



Amazon

Exam Questions AWS-Certified-DevOps-Engineer-Professional

Amazon AWS Certified DevOps Engineer Professional

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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

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 4

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 5

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 6

Which of these is not an intrinsic function in AWS CloudFormation?

- A. Fn::Equals
- B. Fn::If
- C. Fn::Not
- D. Fn::Parse

Answer: D

Explanation:

This is the complete list of Intrinsic Functions...: Fn::Base64, Fn::And, Fn::Equals, Fn::If, Fn::Not, Fn::Or, Fn::FindInMap, Fn::GetAtt, Fn::GetAZs, Fn::Join, Fn::Select, Ref

Reference:

<http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/intrinsic-function-reference.html>

NEW QUESTION 7

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 8

You run accounting software in the AWS cloud. This software needs to be online continuously during the day every day of the week, and has a very static requirement for compute resources. You also have other, unrelated batch jobs that need to run once per day at any time of your choosing. How should you minimize cost?

- A. Purchase a Heavy Utilization Reserved Instance to run the accounting software
- B. Turn it off after hour
- C. Run the batch jobs with the same instance class, so the Reserved Instance credits are also applied to the batch jobs.
- D. Purchase a Medium Utilization Reserved Instance to run the accounting software
- E. Turn it off after hour
- F. Run the batch jobs with the same instance class, so the Reserved Instance credits are also applied to the batch jobs.
- G. Purchase a Light Utilization Reserved Instance to run the accounting software
- H. Turn it off after hour
- I. Run the batch jobs with the same instance class, so the Reserved Instance credits are also applied to the batch jobs.
- J. Purchase a Full Utilization Reserved Instance to run the accounting software
- K. Turn it off after hour
- L. Run the batch jobs with the same instance class, so the Reserved Instance credits are also applied to the batch jobs.

Answer: A

Explanation:

Because the instance will always be online during the day, in a predictable manner, and there are a sequence of batch jobs to perform at any time, we should run the batch jobs when the account software is off. We can achieve Heavy Utilization by alternating these times, so we should purchase the reservation as such, as this represents the lowest cost. There is no such thing as a "Full" level utilization purchases on EC2.

Reference: https://d0.awsstatic.com/whitepapers/Cost_Optimization_with_AWS.pdf

NEW QUESTION 9

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 10

When thinking of DynamoDB, what are true of Local Secondary Key properties?

- A. Either the partition key or the sort key can be different from the table, but not both.
- B. Only the sort key can be different from the table.
- C. The partition key and sort key can be different from the table.
- D. Only the partition key can be different from the table.

Answer: B

Explanation:

Global secondary index — an index with a partition key and a sort key that can be different from those on the table. A global secondary index is considered "global" because queries on the index can span all of the data in a table, across all partitions.

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

NEW QUESTION 10

Which deployment method, when using AWS Auto Scaling Groups and Auto Scaling Launch Configurations, enables the shortest time to live for individual servers?

- A. Pre-baking AMIs with all code and configuration on deploys.
- B. Using a Dockerfile bootstrap on instance launch.
- C. Using UserData bootstrapping scripts.
- D. Using AWS EC2 Run Commands to dynamically SSH into fleet.

Answer: A

Explanation:

Note that the bootstrapping process can be slower if you have a complex application or multiple applications to install. Managing a fleet of applications with several build tools and dependencies can be a challenging task during rollouts. Furthermore, your deployment service should be designed to do faster rollouts to take advantage of Auto Scaling. Prebaking is a process of embedding a significant portion of your application artifacts within your base AMI. During the deployment process you can customize application installations by using EC2 instance artifacts such as instance tags, instance metadata, and Auto Scaling groups.

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

NEW QUESTION 13

Which of the following are not valid sources for OpsWorks custom cookbook repositories?

- A. HTTP(S)
- B. Git
- C. AWS EBS
- D. Subversion

Answer: C

Explanation:

Linux stacks can install custom cookbooks from any of the following repository types: HTTP or Amazon S3 archives. They can be either public or private, but Amazon S3 is typically the preferred option for a private archive. Git and Subversion repositories provide source control and the ability to have multiple versions.

Reference:

<http://docs.aws.amazon.com/opsworks/latest/userguide/workingcookbook-installingcustom-enable.html>

NEW QUESTION 16

Which major database needs a BYO license?

- A. PostgreSQL
- B. MariaDB
- C. MySQL
- D. Oracle

Answer: D

Explanation:

Oracle is not open source, and requires a bring your own license model.

Reference: http://docs.aws.amazon.com/AmazonRDS/latest/UserGuide/CHAP_Oracle.html

NEW QUESTION 20

Your serverless architecture using AWS API Gateway, AWS Lambda, and AWS DynamoDB experienced a large increase in traffic to a sustained 400 requests per second, and dramatically increased in failure rates. Your requests, during normal operation, last 500 milliseconds on average. Your DynamoDB table did not

exceed 50% of provisioned throughput, and Table primary keys are designed correctly. What is the most likely issue?

- A. Your API Gateway deployment is throttling your requests.
- B. Your AWS API Gateway Deployment is bottlenecking on request (de)serialization.
- C. You did not request a limit increase on concurrent Lambda function executions.
- D. You used Consistent Read requests on DynamoDB and are experiencing semaphore lock

Answer: C

Explanation:

AWS API Gateway by default throttles at 500 requests per second steady-state, and 1000 requests per second at spike. Lambda, by default, throttles at 100 concurrent requests for safety. At 500 milliseconds (half of a second) per request, you can expect to support 200 requests per second at 100 concurrency. This is less than the 400 requests per second your system now requires. Make a limit increase request via the AWS Support Console.

AWS Lambda: Concurrent requests safety throttle per account -> 100

Reference: http://docs.aws.amazon.com/general/latest/gr/aws_service_limits.html#limits_lambda

NEW QUESTION 21

You are experiencing performance issues writing to a DynamoDB table. Your system tracks high scores for video games on a marketplace. Your most popular game experiences all of the performance issues. What is the most likely problem?

- A. DynamoDB's vector clock is out of sync, because of the rapid growth in request for the most popular game.
- B. You selected the Game ID or equivalent identifier as the primary partition key for the table.
- C. Users of the most popular video game each perform more read and write requests than average.
- D. You did not provision enough read or write throughput to the table

Answer: B

Explanation:

The primary key selection dramatically affects performance consistency when reading or writing to DynamoDB. By selecting a key that is tied to the identity of the game, you forced DynamoDB to create a hotspot in the table partitions, and over-request against the primary key partition for the popular game. When it stores data, DynamoDB divides a table's items into multiple partitions, and distributes the data primarily based upon the partition key value. The provisioned throughput associated with a table is also divided evenly among the partitions, with no sharing of provisioned throughput across partitions. Reference:

<http://docs.aws.amazon.com/amazondynamodb/latest/developerguide/GuidelinesForTables.html#GuidelinesForTables.UniformWorkload>

NEW QUESTION 22

Your API requires the ability to stay online during AWS regional failures. Your API does not store any state, it only aggregates data from other sources - you do not have a database. What is a simple but effective way to achieve this uptime goal?

- A. Use a CloudFront distribution to serve up your API
- B. Even if the region your API is in goes down, the edge locations CloudFront uses will be fine.
- C. Use an ELB and a cross-zone ELB deployment to create redundancy across datacenter
- D. Even if a region fails, the other AZ will stay online.
- E. Create a Route53 Weighted Round Robin record, and if one region goes down, have that region redirect to the other region.
- F. Create a Route53 Latency Based Routing Record with Failover and point it to two identical deployments of your stateless API in two different regions
- G. Make sure both regions use Auto Scaling Groups behind ELBs.

Answer: D

Explanation:

standard volumes, or Magnetic volumes, are best for: Cold workloads where data is infrequently accessed, or scenarios where the lowest storage cost is important.

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

NEW QUESTION 27

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 no regional constraint. Reference: <https://aws.amazon.com/iam/faqs/>

NEW QUESTION 29

You are building a mobile app for consumers to post cat pictures online. You will be storing the images in AWS S3. You want to run the system very cheaply and simply. Which one of these options allows you to build a photo sharing application without needing to worry about scaling expensive uploads processes, authentication/authorization and so forth?

- A. Build the application out using AWS Cognito and web identity federation to allow users to log in using Facebook or Google Account
- B. Once they are logged in, the secret token passed to that user is used to directly access resources on AWS, like AWS S3.
- C. Use JWT or SAML compliant systems to build authorization policies
- D. Users log in with a username and password, and are given a token they can use indefinitely to make calls against the photo infrastructure.
- E. Use AWS API Gateway with a constantly rotating API Key to allow access from the client-side
- F. Construct a custom build of the SDK and include S3 access in it.
- G. Create an AWS OAuth Service Domain and grant public signup and access to the domain
- H. During setup, add at least one major social media site as a trusted Identity Provider for users.

Answer: A

Explanation:

The short answer is that Amazon Cognito is a superset of the functionality provided by web identity federation. It supports the same providers, and you configure your app and authenticate with those providers in the same way. But Amazon Cognito includes a variety of additional features. For example, it enables your users to start using the app as a guest user and later sign in using one of the supported identity providers.

Reference:

<https://blogs.aws.amazon.com/security/post/Tx3SYCORF5EKRCO/How-Does-Amazon-Cognito-Relate-to-Existing-Web-Identity-Federatio>

NEW QUESTION 34

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 36

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 38

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 user

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

NEW QUESTION 39

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 Environments
- 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 43

Your application's Auto Scaling Group scales up too quickly, too much, and stays scaled when traffic decreases. What should you do to fix this?

- A. Set a longer cooldown period on the Group, so the system stops overshooting the target capacity
- B. The issue is that the scaling system doesn't allow enough time for new instances to begin servicing requests before measuring aggregate load again.
- C. Calculate the bottleneck or constraint on the compute layer, then select that as the new metric, and set the metric thresholds to the bounding values that begin to affect response latency.
- D. Raise the CloudWatch Alarms threshold associated with your autoscaling group, so the scaling takes more of an increase in demand before beginning.
- E. Use larger instances instead of lots of smaller ones, so the Group stops scaling out so much and wasting resources as the OS level, since the OS uses a higher proportion of resources on smaller instances.

Answer: B

Explanation:

Systems will always over-scale unless you choose the metric that runs out first and becomes constrained first. You also need to set the thresholds of the metric based on whether or not latency is affected by the change, to justify adding capacity instead of wasting money.

Reference: http://docs.aws.amazon.com/AutoScaling/latest/DeveloperGuide/policy_creating.html

NEW QUESTION 44

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

NEW QUESTION 48

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