

# Amazon

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

Amazon AWS Certified DevOps Engineer Professional



**NEW QUESTION 1**

Your application consists of 10% writes and 90% reads. You currently service all requests through a Route53 Alias Record directed towards an AWS ELB, which sits in front of an EC2 Auto Scaling Group. Your system is getting very expensive when there are large traffic spikes during certain news events, during which many more people request to read similar data all at the same time. What is the simplest and cheapest way to reduce costs and scale with spikes like this?

- A. Create an S3 bucket and asynchronously replicate common requests responses into S3 object
- B. When a request comes in for a precomputed response, redirect to AWS S3.
- C. Create another ELB and Auto Scaling Group layer mounted on top of the other system, adding a tier to the system
- D. Serve most read requests out of the top layer.
- E. Create a CloudFront Distribution and direct Route53 to the Distribution
- F. Use the ELB as an Origin and specify Cache Behaviours to proxy cache requests which can be served late.
- G. Create a Memcached cluster in AWS ElastiCache
- H. Create cache logic to serve requests which can be served late from the in-memory cache for increased performance.

**Answer:** C

**Explanation:**

CloudFront is ideal for scenarios in which entire requests can be served out of a cache and usage patterns involve heavy reads and spikiness in demand. A cache behavior is the set of rules you configure for a given URL pattern based on file extensions, file names, or any portion of a URL path on your website (e.g., \*.jpg). You can configure multiple cache behaviors for your web distribution. Amazon CloudFront will match incoming viewer requests with your list of URL patterns, and if there is a match, the service will honor the cache behavior you configure for that URL pattern. Each cache behavior can include the following Amazon CloudFront configuration values: origin server name, viewer connection protocol, minimum expiration period, query string parameters, cookies, and trusted signers for private content.

Reference: <https://aws.amazon.com/Cloudfront/dynamic-content/>

**NEW QUESTION 2**

You need to perform ad-hoc business analytics queries on well-structured data. Data comes in constantly at a high velocity. Your business intelligence team can understand SQL. What AWS service(s) should you look to first?

- A. Kinesis Firehose + RDS
- B. Kinesis Firehose + RedShift
- C. EMR using Hive
- D. EMR running Apache Spark

**Answer:** B

**Explanation:**

Kinesis Firehose provides a managed service for aggregating streaming data and inserting it into RedShift. RedShift also supports ad-hoc queries over well-structured data using a SQL-compliant wire protocol, so the business team should be able to adopt this system easily.

Reference: <https://aws.amazon.com/kinesis/firehose/details/>

**NEW QUESTION 3**

What is server immutability?

- A. Not updating a server after creation.
- B. The ability to change server counts.
- C. Updating a server after creation.
- D. The inability to change server count

**Answer:** A

**Explanation:**

Disposable upgrades offer a simpler way to know if your application has unknown dependencies. The underlying EC2 instance usage is considered temporary or ephemeral in nature for the period of deployment until the current release is active. During the new release, a new set of EC2 instances are rolled out by terminating older instances. This type of upgrade technique is more common in an immutable infrastructure.

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

**NEW QUESTION 4**

You are creating an application which stores extremely sensitive financial information. All information in the system must be encrypted at rest and in transit. Which of these is a violation of this policy?

- A. ELB SSL termination.
- B. ELB Using Proxy Protocol v1.
- C. CloudFront Viewer Protocol Policy set to HTTPS redirection.
- D. Telling S3 to use AES256 on the server-side

**Answer:** A

**Explanation:**

Terminating SSL terminates the security of a connection over HTTP, removing the S for "Secure" in HTTPS. This violates the "encryption in transit" requirement in the scenario.

Reference:

<http://docs.aws.amazon.com/ElasticLoadBalancing/latest/DeveloperGuide/elb-listener-config.html>

**NEW QUESTION 5**

Your system automatically provisions EIPs to EC2 instances in a VPC on boot. The system provisions the whole VPC and stack at once. You have two of them per VPC. On your new AWS account, your attempt to create a Development environment failed, after successfully creating Staging and Production environments in

the same region. What happened?

- A. You didn't choose the Development version of the AMI you are using.
- B. You didn't set the Development flag to true when deploying EC2 instances.
- C. You hit the soft limit of 5 EIPs per region and requested a 6th.
- D. You hit the soft limit of 2 VPCs per region and requested a 3rd.

**Answer:** C

**Explanation:**

There is a soft limit of 5 EIPs per Region for VPC on new accounts. The third environment could not allocate the 6th EIP.  
Reference: [http://docs.aws.amazon.com/general/latest/gr/aws\\_service\\_limits.html#limits\\_vpc](http://docs.aws.amazon.com/general/latest/gr/aws_service_limits.html#limits_vpc)

**NEW QUESTION 6**

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 7**

You are hired as the new head of operations for a SaaS company. Your CTO has asked you to make debugging any part of your entire operation simpler and as fast as possible. She complains that she has no idea what is going on in the complex, service-oriented architecture, because the developers just log to disk, and it's very hard to find errors in logs on so many services. How can you best meet this requirement and satisfy your CTO?

- A. Copy all log files into AWS S3 using a cron job on each instance
- B. Use an S3 Notification Configuration on the `PutBucket` event and publish events to AWS Lambda
- C. Use the Lambda to analyze logs as soon as they come in and flag issues.
- D. Begin using CloudWatch Logs on every service
- E. Stream all Log Groups into S3 object
- F. Use AWS EMR cluster jobs to perform ad-hoc MapReduce analysis and write new queries when needed.
- G. Copy all log files into AWS S3 using a cron job on each instance
- H. Use an S3 Notification Configuration on the `PutBucket` event and publish events to AWS Kinesis
- I. Use Apache Spark on AWS EMR to perform at-scale stream processing queries on the log chunks and flag issues.
- J. Begin using CloudWatch Logs on every service
- K. Stream all Log Groups into an AWS Elasticsearch Service Domain running Kibana 4 and perform log analysis on a search cluster.

**Answer:** D

**Explanation:**

The Elasticsearch and Kibana 4 combination is called the ELK Stack, and is designed specifically for real-time, ad-hoc log analysis and aggregation. All other answers introduce extra delay or require pre-defined queries.  
Amazon Elasticsearch Service is a managed service that makes it easy to deploy, operate, and scale Elasticsearch in the AWS Cloud. Elasticsearch is a popular open-source search and analytics engine for use cases such as log analytics, real-time application monitoring, and click stream analytics. Reference:  
<https://aws.amazon.com/elasticsearch-service/>

**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**

What is the scope of an EC2 security group?

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

**Answer:** C

**Explanation:**

A security group is tied to a region and can be assigned only to instances in the same region. You can't enable an instance to communicate with an instance outside its region using security group rules. Traffic from an instance in another region is seen as WAN bandwidth.

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

**NEW QUESTION 10**

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**

You want to pass queue messages that are 1GB each. How should you achieve this?

- A. Use Kinesis as a buffer stream for message bodies
- B. Store the checkpoint id for the placement in the Kinesis Stream in SQS.
- C. Use the Amazon SQS Extended Client Library for Java and Amazon S3 as a storage mechanism for message bodies.
- D. Use SQS's support for message partitioning and multi-part uploads on Amazon S3.
- E. Use AWS EFS as a shared pool storage medium
- F. Store filesystem pointers to the files on disk in the SQS message bodies.

**Answer:** B

**Explanation:**

You can manage Amazon SQS messages with Amazon S3. This is especially useful for storing and retrieving messages with a message size of up to 2 GB. To manage Amazon SQS messages with Amazon S3, use the Amazon SQS Extended Client Library for Java.

Reference:

<http://docs.aws.amazon.com/AWSSimpleQueueService/latest/SQSDeveloperGuide/s3-messages.html>

**NEW QUESTION 15**

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, and 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 17**

You run operations for a company that processes digital wallet payments at a very high volume. One second of downtime, during which you drop payments or are otherwise unavailable, loses you on average USD 100. You balance the financials of the transaction system once per day. Which database setup is best suited to address this business risk?

- A. A multi-AZ RDS deployment with synchronous replication to multiple standbys and read-replicas for fast failover and ACID properties.
- B. A multi-region, multi-master, active-active RDS configuration using database-level ACID design principles with database trigger writes for replication.
- C. A multi-region, multi-master, active-active DynamoDB configuration using application control-level BASE design principles with change-stream write queue buffers for replication.
- D. A multi-AZ DynamoDB setup with changes streamed to S3 via AWS Kinesis, for highly durable storage and BASE properties.

**Answer:** C

**Explanation:**

Only the multi-master, multi-region DynamoDB answer makes sense. Multi-AZ deployments do not provide sufficient availability when a business loses USD 360,000 per hour of unavailability. As RDS does not natively support multi-region, and ACID does not perform well at all over large distances between regions, only the DynamoDB answer works. Reference:

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

**NEW QUESTION 21**

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 25**

For AWS CloudFormation, which stack state refuses UpdateStack calls?

- A. `UPDATE_ROLLBACK_FAILED`
- B. `UPDATE_ROLLBACK_COMPLETE`
- C. `UPDATE_COMPLETE`
- 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-continueupdateorrollback.html>

**NEW QUESTION 29**

Your CTO thinks your AWS account was hacked. What is the only way to know for certain if there was unauthorized access and what they did, assuming your hackers are very sophisticated AWS engineers and doing everything they can to cover their tracks?

- A. Use CloudTrail Log File Integrity Validation.
- B. Use AWS Config SNS Subscriptions and process events in real time.
- C. Use CloudTrail backed up to AWS S3 and Glacier.
- D. Use AWS Config Timeline forensic

**Answer:** A

**Explanation:**

You must use CloudTrail Log File Validation (default or custom implementation), as any other tracking method is subject to forgery in the event of a full account compromise by sophisticated enough hackers. Validated log files are invaluable in security and forensic investigations. For example, a validated log file enables you to assert positively that the log file itself has not changed, or that particular user credentials performed specific API activity. The CloudTrail log file integrity validation process also lets you know if a log file has been deleted or changed, or assert positively that no log files were delivered to your account during a given period of time.

Reference:

<http://docs.aws.amazon.com/awscloudtrail/latest/userguide/cloudtrail-log-file-validation-intro.html>

**NEW QUESTION 34**

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 38**

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 `<code>ServiceToken</code>`property

**Answer:** C

**Explanation:**

Code is a property of the AWS::Lambda::Function resource that enables to you 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 41**

Your team wants to begin practicing continuous delivery using CloudFormation, to enable automated builds and deploys of whole, versioned stacks or stack layers. You have a 3-tier, mission-critical system. Which of the following is NOT a best practice for using CloudFormation in a continuous delivery environment?

- A. Use the AWS CloudFormation `<code>ValidateTemplate</code>` call before publishing changes to AWS.
- B. Model your stack in one template, so you can leverage CloudFormation's state management and dependency resolution to propagate all changes.
- C. Use CloudFormation to create brand new infrastructure for all stateless resources on each push, and run integration tests on that set of infrastructure.
- D. Parametrize the template and use `<code>Mappings</code>` to ensure your template works in multiple Regions.

**Answer:** B

**Explanation:**

Putting all resources in one stack is a bad idea, since different tiers have different life cycles and frequencies of change. For additional guidance about organizing your stacks, you can use two common frameworks: a multi-layered architecture and service-oriented architecture (SOA).

Reference:

<http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/best-practices.html#organizingstack>

**NEW QUESTION 43**

You are building a Ruby on Rails application for internal, non-production use which uses IV|ySQL as a database. You want developers without very much AWS experience to be able to deploy new code with a single command line push. You also want to set this up as simply as possible. Which tool is ideal for this setup?

- A. AWS CloudFormation
- B. AWS OpsWorks
- C. AWS ELB + EC2 with CLI Push
- D. AWS Elastic Beanstalk

**Answer:** D

**Explanation:**

Elastic Beanstalk's primary mode of operation exactly supports this use case out of the box. It is simpler than all the other options for this question.

With Elastic Beanstalk, you can quickly deploy and manage applications in the AWS cloud without worrying about the infrastructure that runs those applications.

AWS Elastic Beanstalk reduces management complexity without restricting choice or control. You simply upload your application, and Elastic Beanstalk automatically handles the details of capacity provisioning, load balancing, scaling, and application health monitoring.

Reference: [http://docs.aws.amazon.com/elasticbeanstalk/latest/dg/create\\_deploy\\_Ruby\\_rails.html](http://docs.aws.amazon.com/elasticbeanstalk/latest/dg/create_deploy_Ruby_rails.html)

**NEW QUESTION 47**

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 48**

What is the order of most-to-least rapidly-scaling (fastest to scale first)?

(A) EC2 + ELB + Auto Scaling (B) Lambda (C) RDS

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

**Answer:** A

**Explanation:**

Lambda is designed to scale instantly. EC2 + ELB + Auto Scaling require single-digit minutes to scale out. RDS will take atleast 15 minutes, and will apply OS patches or any other updates when applied. Reference: <https://aws.amazon.com/lambda/faqs/>

**NEW QUESTION 49**

You were just hired as a DevOps Engineer for a startup. Your startup uses AWS for 100% of their infrastructure. They currently have no automation at all for deployment, and they have had many failures while trying to deploy to production. The company has told you deployment process risk mitigation is the most important thing now, and you have a lot of budget for tools and AWS resources.

Their stack: 2-tier API

Data stored in DynamoDB or S3, depending on type Compute layer is EC2 in Auto Scaling Groups They use Route53 for DNS pointing to an ELB

An ELB balances load across the EC2 instances

The scaling group properly varies between 4 and 12 EC2 instances.

Which of the following approaches, given this company's stack and their priorities, best meets the company's needs?

- A. Model the stack in AWS Elastic Beanstalk as a single Application with multiple Environment
- B. Use Elastic Beanstalk's Rolling Deploy option to progressively roll out application code changes when promoting across environments.
- C. Model the stack in 3 CloudFormation templates: Data layer, compute layer, and networking layer
- D. Write stack deployment and integration testing automation following Blue-Green methodologies.
- E. Model the stack in AWS OpsWorks as a single Stack, with 1 compute layer and its associated ELB
- F. Use Chef and App Deployments to automate Rolling Deployment.
- G. Model the stack in 1 CloudFormation template, to ensure consistency and dependency graph resolution
- H. Write deployment and integration testing automation following Rolling Deployment methodologies.

**Answer: B**

**Explanation:**

AWS recommends Blue-Green for zero-downtime deploys. Since you use DynamoDB, and neither AWS OpsWorks nor AWS Elastic Beanstalk directly supports DynamoDB, the option selecting CloudFormation and Blue-Green is correct.

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. The deployment services like AWS Elastic Beanstalk, AWS CloudFormation, or AWS OpsWorks are particularly useful as they provide a simple way to clone your running application stack. You can set up a new version of your application (green) by simply cloning current version of the application (blue). Reference: <https://d0.awsstatic.com/whitepapers/overview-of-deployment-options-on-aws.pdf>

**NEW QUESTION 53**

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 SQS

**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 57**

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 59**

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