PRACTICE TEST V

Attempt	1
Marks Obtained	1 / 80
Your score is	1.25%
Completed on	Tuesday , 29 January 2019 , 02:40 PM
Time Taken	00 H 00 M 27 S
Result	Fail

Domains / Topics wise Quiz Performance Report

S.No.	Topic	Total Questions	Correct	Incorrect	Unattempted
1	Continuous Delivery and Process Automation	60	1	1	58
2	Security, Governance, and Validation	7	0	0	7
3	Monitoring, Metrics, and Logging	7	0	0	7
4	High Availability and Elasticity	6	0	0	6

80 Questions	**1** Correct	**1** Incorrect	**78** Unattempted

Show Answers

All

QUESTION 1 INCORRECT CONTINUOUS DELIVERY AND PROCESS AUTOMATION

What is the amount of time that Opswork stacks services waits for a response from an underlying instance before deeming it as a failed instance?

- **A.** 1 minute. ✖
- **B.** 5 minutes. ✔
- **C.** 20 minutes.
- **D.** 60 minutes

Explanation :

Answer – B
The AWS Documentation mentions
Every instance has an AWS OpsWorks Stacks agent that communicates regularly with the service. AWS OpsWorks Stacks uses that communication to monitor instance health. If an agent does not communicate with the service for more than approximately five minutes, AWS OpsWorks Stacks considers the instance to have failed.
For more information on the Auto healing feature , please visit the below URL:

- http://docs.aws.amazon.com/opsworks/latest/userguide/workinginstances-autohealing.html (http://docs.aws.amazon.com/opsworks/latest/userguide/workinginstances-autohealing.html)

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QUESTION 2 CORRECT CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You are a Devops Engineer for your company. You have been instructed to create a continuous integrated and continuous delivery model for the application in your organization. Which of the below services could be used for this purpose. Choose 2 answers from the options given below

- [x] **A.** AWS CodeDeploy ✔
- [x] **B.** AWS CodePipeline ✔
- [ ] **C.** AWS SQS
- [ ] **D.** AWS IAM

Explanation :

Answer – A and B
The AWS Documentation mentions the below
AWS CodeDeploy is a deployment service that automates application deployments to Amazon EC2 instances or on-premises instances in your own facility.
You can deploy a nearly unlimited variety of application content, such as code, web and configuration files, executables, packages, scripts, multimedia files, and so on. AWS CodeDeploy can deploy application content stored in Amazon S3 buckets, GitHub repositories, or Bitbucket repositories.
For more information on AWS Code Deploy , please visit the below URL:

- http://docs.aws.amazon.com/codedeploy/latest/userguide/welcome.html (http://docs.aws.amazon.com/codedeploy/latest/userguide/welcome.html)

AWS CodePipeline is a continuous delivery service you can use to model, visualize, and automate the steps required to release your software. You can quickly model and configure the different stages of a software release process. AWS CodePipeline automates the steps required to release your software changes continuously.
For more information on AWS Code Pipeline , please visit the below URL:

- http://docs.aws.amazon.com/codepipeline/latest/userguide/welcome.html (http://docs.aws.amazon.com/codepipeline/latest/userguide/welcome.html)

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QUESTION 3 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You have just been assigned to take care of the Automated resources which have been setup by your company in AWS. You are looking at integrating some of the company's chef recipes to be used for the existing Opswork stacks already setup in AWS. But when you go to the recipes section, you cannot see the option to add any recipes. What could be the reason for this?

- **A.** Once you create a stack, you cannot assign custom recipe's, this needs to be done when the stack is created.
- **B.** Once you create layers in the stack, you cannot assign custom recipe's , this needs to be done when the layers are created.
- **C.** The stack layers were created without the custom cookbooks option. Just change the layer settings accordingly.
- **D.** The stacks were created without the custom cookbooks option. Just change the stack settings accordingly. ✔

Explanation :

Answer - D
The AWS Documentation mentions the below
To have a stack install and use custom cookbooks, you must configure the stack to enable custom cookbooks, if it is not already configured. You must then provide the repository URL and any related information such as a password.
For more information on Custom cookbooks for Opswork , please visit the below URL:

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

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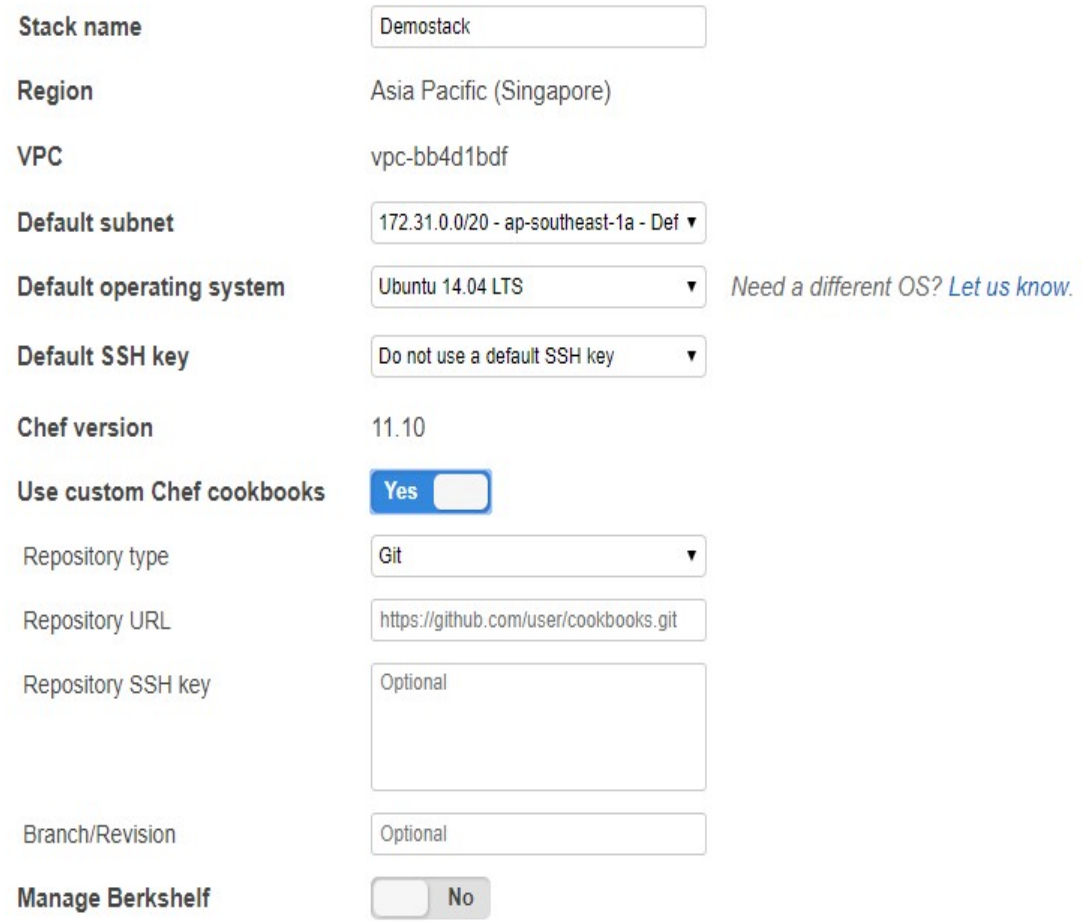
QUESTION 4 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You are a Devops Engineer and are designing an Opswork stack in AWS. The company has some custom recipes that are part of their on-premise Chef configuration. These same recipes need to be run whenever an instance is launched in Opsworks. Which of the following steps need to be carried out to to ensure this requirement gets fulfilled. Choose 2 answers from the options given below

- [ ] **A.** Ensure the custom cookbooks option is set in Opswork stack. ✔
- [ ] **B.** Ensure the custom cookbooks option is set in Opswork layer.
- [ ] **C.** Ensure the recipe is placed as part of the Setup Lifecycle event as part of the Layer setting. ✔
- [ ] **D.** Ensure the recipe is placed as part of the Setup Lifecycle event as part of the Stack setting.

Explanation :

Answer – A and C
The AWS Documentation mentions the below
Each layer has a set of built-in recipes assigned to each lifecycle event, although some layers lack Undeploy recipes. When a lifecycle event occurs on an instance, AWS OpsWorks Stacks runs the appropriate set of recipes for the associated layer.
The below diagram shows a snapshot in the stack settings where you can enable custom cookbooks



For more information on automating recipe's , please visit the below URL:

http://docs.aws.amazon.com/opsworks/latest/userguide/workingcookbook-assigningcustom.html (http://docs.aws.amazon.com/opsworks/latest/userguide/workingcookbook-assigningcustom.html)

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QUESTION 5 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

Which of the following file needs to be included along with your source code binaries when your application uses the EC2/On-Premises compute platform, and deploy it using the AWS Code Deploy service.

- A. appspec.yml ✔
- B. appconfig.yml
- C. appspec.json
- D. appconfig.json

Explanation :

Answer – A
The AWS Documentation mentions the below
The application specification file (AppSpec file) is a YAML-formatted file used by AWS CodeDeploy to determine:

- what it should install onto your instances from your application revision in Amazon S3 or GitHub.
- which lifecycle event hooks to run in response to deployment lifecycle events.

An AppSpec file must be named appspec.yml and it must be placed in the root of an application's source code's directory structure. Otherwise, deployments will fail.
For more information on the appspec file , please visit the below URL:

- http://docs.aws.amazon.com/codedeploy/latest/userguide/reference-appspec-file.html (http://docs.aws.amazon.com/codedeploy/latest/userguide/reference-appspec-file.html)

Note: If you deploying your code on AWS Lambda compute platform, An AppSpec file can be YAML-formatted or JSON-formatted. You can also enter the contents of an AppSpec file directly into AWS CodeDeploy console when you create a deployment.

However, this question is about along with your source code binaries on an EC2/On-Premises Compute Platform. So, an AppSpec file must be a YAML-formatted file named appspec.yml and it must be placed in the root of the directory structure of an application's source code. Otherwise, deployments fail.

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QUESTION 6 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

When using EC2 instances with the Code Deploy service, which of the following are some of the pre-requisites to ensure that the EC2 instances can work with Code Deploy. Choose 2 answers from the options given below

- [ ] **A.** Ensure an IAM role is attached to the instance so that it can work with the Code Deploy Service. ✔
- [ ] **B.** Ensure the EC2 Instance is configured with Enhanced Networking
- [ ] **C.** Ensure the EC2 Instance is placed in the default VPC
- [ ] **D.** Ensure that the CodeDeploy agent is installed on the EC2 Instance ✔

Explanation :

Answer – A and D
This is mentioned in the AWS documentation

Subject	Amazon EC2 Instances	On-Premises Instances
Requires you to install and run a version of the AWS CodeDeploy agent that's compatible with the operating system running on the instance.	Yes	Yes
Requires the instance to be able to connect to the AWS CodeDeploy service.	Yes	Yes
Requires an IAM instance profile to be attached to the instance. The IAM instance profile must have permissions to participate in AWS CodeDeploy deployments. For information, see Step 4: Create an IAM Instance Profile for Your Amazon EC2 Instances.	Yes	No

For more information on instances for CodeDeploy , please visit the below URL:

- http://docs.aws.amazon.com/codedeploy/latest/userguide/instances.html (http://docs.aws.amazon.com/codedeploy/latest/userguide/instances.html)

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QUESTION 7 UNATTEMPTED SECURITY, GOVERNANCE, AND VALIDATION

You are a Devops Engineer for your company. The company has a number of Cloudformation templates in AWS. There is a concern from the IT Security department and they want to know who all use the Cloudformation stacks in the company's AWS account. Which of the following can be done to take care of this security concern?

- **A.** Enable Cloudwatch events for each cloudformation stack to track the resource creation events.
- **B.** Enable Cloudtrail logs so that the API calls can be recorded ✔
- **C.** Enable Cloudwatch logs for each cloudformation stack to track the resource creation events.
- **D.** Connect SQS and Cloudformation so that a message is published for each resource created in the Cloudformation stack.

Explanation :

Answer - B
This is given as a best practice in the AWS documentation
AWS CloudTrail tracks anyone making AWS CloudFormation API calls in your AWS account. API calls are logged whenever anyone uses the AWS CloudFormation API, the AWS CloudFormation console, a back-end console, or AWS CloudFormation AWS CLI commands. Enable logging and specify an Amazon S3 bucket to store the logs. That way, if you ever need to, you can audit who made what AWS CloudFormation call in your account
For more information on the best practises , please visit the below URL:

- http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/best-practices.html (http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/best-practices.html)

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QUESTION 8 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

Your company has a number of Cloudformation stacks defined in AWS. As part of the routine housekeeping activity, a number of stacks have been targeted for deletion. But a few of the stacks are not getting deleted and are failing when you are trying to delete them. Which of the following could be valid reasons for this? Choose 2 answers from the options given below

- A. The stacks were created with the wrong template version. Since the standard template version is now higher , it is preventing the deletion of the stacks. You need to contact AWS support.
- B. The stack has an S3 bucket defined which has objects present in it. ✔
- C. The stack has a EC2 Security Group which has EC2 Instances attached to it. ✔
- D. The stack consists of an EC2 resource which was created with a custom AMI.

Explanation :

Answer – B and C
The AWS documentation mentions the below point
Some resources must be empty before they can be deleted. For example, you must delete all objects in an Amazon S3 bucket or remove all instances in an Amazon EC2 security group before you can delete the bucket or security group
For more information on troubleshooting cloudformation stacks , please visit the below URL:

- http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/troubleshooting.html (http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/troubleshooting.html)

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QUESTION 9 UNATTEMPTED MONITORING, METRICS, AND LOGGING

Which of the following is a reliable and durable logging solution to track changes made to your AWS resources?

- **A.** Create a new CloudTrail trail with one new S3 bucket to store the logs and with the global services option selected. Use IAM roles S3 bucket policies and Multi Factor Authentication (MFA) Delete on the S3 bucket that stores your logs. ✔
- **B.** Create a new CloudTrail with one new S3 bucket to store the logs. Configure SNS to send log file delivery notifications to your management system. Use IAM roles and S3 bucket policies on the S3 bucket that stores your logs.
- **C.** Create a new CloudTrail trail with an existing S3 bucket to store the logs and with the global services option selected. Use S3 ACLs and Multi Factor Authentication (MFA) Delete on the S3 bucket that stores your logs.
- **D.** Create three new CloudTrail trails with three new S3 buckets to store the logs one for the AWS Management console, one for AWS SDKs and one for command line tools. Use IAM roles and S3 bucket policies on the S3 buckets that store your logs.

Explanation :

Answer – A
AWS Identity and Access Management (IAM) is integrated with AWS CloudTrail, a service that logs AWS events made by or on behalf of your AWS account. CloudTrail logs authenticated AWS API calls and also AWS sign-in events, and collects this event information in files that are delivered to Amazon S3 buckets. You need to ensure that all services are included. Hence option B is partially correct.
For more information on Cloudtrail, please visit the below URL:

- http://docs.aws.amazon.com/IAM/latest/UserGuide/cloudtrail-integration.html (http://docs.aws.amazon.com/IAM/latest/UserGuide/cloudtrail-integration.html)

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QUESTION 10 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You have decided you need to change the instance type of your instances in production which are running as part of an Autoscaling Group. You currently have 4 instances in production. You cannot have any interruption in service and need to ensure 2 instances are always running during the update. Which of the below options can be chosen for this?

- A. AutoScalingRollingUpdate ✔
- B. AutoScalingScheduledAction
- C. AutoScalingReplacingUpdate
- D. AutoScalingIntegrationUpdate

Explanation :

Answer – A
The AWS::AutoScaling::AutoScalingGroup resource supports an UpdatePolicy attribute. This is used to define how an Auto Scaling group resource is updated when an update to the CloudFormation stack occurs. A common approach to updating an Auto Scaling group is to perform a rolling update, which is done by specifying the AutoScalingRollingUpdate policy. This retains the same Auto Scaling group and replaces old instances with new ones, according to the parameters specified.
For more information on Autoscaling updates , please refer to the below link:

- https://aws.amazon.com/premiumsupport/knowledge-center/auto-scaling-group-rolling-updates/ (https://aws.amazon.com/premiumsupport/knowledge-center/auto-scaling-group-rolling-updates/)

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QUESTION 11 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You have a development team that is planning for continuous release cycles for their application. They want to use the AWS services available to be able to deploy a web application and also ensure they can rollback to previous versions fairly quickly. Which of the following options can be used to achieve this requirement. Choose 2 answers from the options given below

- [ ] **A.** Use the Elastic beanstalk service. Use Application versions and upload the revisions of your application. Deploy the revisions accordingly and rollback to prior versions accordingly. ✔
- [ ] **B.** Use the Elastic beanstalk service. Create separate environments for each application revision. Revert back to an environment incase the new environment does not work.
- [ ] **C.** Use the Opswork service to deploy the web instances. Deploy the app to the Opswork web layer. Rollback using the Deploy app in Opswork. ✔
- [ ] **D.** Use the Cloudformation service. Create separate templates for each application revision and deploy them accordingly.

Explanation :

Answer – A and C
The AWS documentation mentions the following
In Elastic Beanstalk, an *application version* refers to a specific, labeled iteration of deployable code for a web application. An application version points to an Amazon Simple Storage Service (Amazon S3) object that contains the deployable code such as a Java WAR file. An application version is part of an application. Applications can have many versions and each application version is unique. In a running environment, you can deploy any application version you already uploaded to the application or you can upload and immediately deploy a new application version. You might upload multiple application versions to test differences between one version of your web application and another.
For more information on Elastic beanstalk components , please refer to the below link:

- http://docs.aws.amazon.com/elasticbeanstalk/latest/dg/concepts.components.html (http://docs.aws.amazon.com/elasticbeanstalk/latest/dg/concepts.components.html)

An AWS OpsWorks Stacks *app* represents code that you want to run on an application server. The code itself resides in a repository such as an Amazon S3 archive; the app contains the information required to deploy the code to the appropriate application server instances.
For more information on Opswork apps , please refer to the below link:

- http://docs.aws.amazon.com/opsworks/latest/userguide/workingapps.html (http://docs.aws.amazon.com/opsworks/latest/userguide/workingapps.html)

Option B is incorrect. Our scenario is focusing on **continuous development and continuous releases of the application versions**. Since this is going to be an ongoing process, it is a best practice to upload the revision of your application and if required roll back to previous version.
Option D is incorrect. This question gives importance to the application hosted on the infrastructure.

"They want to use the AWS services available to be able to deploy a web application and also ensure they can rollback **to previous versions of the application quickly.**"

In this case, CloudFormation provides a common language for you to describe and provision all the infrastructure resources in your cloud environment. CloudFormation allows you to use a simple text file to model and provision, in an automated and secure manner, all the resources needed for your applications across all regions and accounts.

Hence, CloudFormation is nothing to do with an application hosted on the infrastructure.

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QUESTION 12 UNATTEMPTED SECURITY, GOVERNANCE, AND VALIDATION

Which of the following are ways to secure data at rest and in transit in AWS. Choose 3 answers from the options given below

- ☐ **A.** Encrypt all EBS volumes attached to EC2 Instances ✔
- ☐ **B.** Use server side encryption for S3 ✔
- ☐ **C.** Use SSL/HTTPS when using the Elastic Load Balancer ✔
- ☐ **D.** Use IOPS volumes when working with EBS volumes on EC2 Instances

Explanation :

Answer – A,B and C
The AWS documentation mentions the following
Amazon EBS encryption offers you a simple encryption solution for your EBS volumes without the need for you to build, maintain, and secure your own key management infrastructure. When you create an encrypted EBS volume and attach it to a supported instance type, the following types of data are encrypted:

- Data at rest inside the volume
- All data moving between the volume and the instance

- All snapshots created from the volume

Data protection refers to protecting data while in-transit (as it travels to and from Amazon S3) and at rest (while it is stored on disks in Amazon S3 data centers). You can protect data in transit by using SSL or by using client-side encryption. You have the following options of protecting data at rest in Amazon S3.

- Use Server-Side Encryption – You request Amazon S3 to encrypt your object before saving it on disks in its data centers and decrypt it when you download the objects.
- Use Client-Side Encryption – You can encrypt data client-side and upload the encrypted data to Amazon S3. In this case, you manage the encryption process, the encryption keys, and related tools.

You can create a load balancer that uses the SSL/TLS protocol for encrypted connections (also known as *SSL offload*). This feature enables traffic encryption between your load balancer and the clients that initiate HTTPS sessions, and for connections between your load balancer and your EC2 instances.
For more information on securing data at rest , please refer to the below link:

- https://d0.awsstatic.com/whitepapers/aws-securing-data-at-rest-with-encryption.pdf (https://d0.awsstatic.com/whitepapers/aws-securing-data-at-rest-with-encryption.pdf)

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QUESTION 13 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

Which of the following commands for the elastic beanstalk CLI can be used to create the current application into the specified environment?

- **A.** eb create ✔
- **B.** eb start
- **C.** en env
- **D.** en app

Explanation :

Answer – A

Differences from Version 3 of EB CLI

EB is a command line interface (CLI) tool for Elastic Beanstalk that you can use to deploy applications quickly and more easily. The latest version of EB was introduced by Elastic Beanstalk in EB CLI 3. Although Elastic Beanstalk still supports EB 2.6 for customers who previously installed and continue to use it, you should migrate to the latest version of EB CLI 3, as it can manage environments that you launched using EB CLI 2.6 or earlier versions of EB CLI. EB CLI automatically retrieves settings from an environment created using EB if the environment is running. Note that EB CLI 3 does not store option settings locally, as in earlier versions.

EB CLI introduces the commands eb create, eb deploy, eb open, eb console, eb scale, eb setenv, eb config, eb terminate, eb clone, eb list, eb use, eb printenv, and eb ssh. In EB CLI 3.1 or later, you can also use the eb swap command. In EB CLI 3.2 only, you can use the eb abort, eb platform, and eb upgrade commands. In addition to these new commands, EB CLI 3 commands differ from EB CLI 2.6 commands in several cases:

1. eb init – Use eb init to create an .elasticbeanstalk directory in an existing project directory and create a new Elastic Beanstalk application for the project. Unlike with previous versions, EB CLI 3 and later versions do not prompt you to create an environment.
2. eb start – EB CLI 3 does not include the command eb start. Use eb create to create an environment.
3. eb stop – EB CLI 3 does not include the command eb stop. Use eb terminate to completely terminate an environment and clean up.
4. eb push and git aws.push – EB CLI 3 does not include the commands eb push or git aws.push. Use eb deploy to update your application code.
5. eb update – EB CLI 3 does not include the command eb update. Use eb config to update an environment.
6. eb branch – EB CLI 3 does not include the command eb branch.

For more information about using EB CLI 3 commands to create and manage an application, see EB CLI Command Reference. For a command reference for EB 2.6, see EB CLI 2 Commands. For a walkthrough of how to deploy a sample application using EB CLI 3, see Managing Elastic Beanstalk Environments with the EB CLI. For a walkthrough of how to deploy a sample application using eb 2.6, see Getting Started with Eb. For a walkthrough of how to use EB 2.6 to map a Git branch to a specific environment, see Deploying a Git Branch to a Specific Environment.

- https://docs.aws.amazon.com/elasticbeanstalk/latest/dg/eb-cli.html#eb-cli2-differences (https://docs.aws.amazon.com/elasticbeanstalk/latest/dg/eb-cli.html#eb-cli2-differences)

Note: Additionally, EB CLI 2.6 has been deprecated. It has been replaced by AWS CLI

- https://docs.aws.amazon.com/elasticbeanstalk/latest/dg/eb-cli3.html (https://docs.aws.amazon.com/elasticbeanstalk/latest/dg/eb-cli3.html)

We will replace this question soon.

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QUESTION 14 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You are a Devops engineer for your company. You have been instructed to deploy docker containers using the Opswork service. How could you achieve this? Choose 2 answers from the options given below

- [ ] **A.** Use custom cookbooks for your Opswork stack and provide the Git repository which has the chef recipes for the Docker containers. ✔
- [ ] **B.** Use Elastic beanstalk to deploy docker containers since this is not possible in Opswork. Then attach the elastic beanstalk environment as a layer in Opswork.
- [ ] **C.** Use Cloudformation to deploy docker containers since this is not possible in Opswork. Then attach the Cloudformation resources as a layer in Opswork.
- [ ] **D.** In the App for Opswork deployment, specify the git url for the recipes which will deploy the applications in the docker environment. ✔

Explanation :

Answer – A and D
This is mentioned in the AWS documentation
AWS OpsWorks lets you deploy and manage application of all shapes and sizes. OpsWorks layers let you create blueprints for EC2 instances to install and configure any software that you want.
For more information on Opswork and Docker , please refer to the below link:

- https://aws.amazon.com/blogs/devops/running-docker-on-aws-opsworks/ (https://aws.amazon.com/blogs/devops/running-docker-on-aws-opsworks/)

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QUESTION 15 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You are building out a layer in a software stack on AWS that needs to be able to scale out to react to increased demand as fast as possible. You are running the code on EC2 instances in an Auto Scaling Group behind an ELB. Which application code deployment method should you use?

- **A.** SSH into new instances that come online, and deploy new code onto the system by pulling it from an S3 bucket, which is populated by code that you refresh from source control on new pushes.
- **B.** Bake an AMI when deploying new versions of code, and use that AMI for the Auto Scaling Launch Configuration. ✔
- **C.** Create a Dockerfile when preparing to deploy a new version to production and publish it to S3. Use UserData in the Auto Scaling Launch configuration to pull down the Dockerfile from S3 and run it when new instances launch.
- **D.** Create a new Auto Scaling Launch Configuration with UserData scripts configured to pull the latest code at all times.

Explanation :

Answer – B
Since the time required to spin up an instance is required to be fast , its better to create an AMI rather than use User Data. When you use User Data , the script will be run during boot up , and hence this will be slower.
An Amazon Machine Image (AMI) provides the information required to launch an instance, which is a virtual server in the cloud. You specify an AMI when you launch an instance, and you can launch as many instances from the AMI as you need. You can also launch instances from as many different AMIs as you need.
For more information on the AMI , please refer to the below link:

- http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/AMIs.html (http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/AMIs.html)

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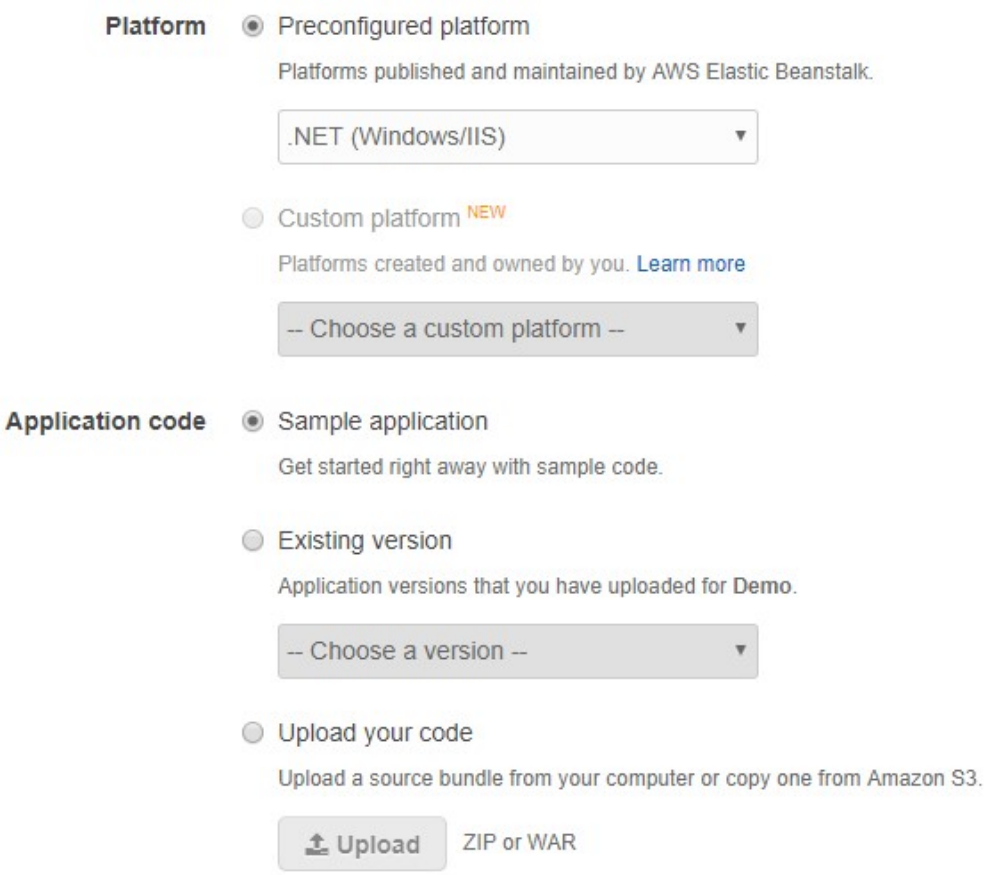
QUESTION 16 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

Your development team use .Net to code their web application. They want to deploy it to AWS for the purpose of continuous integration and deployment. The application code is hosted in a Git repository. Which of the following combination of steps can be used to fulfil this requirement. Choose 2 answers from the options given below

- [ ] **A.** Use the Elastic beanstalk service to provision an IIS platform web environment to host the application. ✔
- [ ] **B.** Use the Code Pipeline service to provision an IIS environment to host the application.
- [ ] **C.** Create a source bundle for the .Net code and upload it as an application revision. ✔
- [ ] **D.** Use a chef recipe to deploy the code and attach it to the Elastic beanstalk environment.

Explanation :

Answer – A and C
When you provision an environment using the Elastic beanstalk service, you can choose the IIS platform to host the .Net based application as shown below.



You can also upload the application as a zip file and specify it as an application revision.

For more information on Elastic beanstalk and .Net environments, please refer to the below link:
http://docs.aws.amazon.com/elasticbeanstalk/latest/dg/create_deploy_NET.html
(http://docs.aws.amazon.com/elasticbeanstalk/latest/dg/create_deploy_NET.html)

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QUESTION 17 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

Your company is planning on using the available services in AWS to completely automate their integration, build and deployment process. They are planning on using AWS CodeBuild to build their artefacts. When using CodeBuild, which of the following files specifies a collection of build commands that can be used by the service during the build process.

- A. appspec.yml
- B. buildspec.yml ✔
- C. buildspec.xml
- D. appspec.json

Explanation :

Answer – B
The AWS documentation mentions the following
AWS CodeBuild currently supports building from the following source code repository providers. The source code must contain a build specification (build spec) file, or the build spec must be declared as part of a build project definition. A *build spec* is a collection of build commands and related settings, in YAML format, that AWS CodeBuild uses to run a build.
For more information on AWS CodeBuild, please refer to the below link:

- http://docs.aws.amazon.com/codebuild/latest/userguide/planning.html (http://docs.aws.amazon.com/codebuild/latest/userguide/planning.html)

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QUESTION 18 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

Which of the following tools from AWS allows the automatic collection of software inventory from EC2 instances and helps apply OS patches.

- A. AWS Code Deploy
- B. EC2 Systems Manager ✔
- C. EC2 AMI's

- [ ] **D.** AWS Code Pipeline

Explanation :

Answer - B
The Amazon EC2 Systems Manager helps you automatically collect software inventory, apply OS patches, create system images, and configure Windows and Linux operating systems. These capabilities enable automated configuration and ongoing management of systems at scale, and help maintain software compliance for instances running in Amazon EC2 or on-premises.
One feature within Systems Manager is Automation, which can be used to patch, update agents, or bake applications into an Amazon Machine Image (AMI). With Automation, you can avoid the time and effort associated with manual image updates, and instead build AMIs through a streamlined, repeatable, and auditable process.
For more information on EC2 Systems manager, please refer to the below link:

- https://aws.amazon.com/blogs/aws/streamline-ami-maintenance-and-patching-using-amazon-ec2-systems-manager-automation/ (https://aws.amazon.com/blogs/aws/streamline-ami-maintenance-and-patching-using-amazon-ec2-systems-manager-automation/)

Ask our Experts

QUESTION 19 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

Which of the following can be used in Cloudformation to coordinate the creation of stack resources. Choose 2 answers from the options given below

- [ ] **A.** AWS::CloudFormation::HoldCondition
- [ ] **B.** AWS::CloudFormation::WaitCondition ✔
- [ ] **C.** HoldPolicy attribute
- [ ] **D.** CreationPolicy attribute ✔

Explanation :

Answer – B and D
The AWS Documentation mentions the following

Using the AWS::CloudFormation::WaitCondition resource and CreationPolicy attribute, you can do the following:

- Coordinate stack resource creation with other configuration actions that are external to the stack creation
- Track the status of a configuration process

For more information on wait conditions, please refer to the below link:

- http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/using-cfn-waitcondition.html (http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/using-cfn-waitcondition.html)

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QUESTION 20 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

Which of the following resource is used in Cloudformation to create nested stacks

- **A.** AWS::CloudFormation::Stack ✔
- **B.** AWS::CloudFormation::Nested
- **C.** AWS::CloudFormation::NestedStack
- **D.** AWS::CloudFormation::StackNest

Explanation :

Answer - A
The AWS Documentation mentions the following
A nested stack is a stack that you create within another stack by using
the AWS::CloudFormation::Stack resource. With nested stacks, you deploy and manage all resources from a single stack. You can use outputs from one stack in the nested stack group as inputs to another stack in the group
For more information on AWS::CloudFormation::Stack resource , please refer to the below link:

- http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/using-cfn-stack-exports.html (http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/using-cfn-stack-exports.html)

Ask our Experts

QUESTION 21 UNATTEMPTED MONITORING, METRICS, AND LOGGING

You have a set of web servers hosted in AWS which host a web application used by a section of users. You want to monitor the number of errors which occur when using the web application. Which of the below options can be used for this purpose. Choose 3 answers from the options given below.

- ☐ **A.** Send the logs from the instances onto Cloudwatch logs. ✔
- ☐ **B.** Search for the keyword "ERROR" in the log files on the server.
- ☐ **C.** Search for the keyword "ERROR" in Cloudwatch logs. ✔
- ☐ **D.** Increment a metric filter in Cloudwatch whenever the pattern is matched. ✔

Explanation :

Answer – A,C and D
The AWS documentation mentions the following
You use metric filters to search for and match terms, phrases, or values in your log events. When a metric filter finds one of the terms, phrases, or values in your log events, you can increment the value of a CloudWatch metric. For example, you can create a metric filter to search for and count the occurrence of the word *ERROR* in your log events.
For more information on Cloudwatch logs – Filter and pattern matching , please refer to the below link:
http://docs.aws.amazon.com/AmazonCloudWatch/latest/logs/FilterAndPatternSyntax.html (http://docs.aws.amazon.com/AmazonCloudWatch/latest/logs/FilterAndPatternSyntax.html)

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QUESTION 22 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

Your company is supporting a number of applications that need to be moved to AWS. Initially they thought of moving these applications to the Elastic beanstalk service. When going to the Elastic beanstalk service , you can see that the underlying platform service is not an option in the Elastic beanstalk service. Which of the following options can be used to port your application onto Elastic beanstalk

- **A.** Use the Opswork service to create a stack. In the stack , create a separate custom layer. Deploy the application to this layer and then attach the layer to Elastic beanstalk
- **B.** Use custom chef recipe's to deploy your application in Elastic beanstalk.
- **C.** Use custom Cloudformation templates to deploy the application into Elastic beanstalk
- **D.** Create a docker container for the custom application and then deploy it to Elastic beanstalk. ✔

Explanation :

Answer - D
The AWS documentation mentions the following
Elastic Beanstalk supports the deployment of web applications from Docker containers. With Docker containers, you can define your own runtime environment. You can choose your own platform, programming language, and any application dependencies (such as package managers or tools), that aren't supported by other platforms. Docker containers are self-contained and include all the configuration information and software your web application requires to run.
For more information on Elastic beanstalk and Docker, please refer to the below link:

- http://docs.aws.amazon.com/elasticbeanstalk/latest/dg/create_deploy_docker.html (http://docs.aws.amazon.com/elasticbeanstalk/latest/dg/create_deploy_docker.html)

Ask our Experts

QUESTION 23 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

Which of the following are ways to ensure that data is secured while in transit when using the AWS Elastic load balancer? Choose 2 answers from the options given below

- [ ] **A.** Use a TCP front end listener for your ELB
- [ ] **B.** Use an SSL front end listener for your ELB ✔
- [ ] **C.** Use an HTTP front end listener for your ELB
- [ ] **D.** Use an HTTPS front end listener for your ELB ✔

Explanation :

Answer – B and D
The AWS documentation mentions the following
You can create a load balancer that uses the SSL/TLS protocol for encrypted connections (also known as *SSL offload*). This feature enables traffic encryption between your load balancer and the clients that initiate HTTPS sessions, and for connections between your load balancer and your EC2 instances.
For more information on Elastic Load balancer and secure listeners, please refer to the below link:

- http://docs.aws.amazon.com/elasticloadbalancing/latest/classic/elb-https-load-balancers.html (http://docs.aws.amazon.com/elasticloadbalancing/latest/classic/elb-https-load-balancers.html)

Note:
AS per AWS documentation,

If you use HTTPS or SSL for your front-end connections, you must deploy an X.509 certificate (SSL server certificate) on your load balancer. The load balancer decrypts requests from clients before sending them to the back-end instances (known as *SSL termination*)

If you don't want the load balancer to handle the SSL termination (known as *SSL offloading*), you can use TCP for both the front-end and back-end connections, and deploy certificates on the registered instances handling requests.

HTTP/HTTPS Load Balancer

Use Case	Front-End Protocol	Front-End Options	Back-End Protocol	Back-End Options	Notes
Basic HTTP load balancer	HTTP	NA	HTTP	NA	• Supports the X-Forwarded-For header
Secure website or application using Elastic Load Balancing to offload SSL decryption	HTTPS	SSL negotiation	HTTP	NA	• Supports the X-Forwarded-For header • Requires an SSL certificate deployed on the load balancer
Secure website or application using end-to-end encryption	HTTPS	SSL negotiation	HTTPS	Back-end authentication	• Supports the X-Forwarded-For header • Requires SSL certificates deployed on the load balancer and the registered instances

TCP/SSL Load Balancer

Use Case	Front-End Protocol	Front-End Options	Back-End Protocol	Back-End Options	Notes
Basic TCP load balancer	TCP	NA	TCP	NA	• Supports the Proxy Protocol header
Secure website or application using Elastic Load Balancing to offload SSL decryption	SSL	SSL negotiation	TCP	NA	• Requires an SSL certificate deployed on the load balancer • Supports the Proxy Protocol header
Secure website or application using end-to-end encryption with Elastic Load Balancing	SSL	SSL negotiation	SSL	Back-end authentication	• Requires SSL certificates deployed on the load balancer and the registered instances • Does not insert SNI headers on back-end SSL connections.

For more details, please check below AWS Docs:

- https://docs.aws.amazon.com/elasticloadbalancing/latest/classic/elb-listener-config.html (https://docs.aws.amazon.com/elasticloadbalancing/latest/classic/elb-listener-config.html)
- https://docs.aws.amazon.com/elasticloadbalancing/latest/classic/using-elb-listenerconfig-quickref.html (https://docs.aws.amazon.com/elasticloadbalancing/latest/classic/using-elb-listenerconfig-quickref.html)

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QUESTION 24 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

Which of the following services from AWS can be integrated with the Jenkins continuous integration tool.

- A. Amazon EC2
- B. Amazon ECS
- C. Amazon Elastic beanstalk
- D. All of the above ✔

Explanation :

Answer - D
The following AWS services can be integrated with Jenkins

- Amazon EC2
- Amazon ECR
- Amazon Simple Notification Service (SNS)
- Amazon ECS
- Amazon S3
- AWS CloudFormation
- AWS CodeDeploy
- AWS CodePipeline
- AWS CodeCommit
- AWS Device Farm
- AWS Elastic Beanstalk

For more information on Jenkins in AWS, please refer to the below link:

- https://d0.awsstatic.com/whitepapers/DevOps/Jenkins_on_AWS.pdf (https://d0.awsstatic.com/whitepapers/DevOps/Jenkins_on_AWS.pdf)

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QUESTION 25 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

Your company has an application hosted on an Elastic beanstalk environment. You have been instructed that whenever application changes occur and new versions need to be deployed that the fastest deployment approach is employed. Which of the following deployment mechanisms will fulfil this requirement?

- **A.** All at once ✔
- **B.** Rolling
- **C.** Immutable
- **D.** Rolling with batch

Explanation :

Answer - A
The following table from the AWS documentation shows the deployment time for each deployment methods.

Method	Impact of Failed Deployment	Deploy Time	Zero Downtime	No DNS Change	Rollback Process	Code Deployed To
All at once	Downtime	🕒	X	✓	Re-deploy	Existing instances
Rolling	Single batch out of service. Any successful batches prior to failure running new application version.	🕒 🕒 †	✓	✓	Re-deploy	Existing instances
Rolling with additional batch	Minimal if first batch fails, otherwise similar to **Rolling**.	🕒 🕒 🕒 †	✓	✓	Re-deploy	New & existing instances
Immutable	Minimal	🕒 🕒 🕒 🕒	✓	✓	Re-deploy	New instances
Blue/green	Minimal	🕒 🕒 🕒 🕒	✓	X	Swap URL	New instances

For more information on Elastic beanstalk deployments, please refer to the below link:

- http://docs.aws.amazon.com/elasticbeanstalk/latest/dg/using-features.deploy-existing-version.html (http://docs.aws.amazon.com/elasticbeanstalk/latest/dg/using-features.deploy-existing-version.html)

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QUESTION 26 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You have a web application hosted on EC2 instances. There are application changes which happen to the web application on a quarterly basis. Which of the following are example of Blue Green deployments which can be applied to the application? Choose 2 answers from the options given below

- [ ] **A.** Deploy the application to an elastic beanstalk environment. Have a secondary elastic beanstalk environment in place with the updated application code. Use the swap URL's feature to switch onto the new environment. ✔
- [ ] **B.** Place the EC2 instances behind an ELB. Have a secondary environment with EC2 Instances and ELB in another region. Use Route53 with geo-location to route requests and switch over to the secondary environment.
- [ ] **C.** Deploy the application using Opswork stacks. Have a secondary stack for the new application deployment. Use Route53 to switch over to the new stack for the new application update. ✔
- [ ] **D.** Deploy the application to an elastic beanstalk environment. Use the Rolling updates feature to perform a Blue Green deployment.

Explanation :

Answer – A and C
The AWS Documentation mentions the following
AWS Elastic Beanstalk is a fast and simple way to get an application up and running on AWS.6 It's perfect for developers who want to deploy code without worrying about managing the underlying infrastructure. Elastic Beanstalk supports Auto Scaling and Elastic Load Balancing, both of which enable blue/green deployment. Elastic Beanstalk makes it easy to run multiple versions of your application and provides capabilities to swap the environment URLs, facilitating blue/green deployment.
AWS OpsWorks is a configuration management service based on Chef that allows customers to deploy and manage application stacks on AWS.7 Customers can specify resource and application configuration, and deploy and monitor running resources. OpsWorks simplifies cloning entire stacks when you're preparing blue/green environments.
For more information on Blue Green deployments, please refer to the below link:

- https://d0.awsstatic.com/whitepapers/AWS_Blue_Green_Deployments.pdf (https://d0.awsstatic.com/whitepapers/AWS_Blue_Green_Deployments.pdf)

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QUESTION 27 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

Which of the following services can be used to detect the application health in a Blue

Green deployment in AWS.

- A. AWS Code Commit
- B. AWS Code Pipeline
- C. AWS CloudTrail
- D. AWS Cloudwatch ✔

Explanation :

Answer - D
The AWS Documentation mentions the following
Amazon CloudWatch is a monitoring service for AWS Cloud resources and the applications you run on AWS.9 CloudWatch can collect and track metrics, collect and monitor log files, and set alarms. It provides system-wide visibility into resource utilization, application performance, and operational health, which are key to early detection of application health in blue/green deployments.
For more information on Blue Green deployments, please refer to the below link:

- https://d0.awsstatic.com/whitepapers/AWS_Blue_Green_Deployments.pdf (https://d0.awsstatic.com/whitepapers/AWS_Blue_Green_Deployments.pdf)

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QUESTION 28 UNATTEMPTED MONITORING, METRICS, AND LOGGING

Your company has an application hosted in AWS which makes use of DynamoDB. There is a requirement from the IT security department to ensure that all source IP addresses which make calls to the DynamoDB tables are recorded. Which of the following services can be used to ensure this requirement is fulfilled.

- A. AWS Code Commit
- B. AWS Code Pipeline
- C. AWS CloudTrail ✔
- D. AWS Cloudwatch

Explanation :

Answer - C
The AWS Documentation mentions the following
DynamoDB is integrated with CloudTrail, a service that captures low-level API requests made by or on behalf of DynamoDB in your AWS account and delivers the log files to an Amazon S3 bucket that you specify. CloudTrail captures calls made from the DynamoDB console or from the DynamoDB low-level API. Using the information collected by CloudTrail, you can determine what request was made to DynamoDB, the source IP address from which the request was made, who made the request, when it was made, and so on.
For more information on DynamoDB and Cloudtrail, please refer to the below link:

- http://docs.aws.amazon.com/amazondynamodb/latest/developerguide/logging-using-cloudtrail.html (http://docs.aws.amazon.com/amazondynamodb/latest/developerguide/logging-using-cloudtrail.html)

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QUESTION 29 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You are in charge of designing a Cloudformation template which deploys a LAMP stack. After deploying a stack , you see that the status of the stack is showing as CREATE_COMPLETE , but the apache server is still not up and running and is experiencing issues while starting up. You want to ensure that the stack creation only shows the status of CREATE_COMPLETE after all resources defined in the stack are up and running. How can you achieve this? Choose 2 answers from the options given below.

- [ ] **A.** Define a stack policy which defines that all underlying resources should be up and running before showing a status of CREATE_COMPLETE.
- [ ] **B.** Use lifecycle hooks to mark the completion of the creation and configuration of the underlying resource.
- [ ] **C.** Use the CreationPolicy to ensure it is associated with the EC2 Instance resource. ✔

☐ **D.** Use the CFN helper scripts to signal once the resource configuration is complete. ✔

Explanation :

Answer – C and D
The AWS Documentation mentions
When you provision an Amazon EC2 instance in an AWS CloudFormation stack, you might specify additional actions to configure the instance, such as install software packages or bootstrap applications. Normally, CloudFormation proceeds with stack creation after the instance has been successfully created. However, you can use a CreationPolicy so that CloudFormation proceeds with stack creation only after your configuration actions are done. That way you'll know your applications are ready to go after stack creation succeeds.
For more information on the Creation Policy, please visit the below URL:

- https://aws.amazon.com/blogs/devops/use-a-creationpolicy-to-wait-for-on-instance-configurations/ (https://aws.amazon.com/blogs/devops/use-a-creationpolicy-to-wait-for-on-instance-configurations/)

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QUESTION 30 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You have a web application composed of an Auto Scaling group of web servers behind a load balancer, and create a new AMI for each application version for deployment. You have a new version to release, and you want to use the Blue-Green deployment technique to migrate users over in a controlled manner while the size of the fleet remains constant over a period of 6 hours, to ensure that the new version is performing well. What option should you choose to enable this technique while being able to roll back easily? Choose 2 answers from the options given below. Each answer presents part of the solution

- [ ] **A.** Create an Auto Scaling launch configuration with the new AMI to use the new launch configuration and to register instances with the new load balancer ✔
- [ ] **B.** Create an Auto Scaling launch configuration with the new AMI to use the new launch configuration and to register instances with the existing load balancer
- [ ] **C.** Use Amazon RouteS3 weighted Round Robin to vary the proportion of requests sent to the load balancers. ✔
- [ ] **D.** Configure Elastic Load Balancing to vary the proportion of requests sent to instances running the two application versions.

Explanation :

Answer – A and C
The AWS documentation gives this example of a Blue Green deployment

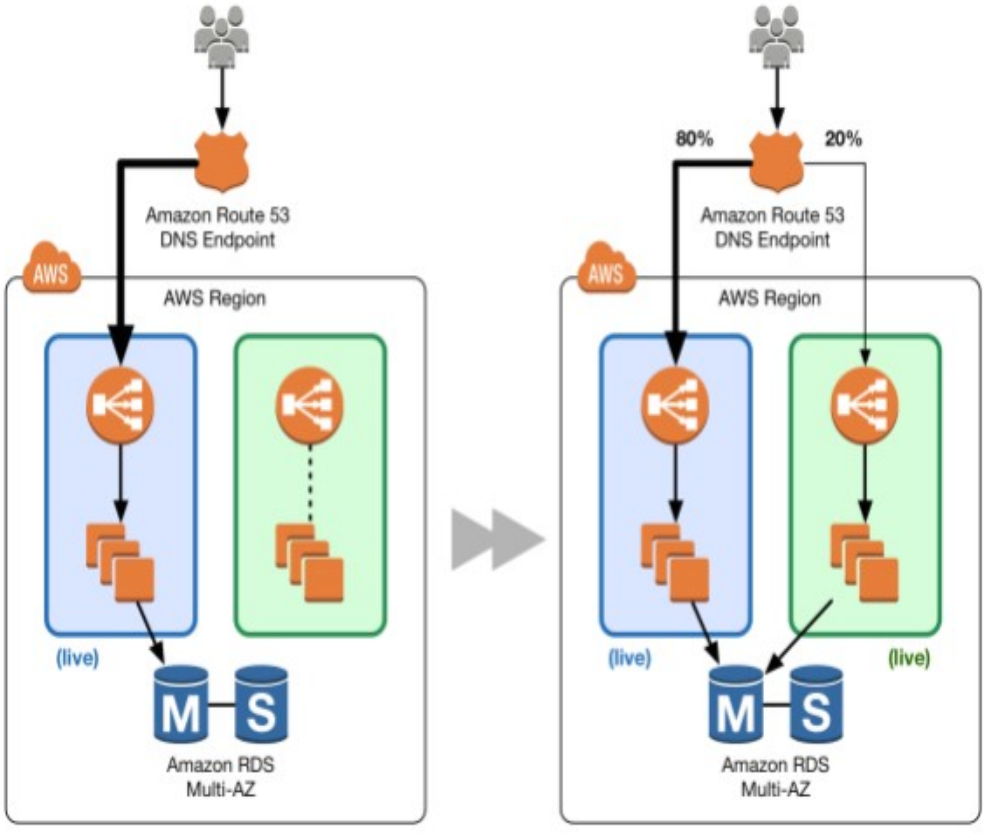

Figure 3: Classic DNS-weighted distribution

You can shift traffic all at once or you can do a weighted distribution. With Amazon Route 53, you can define a percentage of traffic to go to the green environment and gradually update the weights until the green environment carries the full production traffic. A weighted distribution provides the ability to perform canary analysis where a small percentage of production traffic is introduced to a new

environment. You can test the new code and monitor for errors, limiting the blast radius if any issues are encountered. It also allows the green environment to scale out to support the full production load if you're using Elastic Load Balancing, for example
For more information on Blue Green deployments, please refer to the below link:

- https://d0.awsstatic.com/whitepapers/AWS_Blue_Green_Deployments.pdf (https://d0.awsstatic.com/whitepapers/AWS_Blue_Green_Deployments.pdf)

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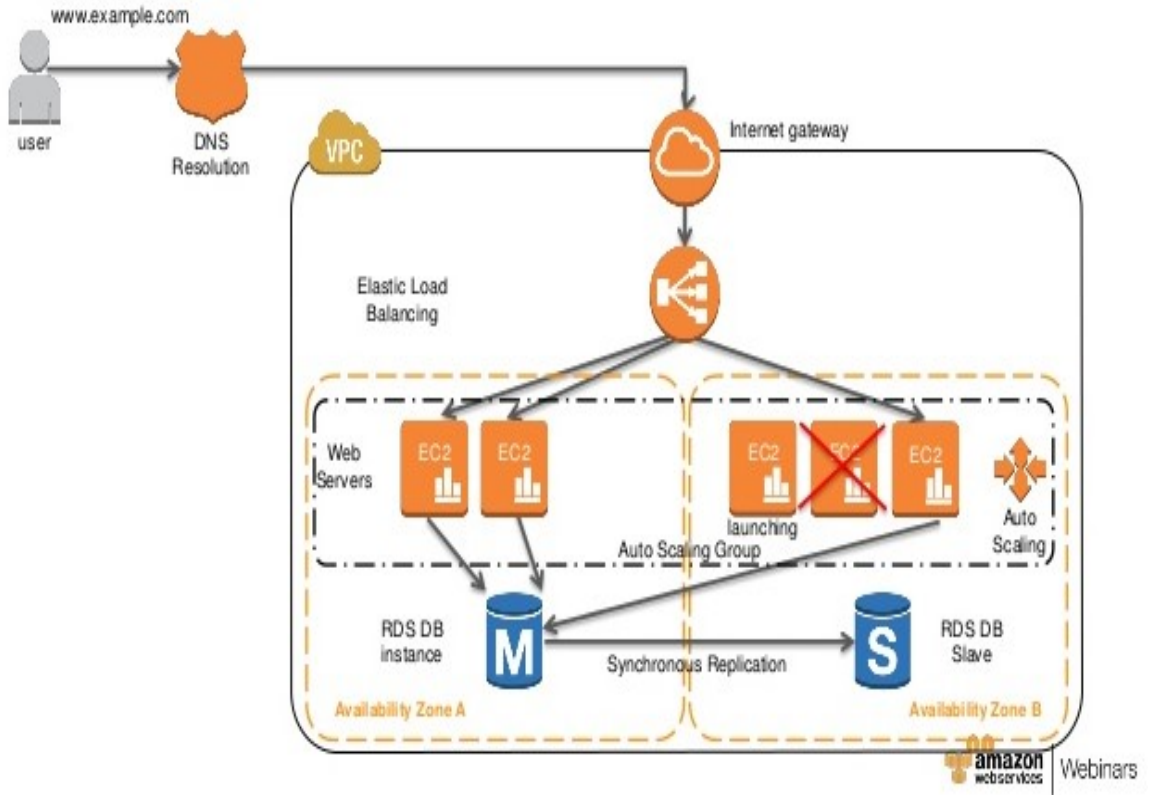
QUESTION 31 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

Your company currently has a set of EC2 Instances running a web application which sits behind an Elastic Load Balancer. You also have an Amazon RDS instance which is used by the web application. You have been asked to ensure that this arhitecture is self healing in nature and cost effective. Which of the following would fulfil this requirement. Choose 2 answers from the option given below

- ☐ **A.** Use Cloudwatch metrics to check the utilization of the web layer. Use Autoscaling Group to scale the web instances accordingly based on the cloudwatch metrics. ✔
- ☐ **B.** Use Cloudwatch metrics to check the utilization of the databases servers. Use Autoscaling Group to scale the database instances accordingly based on the cloudwatch metrics.
- ☐ **C.** Utilize the Read Replica feature for the Amazon RDS layer
- ☐ **D.** Utilize the Multi-AZ feature for the Amazon RDS layer ✔

Explanation :

Answer - A and D
The following diagram from AWS showcases a self-healing architecture where you have a set of EC2 servers as Web server being launched by an Autoscaling Group.



The AWS Documentation mentions the following

Amazon RDS Multi-AZ deployments provide enhanced availability and durability for Database (DB) Instances, making them a natural fit for production database workloads. When you provision a Multi-AZ DB Instance, Amazon RDS automatically creates a primary DB Instance and synchronously replicates the data to a standby instance in a different Availability Zone (AZ). Each AZ runs on its own physically distinct, independent infrastructure, and is engineered to be highly reliable. In case of an infrastructure failure, Amazon RDS performs an automatic failover to the standby (or to a read replica in the case of Amazon Aurora), so that you can resume database operations as soon as the failover is complete. Since the endpoint for your DB Instance remains the same after a failover, your application can resume database operation without the need for manual administrative intervention.
For more information on Multi-AZ RDS, please refer to the below link:

- https://aws.amazon.com/rds/details/multi-az/ (https://aws.amazon.com/rds/details/multi-az/)

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Your company has a set of EC2 Instances that access data objects stored in an S3 bucket. Your IT Security department is concerned about the security of this arhitecture and wants you to implement the following

1) Ensure that the EC2 Instance securely accesses the data objects stored in the S3 bucket

2) Ensure that the integrity of the objects stored in S3 is maintained.

Which of the following would help fulfil the requirements of the IT Security department. Choose 2 answers from the options given below

- [ ] **A.** Create an IAM user and ensure the EC2 Instances uses the IAM user credentials to access the data in the bucket.
- [ ] **B.** Create an IAM Role and ensure the EC2 Instances uses the IAM Role to access the data in the bucket. ✔
- [ ] **C.** Use S3 Cross Region replication to replicate the objects so that the integrity of data is maintained.
- [ ] **D.** Use an S3 bucket policy that ensures that MFA Delete is set on the objects in the bucket ✔

Explanation :

Answer - B and D
The AWS Documentation mentions the following
IAM roles are designed so that your applications can securely make API requests from your instances, without requiring you to manage the security credentials that the applications use. Instead of creating and distributing your AWS credentials, you can delegate permission to make API requests using IAM roles
For more information on IAM Roles, please refer to the below link:

- http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/iam-roles-for-amazon-ec2.html (http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/iam-roles-for-amazon-ec2.html)

MFS Delete can be used to add another layer of security to S3 Objects to prevent accidental deletion of objects.
For more information on MFA Delete, please refer to the below link:

- https://aws.amazon.com/blogs/security/securing-access-to-aws-using-mfa-part-3/ (https://aws.amazon.com/blogs/security/securing-access-to-aws-using-mfa-part-3/)

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QUESTION 33 UNATTEMPTED MONITORING, METRICS, AND LOGGING

Your company uses an application hosted in AWS which conists of EC2 Instances. The logs of the EC2 instances need to be processed and analyzed in real time , since this is a requirement from the IT Security department. Which of the following can be used to process the logs in real time.

- **A.** Use Cloudwatch logs to process and analyze the logs in real time
- **B.** Use Amazon Glacier to store the logs and then use Amazon Kinesis to process and analyze the logs in real time
- **C.** Use Amazon S3 to store the logs and then use Amazon Kinesis to process and analyze the logs in real time ✔
- **D.** Use another EC2 Instance with a larger instance type to process the logs

Explanation :

Answer – C
The AWS Documentation mentions the below
Real-time metrics and reporting
You can use data collected into Kinesis Streams for simple data analysis and reporting in real time. For example, your data-processing application can work on metrics and reporting for system and application logs as the data is streaming in, rather than wait to receive batches of data.
Real-time data analytics

This combines the power of parallel processing with the value of real-time data. For example, process website clickstreams in real time, and then analyze site usability engagement using multiple different Kinesis Streams applications running in parallel.
Amazon Glacier is meant for Archival purposes and should not be used for storing the logs for real time processing.
For more information on Amazon Kinesis, please refer to the below link:

- http://docs.aws.amazon.com/streams/latest/dev/introduction.html (http://docs.aws.amazon.com/streams/latest/dev/introduction.html)

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QUESTION 34 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You are a Devops engineer for your company. The company hosts a web application that is hosted on a single EC2 Instance. The end users are complaining of slow response times for the application. Which of the following can be used to effectively scale the application?

- **A.** Use Autoscaling Groups to launch multiple instances and place them behind an ELB. ✔
- **B.** Use Autoscaling launch configurations to launch multiple instances and place them behing an ELB.
- **C.** Use Amazon RDS with the Multi-AZ feature.
- **D.** Use Cloudformation to deploy the app again with an Amazon RDS with the Multi-AZ feature.

Explanation :

Answer - A
The AWS Documentation mentions the below
When you use Auto Scaling, you can automatically increase the size of your Auto Scaling group when demand goes up and decrease it when demand goes down. As Auto Scaling adds and removes EC2 instances, you must ensure that the traffic for your application is distributed across all of your EC2

instances. The Elastic Load Balancing service automatically routes incoming web traffic across such a dynamically changing number of EC2 instances. Your load balancer acts as a single point of contact for all incoming traffic to the instances in your Auto Scaling group.
For more information on Autoscaling and ELB, please refer to the below link:

- http://docs.aws.amazon.com/autoscaling/latest/userguide/autoscaling-load-balancer.html (http://docs.aws.amazon.com/autoscaling/latest/userguide/autoscaling-load-balancer.html)

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QUESTION 35 UNATTEMPTED MONITORING, METRICS, AND LOGGING

You have a set of EC2 Instances hosting an nginx server and a web application that is used by a set of users in your organization. After a recent application version upgrade, the instance runs into technical issues and needs an immediate restart. This does not give you enough time to inspect the cause of the issue on the server. Which of the following options if implemented prior to the incident would have assisted in detecting the underlying cause of the issue?

- **A.** Enable detailed monitoring and check the Cloudwatch metrics to see the cause of the issue.
- **B.** Create a snapshot of the EBS volume before restart, attach it to another instance as a volume and then diagnose the issue.
- **C.** Stream all the data to Amazon Kinesis and then analyze the data in real time.
- **D.** Install Cloudwatch logs agent on the instance and send all the logs to Cloudwatch logs. ✔

Explanation :

Answer – D
The AWS documentation mentions the following
You can publish log data from Amazon EC2 instances running Linux or Windows Server, and logged events from AWS CloudTrail. CloudWatch Logs can consume logs from resources in any region, but you can only view the log data in the CloudWatch console in the regions where CloudWatch Logs is supported.

Option A is invalid as detailed monitoring will only help us to get more information about the performance metrics of the instances, volumes etc and will not be able to provide full information regarding technical issues.

Option B is incorrect if we had created a snapshot prior to the update it might be useful but not after the incident.
Option C is incorrect here we are dealing with an issue concerning the underlying application that handles the data so this solution will not help.
For more information on Cloudwatch logs, please refer to the below link:

- http://docs.aws.amazon.
(http://docs.aws.amazon.com/AmazonCloudWatch/latest/logs/StartTheCWLAgent.html)
com/AmazonCloudWatch/latest/
(http://docs.aws.amazon.com/AmazonCloudWatch/latest/logs/StartTheCWLAgent.html)
logs/StartTheCWLAgent.html
(http://docs.aws.amazon.com/AmazonCloudWatch/latest/logs/StartTheCWLAgent.html)

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QUESTION 36 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

The AWS Code Deploy service can be used to deploy code from which of the below mentioned source repositories. Choose 3 answers from the options given below

- [ ] **A.** S3 Buckets ✔
- [ ] **B.** GitHub repositories ✔
- [ ] **C.** Subversion repositories
- [ ] **D.** Bitbucket repositories ✔

Explanation :

Answer – A,B and D

The AWS documentation mentions the following
You can deploy a nearly unlimited variety of application content, such as code, web and configuration files, executables, packages, scripts, multimedia files, and so on. AWS CodeDeploy can deploy application content stored in Amazon S3 buckets, GitHub repositories, or Bitbucket repositories. You do not need to make changes to your existing code before you can use AWS CodeDeploy.
For more information on AWS Code Deploy, please refer to the below link:

- http://docs.aws.amazon.com/codedeploy/latest/userguide/welcome.html (http://docs.aws.amazon.com/codedeploy/latest/userguide/welcome.html)

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QUESTION 37 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

In AWS Code Deploy which of the following deployment types are available. Choose 2 answers from the options given below

- ☐ **A.** In-place deployments ✔
- ☐ **B.** Rolling deployments
- ☐ **C.** Immutable deployments
- ☐ **D.** Blue/Green deployments ✔

Explanation :

Answer – A and D
The AWS documentation mentions the following
Deployment type: The method used to make the latest application revision available on instances in a deployment group.

- In-place deployment: The application on each instance in the deployment group is stopped, the latest application revision is installed, and the new version of the application is started and validated. You can choose to use a load balancer so each instance is deregistered during its deployment and then restored to service after the deployment is complete.
- Blue/green deployment: The instances in a deployment group (the original environment) are replaced by a different set of instances (the replacement environment) using these steps:
  - Instances are provisioned for the replacement environment.
  - The latest application revision is installed on the replacement instances.

- An optional wait time occurs for activities such as application testing and system verification.
- Instances in the replacement environment are registered with an Elastic Load Balancing load balancer, causing traffic to be rerouted to them. Instances in the original environment are deregistered and can be terminated or kept running for other uses.

For more information on the components of AWS Code Deploy, please refer to the below link:

- http://docs.aws.amazon.com/codedeploy/latest/userguide/primary-components.html (http://docs.aws.amazon.com/codedeploy/latest/userguide/primary-components.html)

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QUESTION 38 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You are designing a cloudformation template to install a set of web servers on EC2 Instances. The following User data needs to be passed to the EC2 Instances

#!/bin/bash

sudo apt-get update

sudo apt-get install -y nginx

Where in the cloudformation template would you ideally pass this User Data

- **A.** In the properties section of the EC2 Instance in the resources section ✔
- **B.** In the properties section of the EC2 Instance in the Output section
- **C.** In the Metadata section of the EC2 Instance in the resources section
- **D.** In the Metadata section of the EC2 Instance in the Output section

Explanation :

Answer - A
Below is an example on how the user data can be passed in a cloudformation template

```
{
 "Resources" : {
  "WebServerInstance": {
   "Type": "AWS::EC2::Instance",
   "Properties" :{
   "InstanceType" : "t2.micro",
   "ImageId" : "ami-6f198a0c",
   "UserData": {
     "Fn::Base64": {
      "Fn::Join": [
       "\n",
       [
        "#!/bin/bash",
                "sudo apt-get update",
                sudo apt-get install -y nginx]]}}


}
}
}
}
```

For more information on User data in cloudformation templates, please refer to the below link:

- http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/deploying.applications.html (http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/deploying.applications.html)

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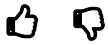

QUESTION 39 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You need to deploy a multi-container Docker environment on to Elastic beanstalk. Which of the following files can be used to deploy a set of Docker containers to Elastic beanstalk

- A. Dockerfile
- B. DockerMultifile
- C. Dockerrun.aws.json ✔
- D. Dockerrun

Explanation :

Answer – C
The AWS Documentation specifies
A Dockerrun.aws.json file is an Elastic Beanstalk–specific JSON file that describes how to deploy a set of Docker containers as an Elastic Beanstalk application. You can use aDockerrun.aws.json file for a multicontainer Docker environment.
Dockerrun.aws.json describes the containers to deploy to each container instance in the environment as well as the data volumes to create on the host instance for the containers to mount.
For more information on this , please visit the below URL:

- http://docs.aws.amazon.com/elasticbeanstalk/latest/dg/create_deploy_docker_v2config.html (http://docs.aws.amazon.com/elasticbeanstalk/latest/dg/create_deploy_docker_v2config.html)

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QUESTION 40 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You have the requirement to get a snapshot of the current configuration of the resources in your AWS Account. Which of the following services can be used for this purpose

- A. AWS CodeDeploy
- B. AWS Trusted Advisor
- C. AWS Config ✔
- D. AWS IAM

Explanation :

Answer - C
The AWS Documentation mentions the following
With AWS Config, you can do the following:

- Evaluate your AWS resource configurations for desired settings.
- Get a snapshot of the current configurations of the supported resources that are associated with your AWS account.
- Retrieve configurations of one or more resources that exist in your account.
- Retrieve historical configurations of one or more resources.
- Receive a notification whenever a resource is created, modified, or deleted.
- View relationships between resources. For example, you might want to find all resources that use a particular security group.

For more information on AWS Config , please visit the below URL:

- http://docs.aws.amazon.com/config/latest/developerguide/WhatIsConfig.html (http://docs.aws.amazon.com/config/latest/developerguide/WhatIsConfig.html)

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QUESTION 41 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You have a set of EC2 Instances in an Autoscaling Group that processes messages from an SQS queue. The messages contain the location in S3 from where video's need to be processed by the EC2 Instances. When a scale in happens, it is noticed that an at times that the EC2 Instance is still in a state of processing a video when the instance is terminated. How can you implement a solution which will ensure this does not happen?

- **A.** Change the CoolDown property for the Autoscaling Group.
- **B.** Suspend the AZRebalance termination policy
- **C.** Use lifecycle hooks to ensure the processing is complete before the termination occurs ✔

- [ ] **D.** Increase the minimum and maximum size for the Auto Scaling group, and change the scaling policies so they scale less dynamically.

Explanation :

Answer - C
This is a case where lifecycle policies can be used. The lifecycle policy can be used to put the instance in a state of Terminating:Wait , complete the processing and then send a signal to complete the termination
Auto Scaling lifecycle hooks enable you to perform custom actions by pausing instances as Auto Scaling launches or terminates them. For example, while your newly launched instance is paused, you could install or configure software on it.
For more information on Autoscaling lifecycle hooks , please visit the below URL:

- http://docs.aws.amazon.com/autoscaling/latest/userguide/lifecycle-hooks.html (http://docs.aws.amazon.com/autoscaling/latest/userguide/lifecycle-hooks.html)

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QUESTION 42 UNATTEMPTED HIGH AVAILABILITY AND ELASTICITY

Your company is hosting an application in AWS. The application consists of a set of web servers and AWS RDS. The application is a read intensive application. It has been noticed that the response time of the application decreases due to the load on the AWS RDS instance. Which of the following measures can be taken to scale the data tier. Choose 2 answers from the options given below

- [ ] **A.** Create Amazon DB Read Replica's. Configure the application layer to query the readreplica's for query needs. ✔
- [ ] **B.** Use Autoscaling to scale out and scale in the database tier
- [ ] **C.** Use SQS to cache the database queries
- [ ] **D.** Use ElastiCache in front of your Amazon RDS DB to cache common queries. ✔

Explanation :

Answer - A and D
The AWS documentation mentions the following
Amazon RDS Read Replicas provide enhanced performance and durability for database (DB) instances. This replication feature makes it easy to elastically scale out beyond the capacity constraints of a single DB Instance for read-heavy database workloads. You can create one or more replicas of a given source DB Instance and serve high-volume application read traffic from multiple copies of your data, thereby increasing aggregate read throughput. Read replicas can also be promoted when needed to become standalone DB instances.
For more information on AWS RDS Read Replica's, please visit the below URL:

- https://aws.amazon.com/rds/details/read-replicas/ (https://aws.amazon.com/rds/details/read-replicas/)

Amazon ElastiCache is a web service that makes it easy to deploy, operate, and scale an in-memory data store or cache in the cloud. The service improves the performance of web applications by allowing you to retrieve information from fast, managed, in-memory data stores, instead of relying entirely on slower disk-based databases.
For more information on AWS Elastic Cache, please visit the below URL:

- https://aws.amazon.com/elasticache/ (https://aws.amazon.com/elasticache/)

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QUESTION 43 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You are using Jenkins as your continuous integration systems for the application hosted in AWS. The builds are then placed on newly launched EC2 Instances. You want to ensure that the overall cost of the entire continuous integration and deployment pipeline is minimized. Which of the below options would meet these requirements? Choose 2 answers from the options given below

- [ ] **A.** Ensure that all build tests are conducted using Jenkins before deploying the build to newly launched EC2 Instances. ✔

- [ ] **B.** Ensure that all build tests are conducted on the newly launched EC2 Instances.
- [ ] **C.** Ensure the Instances are launched only when the build tests are completed. ✔
- [ ] **D.** Ensure the Instances are created beforehand for faster turnaround time for the application builds to be placed.

Explanation :

Answer - A and C
To ensure low cost , one can carry out the build tests on the Jenkins server itself. Once the build tests are completed , the build can then be transferred onto newly launched EC2 Instances.
For more information on AWS and Jenkins, please visit the below URL:

- https://aws.amazon.com/getting-started/projects/setup-jenkins-build-server/ (https://aws.amazon.com/getting-started/projects/setup-jenkins-build-server/)

Option D is incorrect. It would be right choice in case the requirement is to get better speed.

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QUESTION 44 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You are using Elastic beanstalk to deploy an application that consists of a web and application server. There is a requirement to run some python scripts before the application version is deployed to the web server. Which of the following can be used to achieve this?

- ○ **A.** Make use of container commands ✔
- ○ **B.** Make use of Docker containers
- ○ **C.** Make use of custom resources
- ○ **D.** Make use of multiple elastic beanstalk environments

Explanation :

Answer - A

The AWS Documentation mentions the following
You can use the container_commands key to execute commands that affect your application source code. Container commands run after the application and web server have been set up and the application version archive has been extracted, but before the application version is deployed. Non-container commands and other customization operations are performed prior to the application source code being extracted.
For more information on Container commands, please visit the below URL:

- http://docs.aws.amazon.com/elasticbeanstalk/latest/dg/customize-containers-ec2.html (http://docs.aws.amazon.com/elasticbeanstalk/latest/dg/customize-containers-ec2.html)

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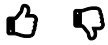


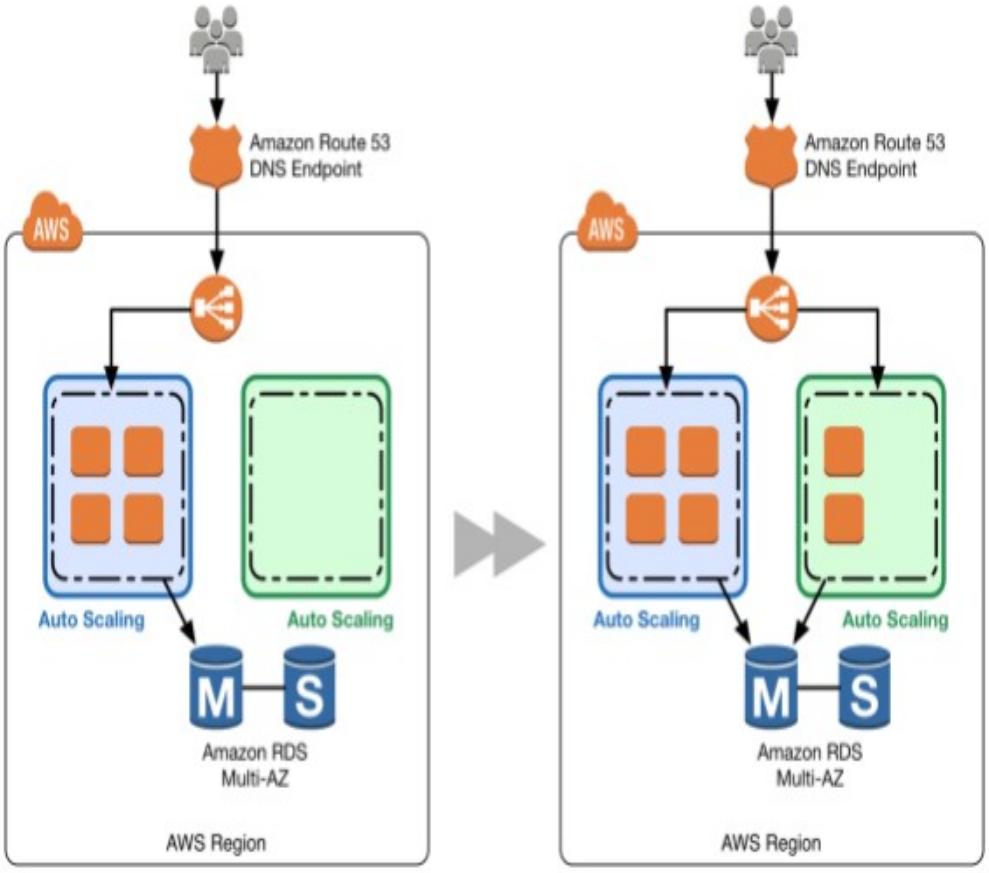
QUESTION 45 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

Your company has an application sitting on EC2 Instances behind an Elastic Load balancer. The EC2 Instances are being launched as part of an Autoscaling Group. Which of the following is an example of Blue Green Deployments in AWS?

- **A.** Use a Cloudformation stack to deploy your resources. Use 2 Cloudformation stacks. Whenever you want to switch over, deploy and use the resources in the second Cloudformation stack.
- **B.** Use the Elastic beanstalk service to deploy your resources. Use 2 Elastic beanstalk environments. Use Rolling deployments to switch between the environments.
- **C.** Re-deploy your application behind a load balancer that uses Auto Scaling groups, create a new identical Auto Scaling group, and associate it to the load balancer. During deployment, set the desired number of instances on the old Auto Scaling group to zero, and when all instances have terminated, delete the old Auto Scaling group. ✔
- **D.** Use the Opsworks service to deploy your resources. Use 2 Opswork layers to deploy 2 versions of your application. When the time comes for the switch, change to the alternate layer in the Opswork stack

Explanation :

Answer – C
This deployment technique is given in the AWS Whitepaper



As you scale up the green Auto Scaling group, you can take blue Auto Scaling group instances out of service by either terminating them or putting them in Standby state. Standby is a good option because if you need to roll back to the blue environment, you only have to put your blue server instances back in service and they're ready to go.1 4 As soon as the green group is scaled up without issues, you can decommission the blue group by adjusting the group size to zero. If you need to roll back, detach the load balancer from the green group or reduce the group size of the green group to zero.

For more information on Blue Green deployments, please visit the below URL:

- https://d0.awsstatic.com/whitepapers/AWS_Blue_Green_Deployments.pdf (https://d0.awsstatic.com/whitepapers/AWS_Blue_Green_Deployments.pdf)

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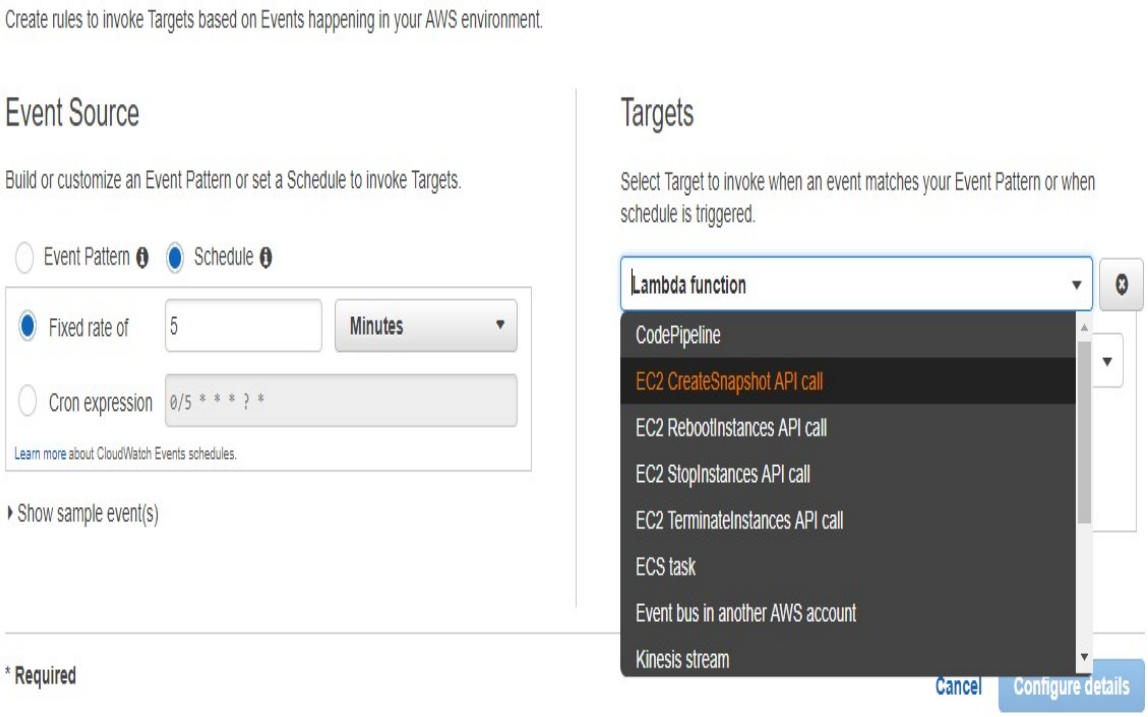
QUESTION 46 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You have a requirement to automate the creation of EBS Snapshots. Which of the following can be used to achieve this in the best way possible?

- A. Create a powershell script which uses the AWS CLI to get the volumes and then run the script as a cron job.
- B. Use the AWSConfig service to create a snapshot of the AWS Volumes
- C. Use the AWS CodeDeploy service to create a snapshot of the AWS Volumes
- D. Use Cloudwatch Events to trigger the snapshots of EBS Volumes ✔

Explanation :

Answer – D
The best is to use the inbuilt service from Cloudwatch , as Cloudwatch Events to automate the creation of EBS Snapshots. With Option A , you would be restricted to running the powrshell script on Windows machines and maintaining the script itself. And then you have the overhead of having a separate instance just to run that script.
When you go to Cloudwatch events, you can use the Target as EC2 CreateSnapshot API call as shown below.



The AWS Documentation mentions

Amazon CloudWatch Events delivers a near real-time stream of system events that describe changes in Amazon Web Services (AWS) resources. Using simple rules that you can quickly set up, you can match events and route them to one or more target functions or streams. CloudWatch Events becomes aware of operational changes as they occur. CloudWatch Events responds to these operational changes and takes corrective action as necessary, by sending messages to respond to the environment, activating functions, making changes, and capturing state information.
For more information on Cloudwatch Events , please visit the below URL:

- http://docs.aws.amazon.com/AmazonCloudWatch/latest/events/WhatIsCloudWatchEvents.html (http://docs.aws.amazon.com/AmazonCloudWatch/latest/events/WhatIsCloudWatchEvents.html)

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QUESTION 47 UNATTEMPTED SECURITY, GOVERNANCE, AND VALIDATION

Your company has a set of resources hosted in AWS. Your IT Supervisor is concerned with the costs being incurred with the current set of AWS resources and wants to monitor the cost usage. Which of the following mechanisms can be used to monitor the costs of the AWS resources and also look at the possibility of cost optimization. Choose 3 answers from the options given below

- [ ] **A.** Use the Cost Explorer to see the costs of AWS resources ✔
- [ ] **B.** Create budgets in billing section so that budgets are set before hand ✔
- [ ] **C.** Send all logs to Cloudwatch logs and inspect the logs for billing details
- [ ] **D.** Consider using the Trusted Advisor ✔

Explanation :

Answer - A,B and D
The AWS Documentation mentions the following

1) For a quick, high-level analysis use Cost Explorer, which is a free tool that you can use to view graphs of your AWS spend data. It includes a variety of filters and preconfigured views, as well as forecasting capabilities. Cost Explorer displays data from the last 13 months, the current month, and the forecasted costs for the next three months, and it updates this data daily.
2) Consider using budgets if you have a defined spending plan for a project or service and you want to track how close your usage and costs are to exceeding your budgeted amount. Budgets use data from Cost Explorer to provide you with a quick way to see your usage-to-date and current estimated charges from AWS. You can also set up notifications that warn you if you exceed or are about to exceed your budgeted amount.
3) Visit the AWS Trusted Advisor console regularly. Trusted Advisor works like a customized cloud expert, analyzing your AWS environment and providing best practice recommendations to help you save money, improve system performance and reliability, and close security gaps.
For more information on cost optimization, please visit the below URL:

- https://aws.amazon.com/answers/account-management/cost-optimization-monitor/ (https://aws.amazon.com/answers/account-management/cost-optimization-monitor/)

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QUESTION 48 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

When you add lifecycle hooks to an Autoscaling Group , what are the wait states that occur during the scale in and scale out process. Choose 2 answers from the options given below

- [ ] **A.** Launching:Wait
- [ ] **B.** Exiting:Wait
- [ ] **C.** Pending:Wait ✔
- [ ] **D.** Terminating:Wait ✔

Explanation :

Answer - C and D
The AWS Documentation mentions the following
After you add lifecycle hooks to your Auto Scaling group, they work as follows:

1. Auto Scaling responds to scale out events by launching instances and scale in events by terminating instances.

2. Auto Scaling puts the instance into a wait state (Pending:Wait orTerminating:Wait). The instance is paused until either you tell Auto Scaling to continue or the timeout period ends.

For more information on Autoscaling Lifecycle hooks, please visit the below URL:

- http://docs.aws.amazon.com/autoscaling/latest/userguide/lifecycle-hooks.html (http://docs.aws.amazon.com/autoscaling/latest/userguide/lifecycle-hooks.html)

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QUESTION 49 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

Your company currently has a set of EC2 Instances sitting behind an Elastic Load Balancer. There is a requirement to create an Opswork stack to host the newer version of this application. The idea is to first get the stack in place, carry out a level of testing and then deploy it at a later stage. The Opswork stack and layers have been setup. To complete the testing process, the current ELB is being utilized. But you have now noticed that your current application has stopped responding to requests. Why is this the case.

- **A.** This is because the Opswork stack is utilizing the current instances after the ELB was attached as a layer.
- **B.** You have configured the Opswork stack to deploy new instances in the same domain the older instances.
- **C.** The ELB would have deregistered the older instances ✔
- **D.** This is because the Opswork web layer is utilizing the current instances after the ELB was attached as an additional layer.

Explanation :

Answer – C
The AWS Documentation mentions the following

If you choose to use an existing Elastic Load Balancing load balancer, you should first confirm that it is not being used for other purposes and has no attached instances. After the load balancer is attached to the layer, OpsWorks removes any existing instances and configures the load balancer to handle only the layer's instances. Although it is technically possible to use the Elastic Load Balancing console or API to modify a load balancer's configuration after attaching it to a layer, you should not do so; the changes will not be permanent.
For more information on Opswork ELB layers, please visit the below URL:

- http://docs.aws.amazon.com/opsworks/latest/userguide/layers-elb.html (http://docs.aws.amazon.com/opsworks/latest/userguide/layers-elb.html)

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QUESTION 50 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

Your company has an on-premise Active Directory setup in place. The company has extended their footprint on AWS , but still want to have the ability to use their on-premise Active Directory for authentication. Which of the following AWS services can be used to ensure that AWS resources such as AWS Workspaces can continue to use the existing credentials stored in the on-premise Active Directory.

- **A.** Use the Active Directory service on AWS
- **B.** Use the AWS Simple AD service
- **C.** Use the Active Directory connector service on AWS ✔
- **D.** Use the ClassicLink feature on AWS

Explanation :

Answer – C
The AWS Documentation mentions the following

AD Connector is a directory gateway with which you can redirect directory requests to your on-premises Microsoft Active Directory without caching any information in the cloud. AD Connector comes in two sizes, small and large. A small AD Connector is designed for smaller organizations of up to 500 users. A large AD Connector can support larger organizations of up to 5,000 users.
For more information on the AD connector, please refer to the below URL:

- http://docs.aws.amazon.com/directoryservice/latest/admin-guide/directory_ad_connector.html (http://docs.aws.amazon.com/directoryservice/latest/admin-guide/directory_ad_connector.html)

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QUESTION 51 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

Which of the following items are required to allow an application deployed on an EC2 instance to write data to a DynamoDB table? Assume that no security keys are allowed to be stored on the EC2 instance. Choose 2 answers from the options below

- ☐ **A.** Create an IAM Role that allows write access to the DynamoDB table. ✔
- ☐ **B.** Add an IAM Role to a running EC2 instance. ✔
- ☐ **C.** Create an IAM User that allows write access to the DynamoDB table.
- ☐ **D.** Add an IAM User to a running EC2 instance.

Explanation :

Answer – A and B
The AWS documentation mentions the following
We designed IAM roles so that your applications can securely make API requests from your instances, without requiring you to manage the security credentials that the applications use. Instead of creating and distributing your AWS credentials, you can delegate permission to make API requests using IAM roles
For more information on IAM Roles, please refer to the below URL:

- http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/iam-roles-for-amazon-ec2.html (http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/iam-roles-for-amazon-ec2.html)

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QUESTION 52 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You are a Devops Engineer for your company. Your company is using Opswork stack to rollout a collection of web instances. When the instances are launched , a configuration file need to be setup prior to the launching of the web application hosted on these instances. Which of the following steps would you carry out to ensure this requirement gets fulfilled. Choose 2 answers from the options given below

- ☐ **A.** Ensure that the Opswork stack is changed to use the AWS specific cookbooks
- ☐ **B.** Ensure that the Opswork stack is changed to use custom cookbooks ✔
- ☐ **C.** Configure a recipe which sets the configuration file and add it to the Configure LifeCycle Event of the specific web layer. ✔
- ☐ **D.** Configure a recipe which sets the configuration file and add it to the Deploy LifeCycle Event of the specific web layer.

Explanation :

Answer - B and C
This is mentioned in the AWS documentation
Configure
This event occurs on all of the stack's instances when one of the following occurs:

- An instance enters or leaves the online state.
- You associate an Elastic IP address with an instance or disassociate one from an instance.
- You attach an Elastic Load Balancing load balancer to a layer, or detach one from a layer.

For example, suppose that your stack has instances A, B, and C, and you start a new instance, D. After D has finished running its setup recipes, AWS OpsWorks Stacks triggers the Configure event on A, B, C, and D. If you subsequently stop A, AWS OpsWorks Stacks triggers the Configure event on B, C, and D. AWS OpsWorks Stacks responds to the Configure event by running each layer's Configure recipes, which update the instances' configuration to reflect the current set of online instances. The Configure event is therefore a good time to regenerate configuration files. For example, the HAProxy Configure recipes reconfigure the load balancer to accommodate any changes in the set of online application server instances.

You can also manually trigger the Configure event by using the Configure stack command.
For more information on Opswork lifecycle events, please refer to the below URL:

- http://docs.aws.amazon.com/opsworks/latest/userguide/workingcookbook-events.html (http://docs.aws.amazon.com/opsworks/latest/userguide/workingcookbook-events.html)

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QUESTION 53 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You have a set of EC2 Instances running behind an ELB. These EC2 Instances are launched via an Autoscaling Group. There is a requirement to ensure that the logs from the server are stored in a durable storage layer. This is so that log data can be analyzed by staff in the future. Which of the following steps can be implemented to ensure this requirement is fulfilled. Choose 2 answers from the options given below

- [ ] **A.** On the web servers, create a scheduled task that executes a script to rotate and transmit the logs to an Amazon S3 bucket. ✔
- [ ] **B.** Use AWS Data Pipeline to move log data from the Amazon S3 bucket to Amazon Redshift in order to process and run reports ✔
- [ ] **C.** On the web servers, create a scheduled task that executes a script to rotate and transmit the logs to Amazon Glacier.
- [ ] **D.** Use AWS Data Pipeline to move log data from the Amazon S3 bucket to Amazon SQS in order to process and run reports

Explanation :

Answer - A and B
Amazon S3 is the perfect option for durable storage. The AWS Documentation mentions the following on S3 Storage
Amazon Simple Storage Service (Amazon S3) makes it simple and practical to collect, store, and analyze data - regardless of format – all at massive scale. S3 is object storage built to store and retrieve any amount of data from anywhere – web sites and mobile apps, corporate applications, and data from IoT sensors or devices.
For more information on Amazon S3, please refer to the below URL:

- https://aws.amazon.com/s3/ (https://aws.amazon.com/s3/)

Amazon Redshift is a fast, fully managed data warehouse that makes it simple and cost-effective to analyze all your data using standard SQL and your existing Business Intelligence (BI) tools. It allows you to run complex analytic queries against petabytes of structured data, using sophisticated query optimization, columnar storage on high-performance local disks, and massively parallel query execution. Most results come back in seconds.
For more information on Amazon Redshift, please refer to the below URL:

- https://aws.amazon.com/redshift/ (https://aws.amazon.com/redshift/)

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QUESTION 54 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

Your company has a set of development teams that work in a variety of programming languages. They develop applications which have a lot of different application dependencies. There is a move from the company to move these development environments onto AWS. Which of the below is the best option to make this happen.

- **A.** Use the Cloudformation service to create docker containers for each type of application
- **B.** Use the Elastic beanstalk service and use Docker containers to host each application environment for the developer community ✔

- **C.** Use the Opswork service, create a stack and create separate layers for each application environment for the developer community
- **D.** Launch separate EC2 Instances to host each application type for the developer community

Explanation :

Answer – B
The AWS Documentation mentions the following
Elastic Beanstalk supports the deployment of web applications from Docker containers. With Docker containers, you can define your own runtime environment. You can choose your own platform, programming language, and any application dependencies (such as package managers or tools), that aren't supported by other platforms. Docker containers are self-contained and include all the configuration information and software your web application requires to run.
For more information on Elastic Beanstalk and docker, please refer to the below URL:

- http://docs.aws.amazon.com/elasticbeanstalk/latest/dg/create_deploy_docker.html (http://docs.aws.amazon.com/elasticbeanstalk/latest/dg/create_deploy_docker.html)

Ask our Experts

QUESTION 55 UNATTEMPTED SECURITY, GOVERNANCE, AND VALIDATION

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.

Explanation :

Answer – C
A tag is a label that you or AWS assigns to an AWS resource. Each tag consists of a *key* and a *value*. A key can have more than one value. You can use tags to organize your resources, and cost allocation tags to track your AWS costs on a detailed level. After you activate cost allocation tags, AWS uses the cost allocation tags to organize your resource costs on your cost allocation report, to make it easier for you to categorize and track your AWS costs. AWS provides two types of cost allocation tags, an *AWS-generated tag* and *user-defined tags*. AWS defines, creates, and applies the AWS-generated tag for you, and you define, create, and apply user-defined tags. You must activate both types of tags separately before they can appear in Cost Explorer or on a cost allocation report.
For more information on Cost Allocation tags, please visit the below URL:

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

Ask our Experts

QUESTION 56 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You've created a Cloudformation template as per your team's requets which is required for testing an application. By there is a request that when the stack is deleted, that the database is preserved for future reference. How can you achieve this using Cloudformation?

- **A.** Ensure that the RDS is created with Read Replica's so that the Read Replica remains after the stack is torn down.
- **B.** In the AWS CloudFormation template, set the DeletionPolicy of theAWS::RDS::DBInstance's DeletionPolicy property to "Retain." ✔
- **C.** In the AWS CloudFormation template, set the WaitPolicy of the AWS::RDS::DBInstance's WaitPolicy property to "Retain."

- **D.** In the AWS CloudFormation template, set the AWS::RDS::DBInstance's DBInstanceClass property to be read-only.

Explanation :

Answer - B
With the DeletionPolicy attribute you can preserve or (in some cases) backup a resource when its stack is deleted. You specify a DeletionPolicy attribute for each resource that you want to control. If a resource has no DeletionPolicy attribute, AWS CloudFormation deletes the resource by default. Note that this capability also applies to update operations that lead to resources being removed.
For more information on Cloudformation Deletion policy, please visit the below URL:

- http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/aws-attribute-deletionpolicy.html (http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/aws-attribute-deletionpolicy.html)

Ask our Experts

QUESTION 57 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

Your team is responsible for an AWS Elastic Beanstalk application. The business requires that you move to a continuous deployment model, releasing updates to the application multiple times per day with zero downtime. What should you do to enable this and still be able to roll back almost immediately in an emergency to the previous version?

- **A.** Enable rolling updates in the Elastic Beanstalk environment, setting an appropriate pause time for application startup.
- **B.** Create a second Elastic Beanstalk environment running the new application version, and swap the environment CNAMEs. ✔
- **C.** Develop the application to poll for a new application version in your code repository; download and install to each running Elastic Beanstalk instance.
- **D.** Create a second Elastic Beanstalk environment with the new application version, and configure the old environment to redirect clients, using the HTTP 301 response code, to the new environment.

Explanation :

Answer – B
Since the requirement calls for zero downtime and for the ability roll back quickly, we need to implement Blue green deployments using the Elastic beanstalk service. For this, we can use the SWAP url feature which is available with Elastic beanstalk
The AWS whitepaper on Blue green deployments mentions the following
However, you can avoid this downtime by deploying the new version to a separate environment. The existing environment's configuration is copied and used to launch the green environment with the new version of the application. The new—green—environment will have its own URL. When it's time to promote the green environment to serve production traffic, you can use Elastic Beanstalk's Swap Environment URLs feature
For more information on Blue Green deployments, please visit the below URL:

- https://d0.awsstatic.com/whitepapers/AWS_Blue_Green_Deployments.pdf (https://d0.awsstatic.com/whitepapers/AWS_Blue_Green_Deployments.pdf)

Ask our Experts

QUESTION 58 UNATTEMPTED MONITORING, METRICS, AND LOGGING

Your current log analysis application takes more than four hours to generate a report of the top 10 users of your web application. You have been asked to implement a system that can report this information in real time, ensure that the report is always up to date, and handle increases in the number of requests to your web application. Choose the option that is cost-effective and can fulfill the requirements.

- **A.** Publish your data to CloudWatch Logs, and configure your application to autoscale to handle the load on demand.
- **B.** Publish your log data to an Amazon S3 bucket. Use AWS CloudFormation to create an Auto Scaling group to scale your post-processing application which is configured to pull down your log files stored in Amazon S3.
- **C.** Post your log data to an Amazon Kinesis data stream, and subscribe your log-processing application so that is configured to process your logging data. ✔
- **D.** Configure an Auto Scaling group to increase the size of your Amazon EMR cluster.

- **E.** Create a multi-AZ Amazon RDS MySQL cluster, post the logging data to MySQL, and run a map reduce job to retrieve the required information on user counts.

Explanation :

Answer – C
The AWS Documentation mentions the following
Amazon Kinesis makes it easy to collect, process, and analyze real-time, streaming data so you can get timely insights and react quickly to new information. Amazon Kinesis offers key capabilities to cost effectively process streaming data at any scale, along with the flexibility to choose the tools that best suit the requirements of your application. With Amazon Kinesis, you can ingest real-time data such as application logs, website clickstreams, IoT telemetry data, and more into your databases, data lakes and data warehouses, or build your own real-time applications using this data. Amazon Kinesis enables you to process and analyze data as it arrives and respond in real-time instead of having to wait until all your data is collected before the processing can begin.
For more information on Amazon Kinesis, please visit the below URL:

- https://aws.amazon.com/kinesis/ (https://aws.amazon.com/kinesis/)

Ask our Experts

QUESTION 59 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You are building an application based on the Go programming language for internal, non-production use which uses MySQL 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
- **D.** AWS Elastic Beanstalk ✔

Explanation :

Answer - D
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
Elastic Beanstalk supports applications developed in Java, PHP, .NET, Node.js, Python, and Ruby, as well as different container types for each language.
For more information on Elastic beanstalk, please visit the below URL:

- http://docs.aws.amazon.com/elasticbeanstalk/latest/dg/Welcome.html (http://docs.aws.amazon.com/elasticbeanstalk/latest/dg/Welcome.html)

Ask our Experts

QUESTION 60 UNATTEMPTED SECURITY, GOVERNANCE, AND VALIDATION

You need to grant a vendor access to your AWS account. They need to be able to read protected messages in a private S3 bucket at their leisure. They also use AWS. What is the best way to accomplish this?

- **A.** Create an IAM User with API Access Keys. Grant the User permissions to access the bucket. Give the vendor the AWS Access Key ID and AWS Secret Access Key for the User.
- **B.** Create an EC2 Instance Profile on your account. Grant the associated IAM role full access to the bucket. Start an EC2 instance with this Profile and give SSH access to the instance to the vendor.
- **C.** Create a cross-account IAM Role with permission to access the bucket, and grant permission to use the Role to the vendor AWS account. ✔
- **D.** Generate a signed S3 PUT URL and a signed S3 PUT URL, both with wildcard values and 2 year durations. Pass the URLs to the vendor.

Explanation :

Answer - C
You can use AWS Identity and Access Management (IAM) roles and AWS Security Token Service (STS) to set up cross-account access between AWS accounts. When you assume an IAM role in another AWS account to obtain cross-account access to services and resources in that account, AWS CloudTrail logs the cross-account activity
For more information on Cross Account Access, please visit the below URL:

- https://aws.amazon.com/blogs/security/tag/cross-account-access/ (https://aws.amazon.com/blogs/security/tag/cross-account-access/)

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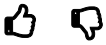

QUESTION 61 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You have a set of applications hosted in AWS. There is a requirement to store the logs from this application onto durable storage. After a period of 3 months, the logs can be placed in archival storage. Which of the following steps would you carry out to achieve this requirement. Choose 2 answers from the options given below

- ☐ **A.** Store the log files as they emitted from the application on to Amazon Glacier
- ☐ **B.** Store the log files as they emitted from the application on to Amazon Simple Storage service ✔
- ☐ **C.** Use Lifecycle policies to move the data onto Amazon Glacier after a period of 3 months ✔
- ☐ **D.** Use Lifecycle policies to move the data onto Amazon Simple Storage service after a period of 3 months

Explanation :

Answer - B and C
The AWS Documentation mentions the following
Amazon Simple Storage Service (Amazon S3) makes it simple and practical to collect, store, and analyze data - regardless of format – all at massive scale. S3 is object storage built to store and retrieve any amount of data from anywhere – web sites and mobile apps, corporate applications, and data from IoT sensors or devices.

For more information on S3, please visit the below URL:

- https://aws.amazon.com/s3/ (https://aws.amazon.com/s3/)

Lifecycle configuration enables you to specify the lifecycle management of objects in a bucket. The configuration is a set of one or more rules, where each rule defines an action for Amazon S3 to apply to a group of objects. These actions can be classified as follows:

- Transition actions – In which you define when objects transition to another storage class (http://docs.aws.amazon.com/AmazonS3/latest/dev/storage-class-intro.html). For example, you may choose to transition objects to the STANDARD_IA (IA, for infrequent access) storage class 30 days after creation, or archive objects to the GLACIER storage class one year after creation.
- Expiration actions – In which you specify when the objects expire. Then Amazon S3 deletes the expired objects on your behalf.

For more information on S3 Lifecycle policies please visit the below URL:

- http://docs.aws.amazon.com/AmazonS3/latest/dev/object-lifecycle-mgmt.html (http://docs.aws.amazon.com/AmazonS3/latest/dev/object-lifecycle-mgmt.html)

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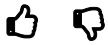

QUESTION 62 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

Your development team is developing a mobile application that access resources in AWS. The users accessing this application will be logging in via Facebook and Google. Which of the following AWS mechanisms would you use to authenticate users for the application that needs to access AWS resources

- **A.** Use separate IAM users that correspond to each Facebook and Google user
- **B.** Use separate IAM Roles that correspond to each Facebook and Google user
- **C.** Use Web identity federation to authenticate the users ✔
- **D.** Use AWS Policies to authenticate the users

Explanation :

Answer – C
The AWS documentation mentions the following
You can directly configure individual identity providers to access AWS resources using web identity federation. AWS currently supports authenticating users using web identity federation through several identity providers:

- Login with Amazon
- Facebook Login
- Google Sign-in

For more information on Web identity federation please visit the below URL:

- http://docs.aws.amazon.com/sdk-for-javascript/v2/developer-guide/loading-browser-credentials-federated-id.html (http://docs.aws.amazon.com/sdk-for-javascript/v2/developer-guide/loading-browser-credentials-federated-id.html)

Ask our Experts

QUESTION 63 UNATTEMPTED MONITORING, METRICS, AND LOGGING

You are a Devops Engineer for your company. You are responsible for creating Cloudformation templates for your company. There is a requirement to ensure that an S3 bucket is created for all resources in development for logging purposes. How would you achieve this?

- **A.** Create separate Cloudformation templates for Development and production.
- **B.** Create a parameter in the Cloudformation template and then use the Condition clause in the template to create an S3 bucket if the parameter has a value of development ✔
- **C.** Create an S3 bucket from before and then just provide access based on the tag value mentioned in the Cloudformation template
- **D.** Use the metadata section in the Cloudformation template to decide on whether to create the S3 bucket or not.

Explanation :

Answer – B
The AWS Documentation mentions the following
You might use conditions when you want to reuse a template that can create resources in different contexts, such as a test environment versus a production environment. In your template, you can add an EnvironmentType input parameter, which accepts either prod or test as inputs. For the production environment, you might include Amazon EC2 instances with certain capabilities; however, for the test environment, you want to use reduced capabilities to save money. With conditions, you can define which resources are created and how they're configured for each environment type.
For more information on Cloudformation conditions please visit the below url

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

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QUESTION 64 UNATTEMPTED HIGH AVAILABILITY AND ELASTICITY

In reviewing the Auto-Scaling events for your application you notice that your application is scaling up and down multiple times in the same hour. What design choice could you make to optimize for costs while preserving elasticity?

Choose 2 options from the choices given below

- ☐ **A.** Modify the Auto Scaling policy to use scheduled scaling actions
- ☐ **B.** Modify the Auto Scaling Group cool down timers ✔
- ☐ **C.** Modify the Amazon Cloudwatch alarm period that triggers your AutoScaling scale down policy. ✔
- ☐ **D.** Modify the Auto Scaling group termination policy to terminate the newest instance first.

Explanation :

Answer - B and C
The Auto Scaling cooldown period is a configurable setting for your Auto Scaling group that helps to ensure that Auto Scaling doesn't launch or terminate additional instances before the previous scaling activity takes effect. After the Auto Scaling group dynamically scales using a simple scaling policy, Auto Scaling waits for the cooldown period to complete before resuming scaling activities. When you manually scale your Auto Scaling group, the default is not to wait for the cooldown period, but you can override the default and honor the cooldown period. Note that if an instance becomes unhealthy, Auto Scaling does not wait for the cooldown period to complete before replacing the unhealthy instance.
For more information on Autoscale cool down timers please visit the URL:

- http://docs.aws.amazon.com/autoscaling/latest/userguide/Cooldown.html (http://docs.aws.amazon.com/autoscaling/latest/userguide/Cooldown.html)

You can also modify the Cloudwatch triggers to ensure the thresholds are appropriate for the scale down policy
For more information on Autoscaling user guide please visit the URL:

- http://docs.aws.amazon.com/autoscaling/latest/userguide/as-scale-based-on-demand.html (http://docs.aws.amazon.com/autoscaling/latest/userguide/as-scale-based-on-demand.html)

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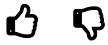

QUESTION 65 UNATTEMPTED HIGH AVAILABILITY AND ELASTICITY

You have an application running in us-west-2 that requires 6 EC2 instances running at all times. With 3 AZ available in that region, which of the following deployments provides 100% fault tolerance if any single AZ in us-west-2 becomes unavailable. Choose 2 answers from the options below

- [ ] **A.** us-west-2a with 2 instances, us-west-2b with 2 instances, us-west-2c with 2 instances
- [ ] **B.** us-west-2a with 3 instances, us-west-2b with 3 instances, us-west-2c with 0 instances
- [ ] **C.** us-west-2a with 4 instances, us-west-2b with 2 instances, us-west-2c with 2 instances

- [ ] **D.** us-west-2a with 6 instances, us-west-2b with 6 instances, us-west-2c with 0 instances ✔
- [ ] **E.** us-west-2a with 3 instances, us-west-2b with 3 instances, us-west-2c with 3 instances ✔

Explanation :

Answer - D and E
Since we need 6 instances running at all times, only D and E fulfil this option.
The AWS documentation mentions the following on Availability zones
When you launch an instance, you can select an Availability Zone or let us choose one for you. If you distribute your instances across multiple Availability Zones and one instance fails, you can design your application so that an instance in another Availability Zone can handle requests.
For more information on Regions and AZ's please visit the URL:

- http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/using-regions-availability-zones.html (http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/using-regions-availability-zones.html)

Ask our Experts

QUESTION 66 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You are a Devops Engineer for your company. There is a requirement to log each time an Instance is scaled in or scaled out from an existing Autoscaling Group. Which of the following steps can be implemented to fulfil this requirement. Each step forms part of the solution.

- [ ] **A.** Create a Lambda function which will write the event to Cloudwatch logs ✔
- [ ] **B.** Create a Cloudwatch event which will trigger the Lambda function. ✔
- [ ] **C.** Create an SQS queue which will write the event to Cloudwatch logs
- [ ] **D.** Create a Cloudwatch event which will trigger the SQS queue.

Explanation :

Answer - A and B
The AWS documentation mentions the following
You can run an AWS Lambda function that logs an event whenever an Auto Scaling group launches or terminates an Amazon EC2 instance and whether the launch or terminate event was successful.
For more information on configuring lambda with Cloudwatch events for this scenario, please visit the URL:

- http://docs.aws.amazon.com/AmazonCloudWatch/latest/events/LogASGroupState.html (http://docs.aws.amazon.com/AmazonCloudWatch/latest/events/LogASGroupState.html)

Ask our Experts

QUESTION 67 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You have written a CloudFormation template that creates 1 elastic load balancer fronting 2 EC2 instances. Which section of the template should you edit so that the DNS of the load balancer is returned upon creation of the stack?

- A. Resources
- B. Parameters
- C. Outputs ✔
- D. Mappings

Explanation :

Answer – C
The below example shows a simple CloudFormation template. It creates an EC2 instance based on the AMI - ami-d6f32ab5. When the instance is created, it will output the AZ in which it is created.

```
{
  "Resources": {
    "MyEC2Instance": {
      "Type": "AWS::EC2::Instance",
      "Properties": {
        "ImageId": "ami-d6f32ab5"
      }
```

```
    }
  },
  "Outputs": {
    "Availability": {
      "Description": "The Instance ID",
      "Value":
      { "Fn::GetAtt" : [ "MyEC2Instance", "AvailabilityZone" ]}
    }
  }
}
```

To understand more on CloudFormation, please visit the URL:

- https://aws.amazon.com/cloudformation/ (https://aws.amazon.com/cloudformation/)

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QUESTION 68 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

There is a company website that is going to be launched in the coming weeks. There is a probability that the traffic will be quite high in the first couple of weeks. In the event of a load failure, how can you set up DNS failover to a static website? Choose the correct answer from the options given below.

- **A.** Duplicate the exact application architecture in another region and configure DNS weight-based routing
- **B.** Enable failover to an on-premise data center to the application hosted there.
- **C.** Use Route 53 with the failover option to failover to a static S3 website bucket or CloudFront distribution. ✔
- **D.** Add more servers in case the application fails.

Explanation :

Answer – C
Amazon Route 53 health checks monitor the health and performance of your web applications, web servers, and other resources.

If you have multiple resources that perform the same function, you can configure DNS failover so that Amazon Route 53 will route your traffic from an unhealthy resource to a healthy resource. For example, if you have two web servers and one web server becomes unhealthy, Amazon Route 53 can route traffic to the other web server. So you can route traffic to a website hosted on S3 or to a cloudfront distribution.
For more information on DNS failover using Route53, please refer to the below link:

- http://docs.aws.amazon.com/Route53/latest/DeveloperGuide/dns-failover.html (http://docs.aws.amazon.com/Route53/latest/DeveloperGuide/dns-failover.html)

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QUESTION 69 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

One of your instances is reporting an unhealthy system status check. However, this is not something you should have to monitor and repair on your own. How might you automate the repair of the system status check failure in an AWS environment? Choose the correct answer from the options given below

- **A.** Create CloudWatch alarms for StatuscheckFailed_System metrics and select EC2 action-Recover the instance ✔
- **B.** Write a script that queries the EC2 API for each instance status check
- **C.** Write a script that periodically shuts down and starts instances based on certain stats.
- **D.** Implement a third party monitoring tool.

Explanation :

Answer – A
Using Amazon CloudWatch alarm actions, you can create alarms that automatically stop, terminate, reboot, or recover your EC2 instances. You can use the stop or terminate actions to help you save money when you no longer need an instance to be running. You can use the reboot and recover actions to automatically reboot those instances or recover them onto new hardware if a system impairment occurs.
For more information on using alarm actions, please refer to the below link:

- http://docs.aws.amazon.com/AmazonCloudWatch/latest/monitoring/UsingAlarmActions.html (http://docs.aws.amazon.com/AmazonCloudWatch/latest/monitoring/UsingAlarmActions.html)

Ask our Experts

QUESTION 70 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

Your development team is using an Elastic beanstalk environment. After a week, the environment was torn down and a new one was created. When the development team tried to access the data on the older environment, it was not available. Why is this the case?

- **A.** This is because the underlying EC2 Instances are created with encrypted storage and cannot be accessed once the environment has been terminated.
- **B.** This is because the underlying EC2 Instances are created with IOPS volumes and cannot be accessed once the environment has been terminated.
- **C.** This is because before the environment termination, Elastic beanstalk copies the data to DynamoDB, and hence the data is not present in the EBS volumes
- **D.** This is because the underlying EC2 Instances are created with no persistent local storage ✔

Explanation :

Answer - D
The AWS documentation mentions the following
Elastic Beanstalk applications run on Amazon EC2 instances that have no persistent local storage. When the Amazon EC2 instances terminate, the local file system is not saved, and new Amazon EC2 instances start with a default file system. You should design your application to store data in a persistent data source.
For more information on Elastic beanstalk design concepts, please refer to the below link:

- http://docs.aws.amazon.com/elasticbeanstalk/latest/dg/concepts.concepts.design.html (http://docs.aws.amazon.com/elasticbeanstalk/latest/dg/concepts.concepts.design.html)

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QUESTION 71 UNATTEMPTED HIGH AVAILABILITY AND ELASTICITY

You have a setup in AWS which consists of EC2 Instances sitting behind and ELB. The launching and termination of the Instances are controlled via an Autoscaling Group. The architecture consists of a MySQL AWS RDS database. Which of the following can be used to induce one more step towards a self-healing architecture for this design?

- A. Enable Read Replica's for the AWS RDS database.
- B. Enable Multi-AZ feature for the AWS RDS database. ✔
- C. Create one more ELB in another region for fault tolerance
- D. Create one more Autoscaling Group in another region for fault tolerance

Explanation :

Answer – B
The AWS documentation mentions the following
Amazon RDS Multi-AZ deployments provide enhanced availability and durability for Database (DB) Instances, making them a natural fit for production database workloads. When you provision a Multi-AZ DB Instance, Amazon RDS automatically creates a primary DB Instance and synchronously replicates the data to a standby instance in a different Availability Zone (AZ). Each AZ runs on its own physically distinct, independent infrastructure, and is engineered to be highly reliable. In case of an infrastructure failure, Amazon RDS performs an automatic failover to the standby (or to a read replica in the case of Amazon Aurora), so that you can resume database operations as soon as the failover is complete. Since the endpoint for your DB Instance remains the same after a failover, your application can resume database operation without the need for manual administrative intervention.
For more information on AWS RDS Multi-AZ, please refer to the below link:

- https://aws.amazon.com/rds/details/multi-az/ (https://aws.amazon.com/rds/details/multi-az/)

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QUESTION 72 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You are setting up cloudformation templates for your organization. The cloudformation template consists of creating EC2 Instances for both your development and production environments in the same region. Each of these instances will have an Elastic IP and a security group attached to them which will be done via Cloudformation. Your cloudformation stack for the development environment gets successfully created, but then the production cloudformation stack fails. Which of the below could be a reason for this.

- **A.** You have chosen the wrong tags when creating the instances in both environments.
- **B.** You hit the soft limit of 5 EIPs per region when creating the development environment. ✔
- **C.** You hit the soft limit for security groups when creating the development environment.
- **D.** You didn't choose the Production version of the AMI you are using when creating the production stack.

Explanation :

Answer - B
The most viable reason could be that you reached the limit for the number of Elastic IP's in the region.
For more information on AWS EC2 service limits, please refer to the below link:

- http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/ec2-resource-limits.html (http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/ec2-resource-limits.html)

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QUESTION 73 UNATTEMPTED HIGH AVAILABILITY AND ELASTICITY

A company is running three production web server reserved EC2 instances with EBS-backed root volumes. These instances have a consistent CPU load of 80%. Traffic is being distributed to these instances by an Elastic Load Balancer. They also have

production and development Multi-AZ RDS MySQL databases. What recommendation would you make to reduce cost in this environment without affecting availability of mission-critical systems? Choose the correct answer from the options given below

- A. Consider using on-demand instances instead of reserved EC2 instances
- B. Consider not using a Multi-AZ RDS deployment for the development database ✔
- C. Consider using spot instances instead of reserved EC2 instances
- D. Consider removing the Elastic Load Balancer

Explanation :

Answer – B
Multi-AZ databases is better for production environments rather than for development environments, so you can reduce costs by not using this for development environments
Amazon RDS Multi-AZ deployments provide enhanced availability and durability for Database (DB) Instances, making them a natural fit for production database workloads. When you provision a Multi-AZ DB Instance, Amazon RDS automatically creates a primary DB Instance and synchronously replicates the data to a standby instance in a different Availability Zone (AZ). Each AZ runs on its own physically distinct, independent infrastructure, and is engineered to be highly reliable. In case of an infrastructure failure, Amazon RDS performs an automatic failover to the standby (or to a read replica in the case of Amazon Aurora), so that you can resume database operations as soon as the failover is complete. Since the endpoint for your DB Instance remains the same after a failover, your application can resume database operation without the need for manual administrative intervention
For more information on Multi-AZ RDS, please refer to the below link:

- https://aws.amazon.com/rds/details/multi-az/ (https://aws.amazon.com/rds/details/multi-az/)

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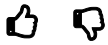

QUESTION 74 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

A company has EC2 instances running in AWS. The EC2 instances are running via an Autoscaling solution. There is a lot of requests being lost because of the load on the servers. The Autoscaling solution is launching new instances to take the load but

there are still some requests which are being lost. Which of the following is likely to provide the most cost-effective solution to avoid losing recently submitted requests? Choose the correct answer from the options given below

- **A.** Use an SQS queue to decouple the application components ✔
- **B.** Keep one extra EC2 instance always powered on in case a spike occurs
- **C.** Use larger instances for your application
- **D.** Pre-warm your Elastic Load Balancer

Explanation :

Answer - A
Amazon Simple Queue Service (SQS) is a fully-managed message queuing service for reliably communicating among distributed software components and microservices - at any scale. Building applications from individual components that each perform a discrete function improves scalability and reliability, and is best practice design for modern applications
For more information on SQS, please refer to the below link:

- https://aws.amazon.com/sqs/ (https://aws.amazon.com/sqs/)

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QUESTION 75 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

When storing sensitive data on the cloud which of the below options should be carried out on AWS. Choose 3 answers from the options given below.

- **A.** With AWS you do not need to worry about encryption
- **B.** Enable EBS Encryption ✔
- **C.** Encrypt the file system on an EBS volume using Linux tools ✔
- **D.** Enable S3 Encryption ✔

Explanation :

Answer – B,C and D
Amazon EBS encryption offers you a simple encryption solution for your EBS volumes without the need for you to build, maintain, and secure your own key management infrastructure. When you create an encrypted EBS volume and attach it to a supported instance type, the following types of data are encrypted:

- Data at rest inside the volume
- All data moving between the volume and the instance
- All snapshots created from the volume

For more information on EBS Encryption, please refer to the below link:

- http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/EBSEncryption.html (http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/EBSEncryption.html)

Data protection refers to protecting data while in-transit (as it travels to and from Amazon S3) and at rest (while it is stored on disks in Amazon S3 data centers). You can protect data in transit by using SSL or by using client-side encryption.
For more information on S3 Encryption, please refer to the below link:

- http://docs.aws.amazon.com/AmazonS3/latest/dev/UsingEncryption.html (http://docs.aws.amazon.com/AmazonS3/latest/dev/UsingEncryption.html)

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QUESTION 76 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You've been tasked with building out a duplicate environment in another region for disaster recovery purposes. Part of your environment relies on EC2 instances with preconfigured software. What steps would you take to configure the instances in another region? Choose the correct answer from the options below

- A. Create an AMI of the EC2 instance
- B. Create an AMI of the EC2 instance and copy the AMI to the desired region ✔

- **C.** Make the EC2 instance shareable among other regions through IAM permissions
- **D.** None of the above

Explanation :

Answer – B
You can copy an Amazon Machine Image (AMI) within or across an AWS region using the AWS Management Console, the AWS command line tools or SDKs, or the Amazon EC2 API, all of which support the CopyImage action. You can copy both Amazon EBS-backed AMIs and instance store-backed AMIs. You can copy AMIs with encrypted snapshots and encrypted AMIs.
For more information on copying AMI's, please refer to the below link:

- http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/CopyingAMIs.html (http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/CopyingAMIs.html)

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QUESTION 77 UNATTEMPTED SECURITY, GOVERNANCE, AND VALIDATION

You have instances running on your VPC. You have both production and development based instances running in the VPC. You want to ensure that people who are responsible for the development instances don't have the access to work on the production instances to ensure better security. Using policies, which of the following would be the best way to accomplish this? Choose the correct answer from the options given below

- **A.** Launch the test and production instances in separate VPC's and use VPC peering
- **B.** Create an IAM policy with a condition which allows access to only instances that are used for production or development
- **C.** Launch the test and production instances in different Availability Zones and use Multi Factor Authentication
- **D.** Define the tags on the test and production servers and add a condition to the IAM policy which allows access to specific tags ✔

Explanation :

Answer – D
You can easily add tags which define which instances are production and which are development instances and then ensure these tags are used when controlling access via an IAM policy.
For more information on tagging your resources, please refer to the below link:

- http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/Using_Tags.html (http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/Using_Tags.html)

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QUESTION 78 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

Your company is concerned with EBS volume backup on Amazon EC2 and wants to ensure they have proper backups and that the data is durable. What solution would you implement and why? Choose the correct answer from the options below

- **A.** Configure Amazon Storage Gateway with EBS volumes as the data source and store the backups on premise through the storage gateway
- **B.** Write a cronjob on the server that compresses the data that needs to be backed up using gzip compression, then use AWS CLI to copy the data into an S3 bucket for durability
- **C.** Use a lifecycle policy to back up EBS volumes stored on Amazon S3 for durability
- **D.** Write a cronjob that uses the AWS CLI to take a snapshot of production EBS volumes. The data is durable because EBS snapshots are stored on the Amazon S3 standard storage class ✔

Explanation :

Answer – D
You can take snapshots of EBS volumes and to automate the process you can use the CLI. The snapshots are automatically stored on S3 for durability.
For more information on EBS snapshots, please refer to the below link:

- http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/EBSSnapshots.html (http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/EBSSnapshots.html)

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QUESTION 79 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You are working for a startup company that is building an application that receives large amounts of data. Unfortunately, current funding has left the start-up short on cash, cannot afford to purchase thousands of dollars of storage hardware, and has opted to use AWS. Which services would you implement in order to store a virtually unlimited amount of data without any effort to scale when demand unexpectedly increases? Choose the correct answer from the options below

- **A.** Amazon S3, because it provides unlimited amounts of storage data, scales automatically, is highly available, and durable ✔
- **B.** Amazon Glacier, to keep costs low for storage and scale infinitely
- **C.** Amazon Import/Export, because Amazon assists in migrating large amounts of data to Amazon S3
- **D.** Amazon EC2, because EBS volumes can scale to hold any amount of data and, when used with Auto Scaling, can be designed for fault tolerance and high availability

Explanation :

Answer – A
The best option is to use S3 because you can host a large amount of data in S3 and is the best storage option provided by AWS.
For more information on S3, please refer to the below link:

- http://docs.aws.amazon.com/AmazonS3/latest/dev/Welcome.html (http://docs.aws.amazon.com/AmazonS3/latest/dev/Welcome.html)

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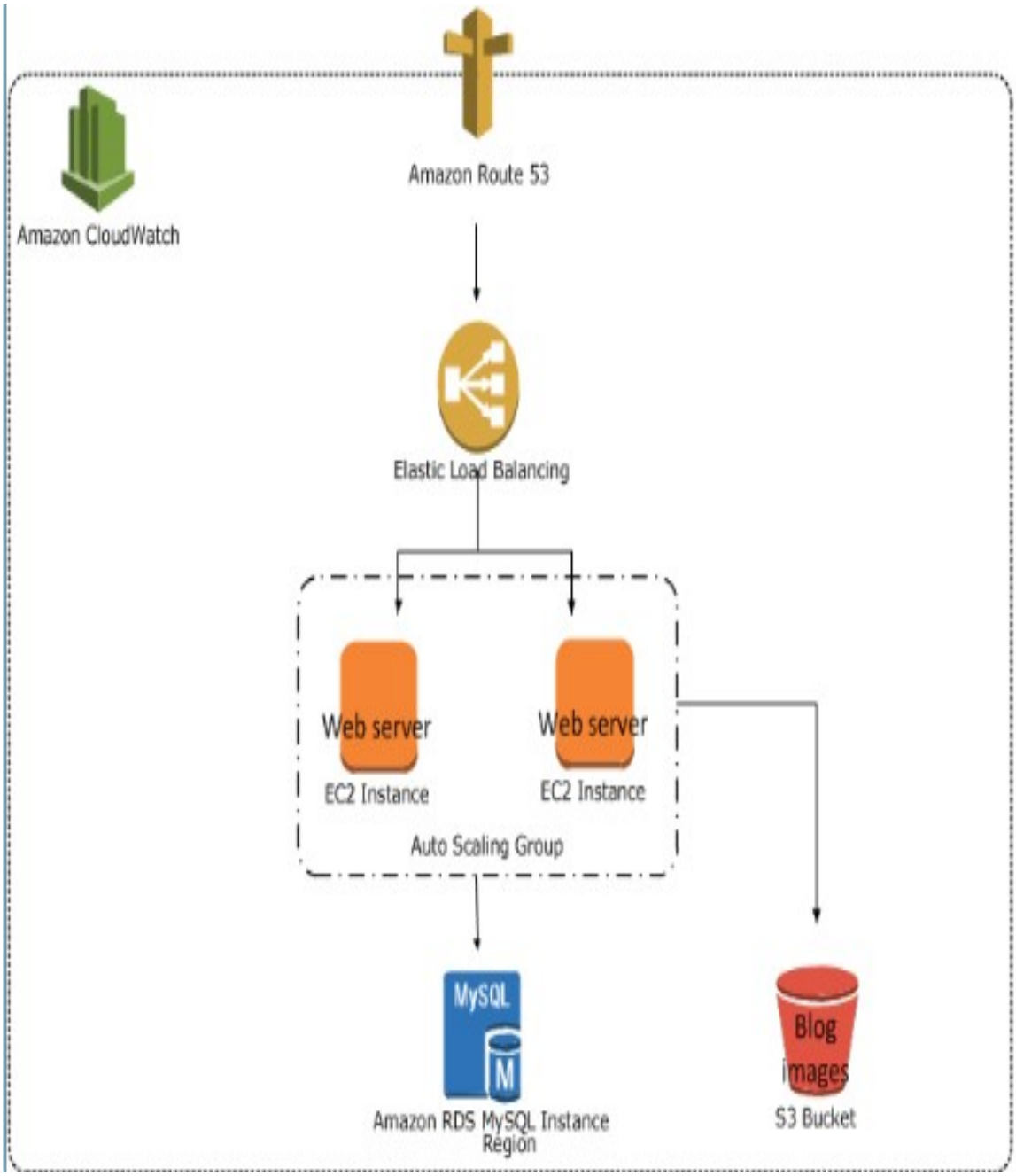
QUESTION 80 UNATTEMPTED HIGH AVAILABILITY AND ELASTICITY

You have a web application running on six Amazon EC2 instances, consuming about 45% of resources on each instance. You are using auto-scaling to make sure that six instances are running at all times. The number of requests this application processes is consistent and does not experience spikes. The application is critical to your business and you want high availability at all times. You want the load to be distributed evenly between all instances. You also want to use the same Amazon Machine Image (AMI) for all instances. Which of the following architectural choices should you make?

- **A.** Deploy 6 EC2 instances in one availability zone and use Amazon Elastic Load Balancer.
- **B.** Deploy 3 EC2 instances in one region and 3 in another region and use Amazon Elastic Load Balancer.
- **C.** Deploy 3 EC2 instances in one availability zone and 3 in another availability zone and use Amazon Elastic Load Balancer. ✔
- **D.** Deploy 2 EC2 instances in three regions and use Amazon Elastic Load Balancer.

Explanation :

Answer – C
Option A is automatically incorrect because remember that the question asks for high availability. For option A, if the AZ goes down then the entire application fails.
For Option B and D, the ELB is designed to only run in one region in aws and not across multiple regions. So these options are wrong.
The right option is C.
The below example shows an Elastic Loadbalancer connected to 2 EC2 instances connected via Auto Scaling. This is an example of an elastic and scalable web tier. By scalable we mean that the Auto scaling process will increase or decrease the number of EC2 instances as required.



For more information on regions and AZ's, please refer to the below link:

- http://docs.aws.amazon.com/AmazonRDS/latest/UserGuide/Concepts.RegionsAndAvailabilityZones.html (http://docs.aws.amazon.com/AmazonRDS/latest/UserGuide/Concepts.RegionsAndAvailabilityZones.html)

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Finish Review (https://www.whizlabs.com/learn/course/aws-devops-professional-practice-test/quiz/14589)

Certification

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