy should the developer use?

- A. Immutable
- B. All at Once
- C. Rolling
- D. Rolling with an Additional Batch

Correct Answer: D

QUESTION 24

A Developer is trying to make API calls using SDK. The IAM user credentials used by the application require multi-factor authentication for all API calls.

Which method the Developer use to access the multi-factor authentication protected API?

- A. GetFederationToken
- B. GetCallerIdentity
- C. GetSessionToken
- D. DecodeAutherizationMessage

Correct Answer: B

QUESTION 25

A video-hosting website has two types of members: those who pay a fee, and those who do not. Each video upload places a message in Amazon SQS. A fleet of Amazon EC2 instances polls Amazon SQS and processes each video.

The developer needs to ensure that the videos uploaded by the paying members are processed first. How can the developer meet this requirement?

- A. Create two SQS queues: one for paying members, and one for non-paying members. Poll the paying member queue first and then poll the non-paying member queue.
- B. Use SQS to set priorities on individual items within a single queue: give the paying members' videos the highest priority.
- C. Use SQS to set priorities on individual items within a single queue and use Amazon SNS to encode the videos.
- D. Create two Amazon SNS topics: one for paying members and one for non-paying members. Use SNS topic subscription priorities to differentiate between the two types of members.

Correct Answer: B

QUESTION 26

Which of the following is an example of a good DynamoDB hash key schema for provisioned throughput efficiency?

- A. User ID, where the application has many different users.
- B. Status Code where most status codes are the same.
- C. Device ID, where one is by far more popular than all the others.
- D. Game Type, where there are three possible game types.

Correct Answer: A

QUESTION 27

A developer needs to deploy a new version to an AWS Elastic Beanstalk application. How can the developer accomplish this task?

- A. Upload and deploy the new application version in the Elastic Beanstalk console.
- B. Use the `eb init` CLI command to deploy a new version.
- C. Terminate the current Elastic Beanstalk environment and create a new one.
- D. Modify the `ebextensions` folder to add a source option to services.

Correct Answer: A

QUESTION 28

To include objects defined by the AWS Serverless Application Model (SAM) in an AWS CloudFormation template, in addition to Resources, what section MUST be included in the document root?

- A. Conditions
- B. Globals
- C. Transform
- D. Properties

Correct Answer: C

Explanation/Reference:

<https://github.com/awslabs/serverless-application-model/blob/master/versions/2016-10-31.md>
<https://docs.aws.amazon.com/serverless-application-model/latest/developerguide/sam-specification-template-anatomy.html>

QUESTION 29

A developer is working on a serverless application. The application uses Amazon API Gateway, AWS Lambda functions that are written in Python, and Amazon DynamoDB. Which combination of steps should the developer take so that the Lambda functions can be debugged in the event of application failures? (Select TWO)

- A. Configure an AWS CloudTrail trail to deliver log files to an Amazon S3 bucket
- B. Ensure that the Lambda functions write log messages to stdout and stderr
- C. Enable an AWS CloudTrail trail for the Lambda function
- D. Ensure that the execution role for the Lambda function has access to write to Amazon CloudWatch Logs.
- E. Use the Amazon CloudWatch metric for Lambda errors to create a CloudWatch alarm.

Correct Answer: D,E

QUESTION 30

A developer is preparing a deployment package using AWS Cloud Formation. The package consists of two separate templates: one for the infrastructure and one for the application. The application has to be inside the VPC that is created from the infrastructure template

How can the application stack refer to the VPC created from the infrastructure template?

- A. Use the Ret function to import the VPC into the application stack from the infrastructure template
- B. Use the export flag in the infrastructure template, and then use the Fn::ImportValue function in the application template
- C. Use the DependsOn attribute to specify that the application instance depends on the VPC in the application template
- D. Use the Fn::GetAtt function to include the attribute of the VPC in the application template.

Correct Answer: A

QUESTION 31

A developer has built an application using Amazon Cognito for authentication and authorization. After a user is successfully logged in to the application, the application creates a user record in an Amazon DynamoDB table.

What is the correct flow to authenticate the user and create a record in the DynamoDB table?

- A. Authenticate and get a token from an Amazon Cognito user pool. Use the token to access DynamoDB.
- B. Authenticate and get a token from an Amazon Cognito identity pool. Use the token to access DynamoDB.
- C. Authenticate and get a token from an Amazon Cognito user pool Exchange the token for AWS credentials with an Amazon Cognito identity pool. Use the credential to access DynamoDB.
- D. Authenticate and get a token from an Amazon Cognito identity pool. Exchange the token for AWS credentials with an Amazon Cognito user pool. Use the credentials to access DynamoDB

Correct Answer: B