

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

Amazon AWS Certified DevOps Engineer Professional

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#### NEW QUESTION 1

You run a clustered NoSQL database on AWS EC2 using AWS EBS. You need to reduce latency for database response times. Performance is the most important concern, not availability. You did not perform the initial setup, someone without much AWS knowledge did, so you are not sure if they configured everything optimally. Which of the following is NOT likely to be an issue contributing to increased latency?

- A. The EC2 instances are not EBS Optimized.
- B. The database and requesting system are both in the wrong Availability Zone.
- C. The EBS Volumes are not using PIOPS.
- D. The database is not running in a placement group

**Answer:** B

#### Explanation:

For the highest possible performance, all instances in a clustered database like this one should be in a single Availability Zone in a placement group, using EBS optimized instances, and using PIOPS SSD EBS Volumes. The particular Availability Zone the system is running in should not be important, as long as it is the same as the requesting resources.

Reference: <http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/placement-groups.html>

#### NEW QUESTION 2

You need to scale an RDS deployment. You are operating at 10% writes and 90% reads, based on your logging. How best can you scale this in a simple way?

- A. Create a second master RDS instance and peer the RDS groups.
- B. Cache all the database responses on the read side with CloudFront.
- C. Create read replicas for RDS since the load is mostly reads.
- D. Create a Multi-AZ RDS installs and route read traffic to standby

**Answer:** C

#### Explanation:

The high-availability feature is not a scaling solution for read-only scenarios; you cannot use a standby replica to serve read traffic. To service read-only traffic, you should use a Read Replica. For more information, see Working with PostgreSQL, MySQL, and MariaDB Read Replicas.

Reference: <http://docs.aws.amazon.com/AmazonRDS/latest/UserGuide/Concepts.MultiAZ.html>

#### NEW QUESTION 3

When thinking of AWS Elastic Beanstalk, the 'Swap Environment URLs' feature most directly aids in what?

- A. Immutable Rolling Deployments
- B. Mutable Rolling Deployments
- C. Canary Deployments
- D. Blue-Green Deployments

**Answer:** D

#### Explanation:

Simply upload the new version of your application and let your deployment service (AWS Elastic Beanstalk, AWS CloudFormation, or AWS OpsWorks) deploy a new version (green). To cut over to the new version, you simply replace the ELB URLs in your DNS records. Elastic Beanstalk has a Swap Environment URLs feature to facilitate a simpler cutover process.

Reference: <https://d0.awsstatic.com/whitepapers/overview-of-deployment-options-on-aws.pdf>

#### NEW QUESTION 4

You need your CI to build AMIs with code pre-installed on the images on every new code push. You need to do this as cheaply as possible. How do you do this?

- A. Bid on spot instances just above the asking price as soon as new commits come in, perform all instance configuration and setup, then create an AMI based on the spot instance.
- B. Have the CI launch a new on-demand EC2 instance when new commits come in, perform all instance configuration and setup, then create an AMI based on the on-demand instance.
- C. Purchase a Light Utilization Reserved Instance to save money on the continuous integration machine
- D. Use these credits whenever you create AMIs on instances.
- E. When the CI instance receives commits, attach a new EBS volume to the CI machine
- F. Perform all setup on this EBS volume so you don't need a new EC2 instance to create the AMI.

**Answer:** A

#### Explanation:

Spot instances are the cheapest option, and you can use minimum run duration if your AMI takes more than a few minutes to create.

Spot instances are also available to run for a predefined duration — in hourly increments up to six hours in length — at a significant discount (30-45%) compared to On-Demand pricing plus an additional 5% during off-peak times for a total of up to 50% savings.

Reference: <https://aws.amazon.com/ec2/spot/pricing/>

#### NEW QUESTION 5

You are designing a service that aggregates clickstream data in batch and delivers reports to subscribers via email only once per week. Data is extremely spiky, geographically distributed, high-scale, and unpredictable. How should you design this system?

- A. Use a large RedShift cluster to perform the analysis, and a fleet of Lambdas to perform record inserts into the RedShift table
- B. Lambda will scale rapidly enough for the traffic spikes.
- C. Use a CloudFront distribution with access log delivery to S3. Clicks should be recorded as querystring GETs to the distribution
- D. Reports are built and sent by periodically running EMR jobs over the access logs in S3.

- E. Use API Gateway invoking Lambdas which PutRecords into Kinesis, and EMR running Spark performing GetRecords on Kinesis to scale with spike
- F. Spark on EMR outputs the analysis to S3, which are sent out via email.
- G. Use AWS Elasticsearch service and EC2 Auto Scaling group
- H. The Autoscaling groups scale based on click throughput and stream into the Elasticsearch domain, which is also scalable
- I. Use Kibana to generate reports periodically.

**Answer: B**

**Explanation:**

Because you only need to batch analyze, anything using streaming is a waste of money. CloudFront is a Gigabit-Scale HTTP(S) global request distribution service, so it can handle scale, geo-spread, spikes, and unpredictability. The Access Logs will contain the GET data and work just fine for batch analysis and email using EMR.

Can I use Amazon CloudFront if I expect usage peaks higher than 10 Gbps or 15,000 RPS? Yes. Complete our request for higher limits here, and we will add more capacity to your account within two business days.

Reference: <https://aws.amazon.com/Cloudfront/faqs/>

**NEW QUESTION 6**

To monitor API calls against our AWS account by different users and entities, we can use to create a history of calls in bulk for later review, and use for reacting to AWS API calls in real-time.

- A. AWS Config; AWS Inspector
- B. AWS CloudTrail; AWS Config
- C. AWS CloudTrail; CloudWatch Events
- D. AWS Config; AWS Lambda

**Answer: C**

**Explanation:**

CloudTrail is a batch API call collection service, CloudWatch Events enables real-time monitoring of calls through the Rules object interface.

Reference: <https://aws.amazon.com/whitepapers/security-at-scale-governance-in-aws/>

**NEW QUESTION 7**

How does Amazon RDS multi Availability Zone model work?

- A. A second, standby database is deployed and maintained in a different availability zone from master, using synchronous replication.
- B. A second, standby database is deployed and maintained in a different availability zone from master using asynchronous replication.
- C. A second, standby database is deployed and maintained in a different region from master using asynchronous replication.
- D. A second, standby database is deployed and maintained in a different region from master using synchronous replication.

**Answer: A**

**Explanation:**

In a Multi-AZ deployment, Amazon RDS automatically provisions and maintains a synchronous standby replica in a different Availability Zone.

Reference: <http://docs.aws.amazon.com/AmazonRDS/latest/UserGuide/Concepts.MultiAZ.html>

**NEW QUESTION 8**

You need to create a simple, holistic check for your system's general availability and uptime. Your system presents itself as an HTTP-speaking API. What is the most simple tool on AWS to achieve this with?

- A. Route53 Health Checks
- B. CloudWatch Health Checks
- C. AWS ELB Health Checks
- D. EC2 Health Checks

**Answer: A**

**Explanation:**

You can create a health check that will run into perpetuity using Route53, in one API call, which will ping your service via HTTP every 10 or 30 seconds.

Amazon Route 53 must be able to establish a TCP connection with the endpoint within four seconds. In addition, the endpoint must respond with an HTTP status code of 200 or greater and less than 400 within two seconds after connecting.

Reference:

<http://docs.aws.amazon.com/Route53/latest/DeveloperGuide/dns-failover-determining-health-of-endpoints.html>

**NEW QUESTION 9**

Which status represents a failure state in AWS CloudFormation?

- A. `UPDATE_COMPLETE_CLEANUP_IN_PROGRESS`
- B. `DELETE_COMPLETE_WITH_ARTIFACTS`
- C. `ROLLBACK_IN_PROGRESS`
- D. `ROLLBACK_FAILED`

**Answer: C**

**Explanation:**

ROLLBACK\_IN\_PROGRESS means an UpdateStack operation failed and the stack is in the process of trying to return to the valid, pre-update state.

UPDATE\_COMPLETE\_CLEANUP\_IN\_PROGRESS means an update was successful, and CloudFormation is deleting any replaced, no longer used resources.

ROLLBACK\_FAILED is not a CloudFormation state (but UPDATE\_ROLLBACK\_FAILED is). DELETE\_COMPLETE\_WITH\_ARTIFACTS does not exist at all.

Reference:

<http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/using-cfn-updating-stacks.html>

#### NEW QUESTION 10

For AWS Auto Scaling, what is the first transition state an existing instance enters after leaving steady state in Standby mode?

- A. Detaching
- B. Terminating:Wait
- C. Pending
- D. EnteringStandby

**Answer: C**

#### Explanation:

You can put any instance that is in an InService state into a Standby state. This enables you to remove the instance from service, troubleshoot or make changes to it, and then put it back into service. Instances in a Standby state continue to be managed by the Auto Scaling group. However, they are not an active part of your application until you put them back into service.

Reference: <http://docs.aws.amazon.com/AutoScaling/latest/DeveloperGuide/AutoScalingGroupLifecycle.html>

#### NEW QUESTION 10

When thinking of AWS Elastic Beanstalk's model, which is true?

- A. Applications have many deployments, deployments have many environments.
- B. Environments have many applications, applications have many deployments.
- C. Applications have many environments, environments have many deployments.
- D. Deployments have many environments, environments have many application

**Answer: C**

#### Explanation:

Applications group logical services. Environments belong to Applications, and typically represent different deployment levels (dev, stage, prod, fo forth).

Deployments belong to environments, and are pushes of bundles of code for the environments to run.

Reference: <http://docs.aws.amazon.com/elasticbeanstalk/latest/dg/Welcome.html>

#### NEW QUESTION 14

There are a number of ways to purchase compute capacity on AWS. Which orders the price per compute or memory unit from LOW to HIGH (cheapest to most expensive), on average?

(A) On-Demand (B) Spot (C) Reserved

- A. A, B, C
- B. C, B, A
- C. B, C, A
- D. A, C, B

**Answer: C**

#### Explanation:

Spot instances are usually many, many times cheaper than on-demand prices. Reserved instances, depending on their term and utilization, can yield approximately 33% to 66% cost savings. On-Demand prices are the baseline price and are the most expensive way to purchase EC2 compute time. Reference:

[https://d0.awsstatic.com/whitepapers/Cost\\_Optimization\\_with\\_AWS.pdf](https://d0.awsstatic.com/whitepapers/Cost_Optimization_with_AWS.pdf)

#### NEW QUESTION 15

Which of these techniques enables the fastest possible rollback times in the event of a failed deployment?

- A. Rolling; Immutable
- B. Rolling; Mutable
- C. Canary or A/B
- D. Blue-Green

**Answer: D**

#### Explanation:

AWS specifically recommends Blue-Green for super-fast, zero-downtime deploys - and thus rollbacks, which are redeploying old code.

You use various strategies to migrate the traffic from your current application stack (blue) to a new version of the application (green). This is a popular technique for deploying applications with zero downtime. Reference: <https://d0.awsstatic.com/whitepapers/overview-of-deployment-options-on-aws.pdf>

#### NEW QUESTION 20

Why are more frequent snapshots or EBS Volumes faster?

- A. Blocks in EBS Volumes are allocated lazily, since while logically separated from other EBS Volumes, Volumes often share the same physical hardware.
- B. Snapshotting the first time forces full block range allocation, so the second snapshot doesn't need to perform the allocation phase and is faster.
- C. The snapshots are incremental so that only the blocks on the device that have changed after your last snapshot are saved in the new snapshot.
- D. AWS provisions more disk throughput for burst capacity during snapshots if the drive has been pre-warmed by snapshotting and reading all blocks.
- E. The drive is pre-warmed, so block access is more rapid for volumes when every block on the device has already been read at least one time.

**Answer: B**

#### Explanation:



After writing data to an EBS volume, you can periodically create a snapshot of the volume to use as a baseline for new volumes or for data backup. If you make periodic snapshots of a volume, the snapshots are incremental so that only the blocks on the device that have changed after your last snapshot are saved in the new snapshot. Even though snapshots are saved incrementally, the snapshot deletion process is designed so that you need to retain only the most recent snapshot in order to restore the volume.

Reference: <http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/ebs-creating-snapshot.html>

#### NEW QUESTION 21

For AWS CloudFormation, which stack state refuses UpdateStack calls?

- A. `UPDATE_ROLLBACK_FAILED`
- B. `UPDATE_ROLLBACK_COMPLETE`
- C. `UPDATE_CONIPLETE`
- D. `CREATE_COMPLETE`

**Answer:** A

#### Explanation:

When a stack is in the `UPDATE_ROLLBACK_FAILED` state, you can continue rolling it back to return it to a working state (to `UPDATE_ROLLBACK_COMPLETE`). You cannot update a stack that is in the `UPDATE_ROLLBACK_FAILED` state. However, if you can continue to roll it back, you can return the stack to its original settings and try to update it again.

Reference:

<http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/using-cfn-updating-stacks-continueupdateandrollback.html>

#### NEW QUESTION 23

You need to migrate 10 million records in one hour into DynamoDB. All records are 1.5KB in size. The data is evenly distributed across the partition key. How many write capacity units should you provision during this batch load?

- A. 6667
- B. 4166
- C. 5556
- D. 2778

**Answer:** C

#### Explanation:

You need 2 units to make a 1.5KB write, since you round up. You need 20 million total units to perform this load. You have 3600 seconds to do so. Divide and round up for 5556.

Reference: <http://docs.aws.amazon.com/amazondynamodb/latest/developerguide/HowItWorks.ProvisionedThroughput.html>

#### NEW QUESTION 27

You meet once per month with your operations team to review the past month's data. During the meeting, you realize that 3 weeks ago, your monitoring system which pings over HTTP from outside AWS recorded a large spike in latency on your 3-tier web service API.

You use DynamoDB for the database layer, ELB, EBS, and EC2 for the business logic tier, and SQS, ELB, and EC2 for the presentation layer.

Which of the following techniques will NOT help you figure out what happened?

- A. Check your CloudTrail log history around the spike's time for any API calls that caused slowness.
- B. Review CloudWatch Metrics graphs to determine which component(s) slowed the system down.
- C. Review your ELB access logs in S3 to see if any ELBs in your system saw the latency.
- D. Analyze your logs to detect bursts in traffic at that time

**Answer:** B

#### Explanation:

Metrics data are available for 2 weeks. If you want to store metrics data beyond that duration, you can retrieve it using our GetMetricStatistics API as well as a number of applications and tools offered by AWS partners.

Reference: <https://aws.amazon.com/cloudwatch/faqs/>

#### NEW QUESTION 28

For AWS CloudFormation, which is true?

- A. Custom resources using SNS have a default timeout of 3 minutes.
- B. Custom resources using SNS do not need a `ServiceToken` property.
- C. Custom resources using Lambda and `Code.ZipFile` allow inline nodejs resource composition.
- D. Custom resources using Lambda do not need a `ServiceToken` property

**Answer:** C

#### Explanation:

Code is a property of the `AWS::Lambda::Function` resource that enables you to specify the source code of an AWS Lambda (Lambda) function. You can point to a file in an Amazon Simple Storage Service (Amazon S3) bucket or specify your source code as inline text (for nodejs runtime environments only). Reference:

<http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/template-custom-resources.html>

#### NEW QUESTION 31

You run a 2000-engineer organization. You are about to begin using AWS at a large scale for the first time. You want to integrate with your existing identity management system running on Microsoft Active Directory, because your organization is a power-user of Active Directory. How should you manage your AWS identities in the most simple manner?

- A. Use a large AWS Directory Service Simple AD.

- B. Use a large AWS Directory Service AD Connector.
- C. Use an Sync Domain running on AWS Directory Service.
- D. Use an AWS Directory Sync Domain running on AWS Lambda

**Answer:** B

**Explanation:**

You must use AD Connector as a power-user of Microsoft Active Directory. Simple AD only works with a subset of AD functionality. Sync Domains do not exist; they are made up answers.

AD Connector is a directory gateway that allows you to proxy directory requests to your on-premises Microsoft Active Directory, without caching any information in the cloud. AD Connector comes in 2 sizes; small and large. A small AD Connector is designed for smaller organizations of up to 500 users. A large AD Connector is designed for larger organizations of up to 5,000 users.

Reference: <https://aws.amazon.com/directoryservice/details/>

**NEW QUESTION 33**

When thinking of AWS OpsWorks, which of the following is not an instance type you can allocate in a stack layer?

- A. 24/7 instances
- B. Spot instances
- C. Time-based instances
- D. Load-based instances

**Answer:** B

**Explanation:**

AWS OpsWorks supports the following instance types, which are characterized by how they are started and stopped. 24/7 instances are started manually and run until you stop them. Time-based instances are run by AWS OpsWorks on a specified daily and weekly schedule. They allow your stack to automatically adjust the number of instances to accommodate predictable usage patterns. Load-based instances are automatically started and stopped by AWS OpsWorks, based on specified load metrics, such as CPU utilization. They allow your stack to automatically adjust the number of instances to accommodate variations in incoming traffic. Load-based instances are available only for Linux-based stacks. Reference: <http://docs.aws.amazon.com/opsworks/latest/userguide/welcome.html>

**NEW QUESTION 35**

Which of these is not a CloudFormation Helper Script?

- A. cfn-signal
- B. cfn-hup
- C. cfn-request
- D. cfn-get-metadata

**Answer:** C

**Explanation:**

This is the complete list of CloudFormation Helper Scripts: cfn-init, cfn-signal, cfn-get-metadata, cfn-hup Reference: <http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/cfn-helper-scripts-reference.html>

**NEW QUESTION 40**

What is the scope of AWS IAM?

- A. Global
- B. Availability Zone
- C. Region
- D. Placement Group

**Answer:** A

**Explanation:**

IAM resources are all global; there is not regional constraint. Reference: <https://aws.amazon.com/iam/faqs/>

**NEW QUESTION 44**

Your CTO has asked you to make sure that you know what all users of your AWS account are doing to change resources at all times. She wants a report of who is doing what over time, reported to her once per week, for as broad a resource type group as possible. How should you do this?

- A. Create a global AWS CloudTrail Trail
- B. Configure a script to aggregate the log data delivered to S3 once per week and deliver this to the CTO.
- C. Use CloudWatch Events Rules with an SNS topic subscribed to all AWS API call
- D. Subscribe the CTO to an email type delivery on this SNS Topic.
- E. Use AWS IAM credential reports to deliver a CSV of all uses of IAM User Tokens over time to the CTO.
- F. Use AWS Config with an SNS subscription on a Lambda, and insert these changes over time into a DynamoDB table
- G. Generate reports based on the contents of this table.

**Answer:** A

**Explanation:**

This is the ideal use case for AWS CloudTrail.

CloudTrail provides visibility into user activity by recording API calls made on your account. CloudTrail records important information about each API call, including the name of the API, the identity of the caller, the time of the API call, the request parameters, and the response elements returned by the AWS service. This information helps you to track changes made to your AWS resources and to troubleshoot operational issues. CloudTrail makes it easier to ensure compliance with internal policies and regulatory standards. Reference: <https://aws.amazon.com/Cloudtrail/faqs/>

#### NEW QUESTION 46

What is required to achieve gigabit network throughput on EC2? You already selected cluster-compute, 10GB instances with enhanced networking, and your workload is already network-bound, but you are not seeing 10 gigabit speeds.

- A. Enable biplane networking on your servers, so packets are non-blocking in both directions and there's no switching overhead.
- B. Ensure the instances are in different VPCs so you don't saturate the Internet Gateway on any one VPC.
- C. Select PIOPS for your drives and mount several, so you can provision sufficient disk throughput.
- D. Use a placement group for your instances so the instances are physically near each other in the same Availability Zone.

**Answer: D**

#### Explanation:

You are not guaranteed 10gigabit performance, except within a placement group.

A placement group is a logical grouping of instances within a single Availability Zone. Using placement groups enables applications to participate in a low-latency, 10 Gbps network. Placement groups are recommended for applications that benefit from low network latency, high network throughput, or both. Reference: <http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/placement-groups.html>

#### NEW QUESTION 48

What does it mean if you have zero IOPS and a non-empty I/O queue for all EBS volumes attached to a running EC2 instance?

- A. The I/O queue is buffer flushing.
- B. Your EBS disk head(s) is/are seeking magnetic stripes.
- C. The EBS volume is unavailable.
- D. You need to re-mount the EBS volume in the O

**Answer: C**

#### Explanation:

This is the definition of Unavailable from the EC2 and EBS SLA.

"Unavailable" and "Unavail|ability" mean... For Amazon EBS, when all of your attached volumes perform zero read write IO, with pending IO in the queue.

Reference: <https://aws.amazon.com/ec2/sla/>

#### NEW QUESTION 49

Which of these configuration or deployment practices is a security risk for RDS?

- A. Storing SQL function code in plaintext
- B. Non-Multi-AZ RDS instance
- C. Having RDS and EC2 instances exist in the same subnet
- D. RDS in a public subnet

**Answer: D**

#### Explanation:

Making RDS accessible to the public internet in a public subnet poses a security risk, by making your database directly addressable and spamnable.

DB instances deployed within a VPC can be configured to be accessible from the Internet or from EC2 instances outside the VPC. If a VPC security group specifies a port access such as TCP port 22, you would not be able to access the DB instance because the firewall for the DB instance provides access only via the IP addresses specified by the DB security groups the instance is a member of and the port defined when the DB instance was created.

Reference: <http://docs.aws.amazon.com/AmazonRDS/latest/UserGuide/Overview.RDSSecurityGroups.html>

#### NEW QUESTION 53

Your company wants to understand where cost is coming from in the company's production AWS account. There are a number of applications and services running at any given time. Without expending too much initial development time, how best can you give the business a good understanding of which applications cost the most per month to operate?

- A. Create an automation script which periodically creates AWS Support tickets requesting detailed intra-month information about your bill.
- B. Use custom CloudWatch Metrics in your system, and put a metric data point whenever cost is incurred.
- C. Use AWS Cost Allocation Tagging for all resources which support i
- D. Use the Cost Explorer to analyze costs throughout the month.
- E. Use the AWS Price API and constantly running resource inventory scripts to calculate total price based on multiplication of consumed resources over time.

**Answer: C**

#### Explanation:

Cost Allocation Tagging is a built-in feature of AWS, and when coupled with the Cost Explorer, provides a simple and robust way to track expenses.

You can also use tags to filter views in Cost Explorer. Note that before you can filter views by tags in Cost Explorer, you must have applied tags to your resources and activate them, as described in the following sections. For more information about Cost Explorer, see Analyzing Your Costs with Cost Explorer. Reference:

<http://docs.aws.amazon.com/awsaccountbilling/latest/aboutv2/cost-alloc-tags.html>

#### NEW QUESTION 57

There is a very serious outage at AWS. EC2 is not affected, but your EC2 instance deployment scripts stopped working in the region with the outage. What might be the issue?

- A. The AWS Console is down, so your CLI commands do not work.
- B. S3 is unavailable, so you can't create EBS volumes from a snapshot you use to deploy new volumes.
- C. AWS turns off the `DeployCode` API call when there are major outages, to protect from system floods.
- D. None of the other answers make sens
- E. If EC2 is not affected, it must be some other issu

**Answer:** B

**Explanation:**

S3 stores all snapshots. If S3 is unavailable, snapshots are unavailable.

Amazon EC2 also uses Amazon S3 to store snapshots (backup copies) of the data volumes. You can use snapshots for recovering data quickly and reliably in case of application or system failures. You can also use snapshots as a baseline to create multiple new data volumes, expand the size of an existing data volume, or move data volumes across multiple Availability Zones, thereby making your data usage highly scalable. For more information about using data volumes and snapshots, see Amazon Elastic Block Store.

Reference: <http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/AmazonS3.html>

**NEW QUESTION 61**

What is a circular dependency in AWS CloudFormation?

- A. When a Template references an earlier version of itself.
- B. When Nested Stacks depend on each other.
- C. When Resources form a DependsOn loop.
- D. When a Template references a region, which references the original Template

**Answer:** C

**Explanation:**

To resolve a dependency error, add a DependsOn attribute to resources that depend on other resources in your template. In some cases, you must explicitly declare dependencies so that AWS CloudFormation can create or delete resources in the correct order. For example, if you create an Elastic IP and a VPC with an Internet gateway in the same stack, the Elastic IP must depend on the Internet gateway attachment. For additional information, see DependsOn Attribute.

Reference: <http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/troubleshooting.html#troubleshooting-errors-dependence-error>

**NEW QUESTION 65**

You need to run a very large batch data processing job one time per day. The source data exists entirely in S3, and the output of the processing job should also be written to S3 when finished. If you need to version control this processing job and all setup and teardown logic for the system, what approach should you use?

- A. Model an AWS EMR job in AWS Elastic Beanstalk.
- B. Model an AWS EMR job in AWS CloudFormation.
- C. Model an AWS EMR job in AWS OpsWorks.
- D. Model an AWS EMR job in AWS CLI Compose

**Answer:** B

**Explanation:**

To declaratively model build and destroy of a cluster, you need to use AWS CloudFormation. OpsWorks and Elastic Beanstalk cannot directly model EMR Clusters. The CLI is not declarative, and CLI Composer does not exist.

Reference:

<http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/aws-resource-emr-cluster.html>

**NEW QUESTION 66**

You work for a company that automatically tags photographs using artificial neural networks (ANNs), which run on GPUs using C++. You receive millions of images at a time, but only 3 times per day on average. These images are loaded into an AWS S3 bucket you control for you in a batch, and then the customer publishes a JSON-formatted manifest into another S3 bucket you control as well. Each image takes 10 milliseconds to process using a full GPU. Your neural network software requires 5 minutes to bootstrap. Image tags are JSON objects, and you must publish them to an S3 bucket. Which of these is the best system architecture for this system?

- A. Create an OpsWorks Stack with two Layers
- B. The first contains lifecycle scripts for launching and bootstrapping an HTTP API on G2 instances for ANN image processing, and the second has an always-on instance which monitors the S3 manifest bucket for new files
- C. When a new file is detected, request instances to boot on the ANN layer
- D. When the instances are booted and the HTTP APIs are up, submit processing requests to independent instances.
- E. Make an S3 notification configuration which publishes to AWS Lambda on the manifest bucket
- F. Make the Lambda create a CloudFormation Stack which contains the logic to construct an autoscaling worker tier of EC2 G2 instances with the ANN code on each instance
- G. Create an SQS queue of the images in the manifest
- H. Tear the stack down when the queue is empty.
- I. Deploy your ANN code to AWS Lambda as a bundled binary for the C++ extension
- J. Make an S3 notification configuration on the manifest, which publishes to another AWS Lambda running controller code
- K. This controller code publishes all the images in the manifest to AWS Kinesis
- L. Your ANN code Lambda Function uses the Kinesis as an Event Source
- M. The system automatically scales when the stream contains image events.
- N. Create an Auto Scaling, Load Balanced Elastic Beanstalk worker tier Application and Environment
- O. Deploy the ANN code to G2 instances in this tier
- P. Set the desired capacity to 1. Make the code periodically check S3 for new manifest
- Q. When a new manifest is detected, push all of the images in the manifest into the SQS queue associated with the Elastic Beanstalk worker tier.

**Answer:** B

**Explanation:**

The Elastic Beanstalk option is incorrect because it requires a constantly-polling instance, which may break and costs money.

The Lambda fleet option is incorrect because AWS Lambda does not support GPU usage.

The OpsWorks stack option both requires a constantly-polling instance, and also requires complex timing and capacity planning logic.

The CloudFormation option requires no polling, has no always-on instances, and allows arbitrarily fast processing by simply setting the instance count as high as needed.

Reference: <http://docs.aws.amazon.com/lambda/latest/dg/current-supported-versions.html>



**NEW QUESTION 67**

You are designing a system which needs, at minimum, 8 m4.large instances operating to service traffic. When designing a system for high availability in the us-east-1 region, which has 6 Availability Zones, you company needs to be able to handle death of a full availability zone. How should you distribute the servers, to save as much cost as possible, assuming all of the EC2 nodes are properly linked to an ELB? Your VPC account can utilize us-east-1's AZ's a through f, inclusive.

- A. 3 servers in each of AZ's a through d, inclusive.
- B. 8 servers in each of AZ's a and b.
- C. 2 servers in each of AZ's a through e, inclusive.
- D. 4 servers in each of AZ's a through c, inclusiv

**Answer:** C

**Explanation:**

You need to design for N+1 redundancy on Availability Zones.  $ZONE\_COUNT = (REQUIRED\_INSTANCES / INSTANCE\_COUNT\_PER\_ZONE) + 1$ . To minimize cost, spread the instances across as many possible zones as you can. By using a though e, you are allocating 5 zones. Using 2 instances, you have 10 total instances. If a single zone fails, you have 4 zones left, with 2 instances each, for a total of 8 instances. By spreading out as much as possible, you have increased cost by only 25% and significantly de-risked an availability zone failure.

Reference:

<http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/using-regions-availability-zones.html#concepts-regions-availability-zones>

**NEW QUESTION 70**

You need to create a Route53 record automatically in CloudFormation when not running in production during all launches of a Template. How should you implement this?

- A. Use a `<code>Parameter</code>` for `<code>environment</code>`, and add a `<code>Condition</code>` on the Route53 `<code>Resource</code>` in the template to create the record only when`<code>environment</code>` is not `<code>production</code>`.
- B. Create two templates, one with the Route53 record value and one with a null value for the recor
- C. Use the one without it when deploying to production.
- D. Use a `<code>Parameter</code>` for `<code>environment</code>`, and add a `<code>Condition</code>` on the Route53 `<code>Resource</code>` in the template to create the record with a null string when`<code>environment</code>` is `<code>production</code>`.
- E. Create two templates, one with the Route53 record and one without i
- F. Use the one without it when deploying to production.

**Answer:** A

**Explanation:**

The best way to do this is with one template, and a Condition on the resource. Route53 does not allow null strings for records.

Reference:

<http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/conditions-section-structure.html>

**NEW QUESTION 72**

What is web identity federation?

- A. Use of an identity provider like Google or Facebook to become an AWS IAM User.
- B. Use of an identity provider like Google or Facebook to exchange for temporary AWS security credentials.
- C. Use of AWS IAM User tokens to log in as a Google or Facebook user.
- D. Use of AWS STS Tokens to log in as a Google or Facebook use

**Answer:** B

**Explanation:**

users of your app can sign in using a well-known identity provider (IdP) -such as Login with Amazon, Facebook, Google, or any other OpenID Connect (OIDC)-compatible IdP, receive an authentication token, and then exchange that token for temporary security credentials in AWS that map to an IAM role with permissions to use the resources in your AWS account.

Reference: [http://docs.aws.amazon.com/IAM/latest/UserGuide/id\\_roles\\_providers\\_oidc.html](http://docs.aws.amazon.com/IAM/latest/UserGuide/id_roles_providers_oidc.html)

**NEW QUESTION 76**

Your system uses a multi-master, multi-region DynamoDB configuration spanning two regions to achieve high availability. For the first time since launching your system, one of the AWS Regions in which you operate over went down for 3 hours, and the failover worked correctly. However, after recovery, your users are experiencing strange bugs, in which users on different sides of the globe see different data. What is a likely design issue that was not accounted for when launching?

- A. The system does not have Lambda Functor Repair Automations, to perform table scans and chack for corrupted partition blocks inside the Table in the recovered Region.
- B. The system did not implement DynamoDB Table Defragmentation for restoring partition performance in the Region that experienced an outage, so data is served stale.
- C. The system did not include repair logic and request replay buffering logic for post-failure, to re-synchronize data to the Region that was unavailable for a number of hours.
- D. The system did not use DynamoDB Consistent Read requests, so the requests in different areas are not utilizing consensus across Regions at runtime.

**Answer:** C

**Explanation:**

When using multi-region DynamoDB systems, it is of paramount importance to make sure that all requests made to one Region are replicated to the other. Under normal operation, the system in question would correctly perform write replays into the other Region. If a whole Region went down, the system would be unable to perform these writes for the period of downtime. Without buffering write requests somehow, there would be no way for the system to replay dropped cross-region writes, and the requests would be serviced differently depending on the Region from which they were served after recovery. Reference:

<http://docs.aws.amazon.com/amazondynamodb/latest/developerguide/Streams.CrossRegionRepl.html>

#### NEW QUESTION 78

When thinking of AWS Elastic Beanstalk, which statement is true?

- A. Worker tiers pull jobs from SNS.
- B. Worker tiers pull jobs from HTTP.
- C. Worker tiers pull jobs from JSON.
- D. Worker tiers pull jobs from SQ

**Answer:** D

#### Explanation:

Elastic Beanstalk installs a daemon on each Amazon EC2 instance in the Auto Scaling group to process Amazon SQS messages in the worker environment. The daemon pulls data off the Amazon SQS queue, inserts it into the message body of an HTTP POST request, and sends it to a user-configurable URL path on the local host. The content type for the message body within an HTTP POST request is application/json by default.

Reference:

<http://docs.aws.amazon.com/elasticbeanstalk/latest/dg/using-features-managing-env-tiers.html>

#### NEW QUESTION 79

Your company needs to automate 3 layers of a large cloud deployment. You want to be able to track this deployment's evolution as it changes over time, and carefully control any alterations. What is a good way to automate a stack to meet these requirements?

- A. Use OpsWorks Stacks with three layers to model the layering in your stack.
- B. Use CloudFormation Nested Stack Templates, with three child stacks to represent the three logical layers of your cloud.
- C. Use AWS Config to declare a configuration set that AWS should roll out to your cloud.
- D. Use Elastic Beanstalk Linked Applications, passing the important DNS entries between layers using the metadata interface.

**Answer:** B

#### Explanation:

Only CloudFormation allows source controlled, declarative templates as the basis for stack automation. Nested Stacks help achieve clean separation of layers while simultaneously providing a method to control all layers at once when needed.

Reference:

<https://blogs.aws.amazon.com/application-management/post/TxIT9JYOOS8AB9I/Use-Nested-Stacks-to-Create-Reusable-Templates-and-Support-Role-Specialization>

#### NEW QUESTION 83

You need the absolute highest possible network performance for a cluster computing application. You already selected homogeneous instance types supporting 10 gigabit enhanced networking, made sure that your workload was network bound, and put the instances in a placement group. What is the last optimization you can make?

- A. Use 9001 MTU instead of 1500 for Jumbo Frames, to raise packet body to packet overhead ratios.
- B. Segregate the instances into different peered VPCs while keeping them all in a placement group, so each one has its own Internet Gateway.
- C. Bake an AMI for the instances and relaunch, so the instances are fresh in the placement group and don't have noisy neighbors.
- D. Turn off SYN/ACK on your TCP stack or begin using UDP for higher throughput

**Answer:** A

#### Explanation:

For instances that are colocated inside a placement group, jumbo frames help to achieve the maximum network throughput possible, and they are recommended in this case. For more information, see Placement Groups.

Reference: [http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/network\\_mtu.html#jumbo\\_frame\\_instances](http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/network_mtu.html#jumbo_frame_instances)

#### NEW QUESTION 85

If you're trying to configure an AWS Elastic Beanstalk worker tier for easy debugging if there are problems finishing queue jobs, what should you configure?

- A. Configure Rolling Deployments.
- B. Configure Enhanced Health Reporting
- C. Configure Blue-Green Deployments.
- D. Configure a Dead Letter Queue

**Answer:** D

#### Explanation:

Elastic Beanstalk worker environments support Amazon Simple Queue Service (SQS) dead letter queues. A dead letter queue is a queue where other (source) queues can send messages that for some reason could not be successfully processed. A primary benefit of using a dead letter queue is the ability to sideline and isolate the unsuccessfully processed messages. You can then analyze any messages sent to the dead letter queue to try to determine why they were not successfully processed. Reference:

<http://docs.aws.amazon.com/elasticbeanstalk/latest/dg/using-features-managing-env-tiers.html#worker-deadletter>

#### NEW QUESTION 90

You have a high security requirement for your AWS accounts. What is the most rapid and sophisticated setup you can use to react to AWS API calls to your account?

- A. Subscription to AWS Config via an SNS Topic
- B. Use a Lambda Function to perform in-flight analysis and react to changes as they occur.
- C. Global AWS CloudTrail setup delivering to S3 with an SNS subscription to the deliver notifications, pushing into a Lambda, which inserts records into an ELK stack for analysis.
- D. Use a CloudWatch Rule ScheduleExpression to periodically analyze IAM credential log
- E. Push the deltas for events into an ELK stack and perform ad-hoc analysis there.

F. CloudWatch Events Rules which trigger based on all AWS API calls, submitting all events to an AWS Kinesis Stream for arbitrary downstream analysis.

**Answer:** D

**Explanation:**

CloudWatch Events allow subscription to AWS API calls, and direction of these events into Kinesis Streams. This allows a unified, near real-time stream for all API calls, which can be analyzed with any tool(s) of your choosing downstream.

Reference: [http://docs.aws.amazon.com/AmazonCloudWatch/latest/DeveloperGuide/EventTypes.html#api\\_event\\_type](http://docs.aws.amazon.com/AmazonCloudWatch/latest/DeveloperGuide/EventTypes.html#api_event_type)

**NEW QUESTION 92**

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