➢ **Vendor: Amazon**

➢ **Exam Code: AWS Certified DevOps Engineer - Professional**

➢ **Exam Name: Amazon AWS Certified DevOps Engineer - Professional**

➢ **Question 41 – Question 60**

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QUESTION 41
You have an asynchronous processing application using an Auto Scaling Group and an SQS Queue. The Auto Scaling Group scales according to the depth of the job queue. The completion velocity of the jobs has gone down, the Auto Scaling Group size has maxed out, but the inbound job velocity did not increase. What is a possible issue?

A. Some of the new jobs coming in are malformed and unprocessable.
B. The routing tables changed and none of the workers can process events anymore.
C. Someone changed the IAM Role Policy on the instances in the worker group and broke permissions to access the queue.
D. The scaling metric is not functioning correctly.

Answer: A
Explanation:
The IAM Role must be fine, as if it were broken, NO jobs would be processed since the system would never be able to get any queue messages. The same reasoning applies to the routing table change. The scaling metric is fine, as instance count increased when the queue depth increased due to more messages entering than exiting. Thus, the only reasonable option is that some of the recent messages must be malformed and unprocessable.
https://github.com/andrew-templeton/cloudacademy/blob/fca920b45234bbe99cc0e8efb9c65134884dd489/questions/null

QUESTION 42
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 it. Use the Cost Explorer to analyze costs throughout the month.
D. 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.
http://docs.aws.amazon.com/awsaccountbilling/latest/aboutv2/cost-alloc-tags.html

QUESTION 43
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 <code>DeployCode</code> API call when there are major outages, to protect from system floods.
D.   None of the other answers make sense. If EC2 is not affected, it must be some other issue.

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

QUESTION 44
Which of the following tools does not directly support AWS OpsWorks, for monitoring your stacks?

A.   AWS Config
B.   Amazon CloudWatch Metrics
C.   AWS CloudTrail
D.   Amazon CloudWatch Logs

Answer: A
Explanation:
You can monitor your stacks in the following ways: AWS OpsWorks uses Amazon CloudWatch to provide thirteen custom metrics with detailed monitoring for each instance in the stack; AWS OpsWorks integrates with AWS CloudTrail to log every AWS OpsWorks API call and store the data in an Amazon S3 bucket; You can use Amazon CloudWatch Logs to monitor your stack's system, application, and custom logs.
http://docs.aws.amazon.com/opsworks/latest/userguide/monitoring.html

QUESTION 45
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 DependOn 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.
http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/troubleshooting.html#troubleshooting-errors-dependence-error

QUESTION 46
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 Composer.

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

QUESTION 47
What is true of the way that encryption works with EBS?

A. Snapshotting an encrypted volume makes an encrypted snapshot; restoring an encrypted snapshot creates an encrypted volume when specified / requested.
B. Snapshotting an encrypted volume makes an encrypted snapshot when specified / requested; restoring an encrypted snapshot creates an encrypted volume when specified / requested.
C. Snapshotting an encrypted volume makes an encrypted snapshot; restoring an encrypted snapshot always creates an encrypted volume.
D. Snapshotting an encrypted volume makes an encrypted snapshot when specified / requested; restoring an encrypted snapshot always creates an encrypted volume.

Answer: C
Explanation:
Snapshots that are taken from encrypted volumes are automatically encrypted. Volumes that are created from encrypted snapshots are also automatically encrypted. Your encrypted volumes and any associated snapshots always remain protected. For more information, see Amazon EBS Encryption.
http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/EBSEncryption.html

QUESTION 48
When thinking of AWS OpsWorks, which of the following is true?

A. Stacks have many layers, layers have many instances.
B. Instances have many stacks, stacks have many layers.
C. Layers have many stacks, stacks have many instances.
D. Layers have many instances, instances have many stacks.

Answer: A
Explanation:
The stack is the core AWS OpsWorks component. It is basically a container for AWS resources--Amazon EC2 instances, Amazon RDS database instances, and so on--that have a common purpose and should be logically managed together. You define the stack's constituents by adding one or more layers. A layer represents a set of Amazon EC2 instances that serve a particular purpose, such as serving applications or hosting a database server. An instance represents a single computing resource, such as an Amazon EC2 instance.
http://docs.aws.amazon.com/opsworks/latest/userguide/welcome.html

QUESTION 49
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.
http://docs.aws.amazon.com/elasticbeanstalk/latest/dg/using-features-managing-env-tiers.html

QUESTION 50
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 entires 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. https://blogs.aws.amazon.com/application-management/post/Tx1T9JYQOS8AB9I/Use-Nested-Stacks-to-Create-Reusable-Templates-and-Support-Role-Specialization

QUESTION 51
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. The issue is that the scaling system doesn't allow enough time for new instances to begin servicing requests before measuring aggregate load again.
B. 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.
C. Raise the CloudWatch Alarms threshold associated with your autoscaling group, so the scaling takes more of an increase in demand before beginning.
D. 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.
http://docs.aws.amazon.com/AutoScaling/latest/DeveloperGuide/policy_creating.html

QUESTION 52
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 do not 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 collocated 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.
http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/network_mtu.html#jumbo_frame_instances

QUESTION 53
Your CTO is very worried about the security of your AWS account. How best can you prevent hackers from completely hijacking your account?

A. Use short but complex password on the root account and any administrators.
B. Use AWS IAM Geo-Lock and disallow anyone from logging in except for in your city.
C. Use MFA on all users and accounts, especially on the root account.
D. Don't write down or remember the root account password after creating the AWS account.

Answer: C
Explanation:
For increased security, we recommend that you configure multi-factor authentication (MFA) to help protect your AWS resources. MFA adds extra security because it requires users to enter a unique authentication code from an approved authentication device or SMS text message when they access AWS websites or services.
http://docs.aws.amazon.com/IAM/latest/UserGuide/id_credentials_mfa.html

QUESTION 54
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.
http://docs.aws.amazon.com/elasticbeanstalk/latest/dg/using-features-managing-env-tiers.html#worker-deadletter

QUESTION 55
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. Use a Lambda Function to perform in-flight analysis and reactivity to changes as they occur.
B.   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.
C.   Use a CloudWatch Rule ScheduleExpression to periodically analyze IAM credential logs. Push the deltas for events into an ELK stack and perform ad-hoc analysis there.
D.   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.
http://docs.aws.amazon.com/AmazonCloudWatch/latest/DeveloperGuide/EventTypes.html#api_event_type

QUESTION 56
What method should I use to author automation if I want to wait for a CloudFormation stack to finish completing in a script?

A.   Event subscription using SQS.
B.   Event subscription using SNS.
C.   Poll using <code>ListStacks</code> / <code>list-stacks</code>.
D.   Poll using <code>GetStackStatus</code> / <code>get-stack-status</code>.

Answer: C
Explanation:
Event driven systems are good for IFTTT logic, but only polling will make a script wait to complete. ListStacks / list-stacks is a real method, GetStackStatus / get-stack-status is not.
http://docs.aws.amazon.com/cli/latest/reference/cloudformation/list-stacks.html

QUESTION 57
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 objects. When a request comes in for a precomputed response, redirect to AWS S3.
B.   Create another ELB and Auto Scaling Group layer mounted on top of the other system, adding a tier to the system. Serve most read requests out of the top layer.
C.   Create a CloudFront Distribution and direct Route53 to the Distribution.
     Use the ELB as an Origin and specify Cache Behaviours to proxy cache requests which can be served late.
D.   Create a Memcached cluster in AWS ElastiCache. 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.
https://aws.amazon.com/cloudfront/dynamic-content/

QUESTION 58
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.
https://aws.amazon.com/kinesis/firehose/details/

QUESTION 59
You are building a game high score table in DynamoDB. You will store each user's highest score for each game, with many games, all of which have relatively similar usage levels and numbers of players. You need to be able to look up the highest score for any game. What's the best DynamoDB key structure?

A. HighestScore as the hash / only key.
B. GameID as the hash key, HighestScore as the range key.
C. GameID as the hash / only key.
D. GameID as the range / only key.

Answer: B
Explanation:
Since access and storage for games is uniform, and you need to have ordering within each game for the scores (to access the highest value), your hash (partition) key should be the GameID, and there should be a range key for HighestScore.
http://docs.aws.amazon.com/amazondynamodb/latest/developerguide/GuidelinesForTables.html#GuidelinesForTables.Partitions

QUESTION 60
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 counts.

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

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