## PRACTICE TEST IV

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|---|---|---|---|
| **Attempt** | 2 | **Completed on** | Tuesday , 29 January 2019 , 02:38 PM |
| **Marks Obtained** | 0 / 80 | **Time Taken** | 00 H 00 M 28 S |
| **Your score is** | 0.0% | **Result** | Fail |

### Domains / Topics wise Quiz Performance Report

| S.No. | Topic | Total Questions | Correct | Incorrect | Unattempted |
|---|---|---|---|---|---|
| 1 | Continuous Delivery and Process Automation | 63 | 0 | 1 | 62 |
| 2 | Security, Governance, and Validation | 5 | 0 | 0 | 5 |
| 3 | High Availability and Elasticity | 3 | 0 | 0 | 3 |
| 4 | Monitoring, Metrics, and Logging | 9 | 0 | 0 | 9 |

| 80 Questions | 0 Correct | 1 Incorrect | 79 Unattempted |
|---|---|---|---|

Show Answers: All

QUESTION 1 INCORRECT CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You are in charge of designing a number of Cloudformation templates for your organization. You need to ensure that no one can accidentally update the production based resources on the stack during a stack update. How can this be achieved in the most efficient way?

- **A.** Create tags for the resources and then create IAM policies to protect the resources.

- B. Use a Stack based policy to protect the production based resources. ✔
- C. Use S3 bucket policies to protect the resources.
- D. Use MFA to protect the resources ✖

Explanation :

Answer – B
The AWS Documentation mentions
When you create a stack, all update actions are allowed on all resources. By default, anyone with stack update permissions can update all of the resources in the stack. During an update, some resources might require an interruption or be completely replaced, resulting in new physical IDs or completely new storage. You can prevent stack resources from being unintentionally updated or deleted during a stack update by using a stack policy. A stack policy is a JSON document that defines the update actions that can be performed on designated resources.
For more information on protecting stack resources , please visit the below url
http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/protect-stack-resources.html (http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/protect-stack-resources.html)

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QUESTION 2 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 3 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You are a Devops Enginneer in your company. You have been instructed to ensure there is an automated backup solution in place for EBS Volumes. These snapshots need to be retained only for a period of 20 days. How can you achieve this requirement in an efficient manner?

○ **A.** Use the aws ec2 create-volume API to create a snapshot of the EBS Volume. The use the describe-volume to see those snapshots which are greater than 20 days and then delete them accordingly using the delete-volume API call.

○ **B.** Use Lifecycle policies to push the EBS Volumes to Amazon Glacier. Then use further lifecycle policies to delete the snapshots after 20 days.

○ **C.** Use Lifecycle policies to push the EBS Volumes to Amazon S3. Then use further lifecycle policies to delete the snapshots after 20 days.

○ **D.** Use Amazon Data Lifecycle Manager to automate the process. ✔

Explanation :

Answer – D

Use Amazon Data Lifecycle Manager (Amazon DLM) to automate the creation, retention, and deletion of snapshots taken to back up your Amazon EBS volumes.

Automating snapshot management helps you to:

- Protect valuable data by enforcing a regular backup schedule.
- Retain backups as required by auditors or internal compliance.
- Reduce storage costs by deleting outdated backups.

For more Information, Please check the below AWS Docs:

- https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/snapshot-lifecycle.html (https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/snapshot-lifecycle.html)

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QUESTION 4 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You are Devops Engineer for a large organization. The company wants to start using Cloudformation templates to start building their resources in AWS. You are getting requirements for the templates from various departments, such as the networking, security, application etc. What is the best way to architect these Cloudformation templates.

- **A.** Use a single Cloudformation template, since this would reduce the maintenance overhead on the templates itself.
- **B.** Create separate logical templates, for example, a separate template for networking, security, application etc. Then nest the relevant templates. ✔
- **C.** Consider using Elastic beanstalk to create your environments since Cloudformation is not built for such customization.
- **D.** Consider using Opsworks to create your environments since Cloudformation is not built for such customization.

Explanation :

Answer - B
The AWS documentation mentions the following
As your infrastructure grows, common patterns can emerge in which you declare the same components in each of your templates. You can separate out these common components and create dedicated templates for them. That way, you can mix and match different templates but use nested

stacks to create a single, unified stack. Nested stacks are stacks that create other stacks. To create nested stacks, use the AWS::CloudFormation::Stackresource in your template to reference other templates.
For more information on Cloudformation 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 5 UNATTEMPTED SECURITY, GOVERNANCE, AND VALIDATION

You have created a DynamoDB table for an application that needs to support thousands of users. You need to ensure that each user can only access their own data in a particular table. Many users already have accounts with a third-party identity provider, such as Facebook, Google, or Login with Amazon. How would you implement this requirement?

Choose 2 answers from the options given below.

- [ ] **A.** Create an IAM User for all users so that they can access the application.
- [ ] **B.** Use Web identity federation and register your application with a third-party identity provider such as Google, Amazon, or Facebook. ✔
- [ ] **C.** Create an IAM role which has specific access to the DynamoDB table. ✔
- [ ] **D.** Use a third-party identity provider such as Google, Facebook or Amazon so users can become an AWS IAM User with access to the application.

Explanation :

Answer - B and C
The AWS Documentation mentions the following
With web identity federation, you don't need to create custom sign-in code or manage your own user identities. Instead, users of your app can sign in using a well-known identity provider (IdP) —such as Login with Amazon, Facebook, Google, or any other OpenID Connect (OIDC)-compatible IdP, receive an authentication token, and then exchange that token for temporary security credentials in AWS that map to an IAM role with permissions to use the resources in your AWS account. Using an IdP helps you keep your AWS account secure, because you don't have to embed and distribute long-term security credentials with your application.
For more information on Web Identity federation, please visit the below url

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

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QUESTION 6 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You are designing a cloudformation stack which involves the creation of a web server and a database server. You need to ensure that the web server in the stack gets created after the database server is created. How can you achieve this?

- **A.** Ensure that the database server is defined first and before the web server in the cloudformation template. The stack creation normally goes in order to create the resources.
- **B.** Ensure that the database server is defined as a child of the web server in the cloudformation template.
- **C.** Ensure that the web server is defined as a child of the database server in the cloudformation template.
- **D.** Use the DependsOn attribute to ensure that the database server is created before the web server. ✔

Explanation :

Answer – D
The AWS Documentation mentions
With the DependsOn attribute you can specify that the creation of a specific resource follows another. When you add a DependsOn attribute to a resource, that resource is created only after the creation of the resource specified in the DependsOn attribute.
For more information on the DependsOn attribute, please visit the below url
http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/aws-attribute-dependson.html (http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/aws-attribute-dependson.html)

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QUESTION 7 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You are in charge of designing a number of Cloudformation templates for your organization. You are required to make changes to the stack resources every now and then based on the requirement. How can you check the impact of the change to resources in a cloudformation stack before deploying changes to the stack?

- A. There is no way to control this. You need to check for the impact beforehand.
- B. Use Cloudformation change sets to check for the impact to the changes. ✔
- C. Use Cloudformation Stack Policies to check for the impact to the changes.
- D. Use Cloudformation Rolling Updates to check for the impact to the changes.

Explanation :

Answer – B
The AWS Documentation mentions
When you need to update a stack, understanding how your changes will affect running resources before you implement them can help you update stacks with confidence. Change sets allow you to preview how proposed changes to a stack might impact your running resources, for example, whether your changes will delete or replace any critical resources, AWS CloudFormation makes the changes to your stack only when you decide to execute the change set, allowing you to decide whether to proceed with your proposed changes or explore other changes by creating another change set. You can create and manage change sets using the AWS CloudFormation console, AWS CLI, or AWS CloudFormation API.
For more information on Cloudformation change sets, please visit the below url
http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/using-cfn-updating-stacks-changesets.html (http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/using-cfn-updating-stacks-changesets.html)

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QUESTION 8 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

Which of the following is false when it comes to using the Elastic Load balancer with Opsworks stacks?

- A. You can attach only one load balancer to a layer.
- B. A Classic Load Balancer can span across AWS OpsWorks Stacks layers. ✔
- C. Each load balancer can handle only one layer.

- **D.** You need to create the load balancer before hand and then attach it to the Opswork stack.

Explanation :

Answer – B
The AWS Documentation mentions the following
To use Elastic Load Balancing with a stack, you must first create one or more load balancers in the same region by using the Elastic Load Balancing console, CLI, or API. You should be aware of the following:

- You can attach only one load balancer to a layer.
- Each load balancer can handle only one layer.
- AWS OpsWorks Stacks does not support Application Load Balancer. You can only use Classic Load Balancer with AWS OpsWorks Stacks.

For more information on Elastic Load Balancer with Opswork, 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 9 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

Which of the following are true with regard to Opsworks stack Instances?

Choose 3 answers from the options given below.

- **A.** A stacks instances can be a combination of both Linux and Windows based operating systems.
- **B.** You can use EC2 Instances that were created outisde the boundary of Opswork. ✔
- **C.** You can use instances running on your own hardware. ✔
- **D.** You can start and stop instances manually. ✔

Explanation :

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

1) You can start and stop instances manually or have AWS OpsWorks Stacks automatically scale the number of instances. You can use time-based automatic scaling with any stack; Linux stacks also can use load-based scaling.

2) In addition to using AWS OpsWorks Stacks to create Amazon EC2 instances, you can also register instances with a Linux stack that were created outside of AWS OpsWorks Stacks. This includes Amazon EC2 instances and instances running on your own hardware. However, they must be running one of the supported Linux distributions. You cannot register Amazon EC2 or on-premises Windows instances.

3) A stack's instances can run either Linux or Windows. A stack can have different Linux versions or distributions on different instances, but you cannot mix Linux and Windows instances.
For more information on Opswork instances, please visit the below url
http://docs.aws.amazon.com/opsworks/latest/userguide/workinginstances-os.html
(http://docs.aws.amazon.com/opsworks/latest/userguide/workinginstances-os.html)

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QUESTION 10 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You currently have a set of instances running on your Opswork stacks. You need to install security updates on these servers. What does AWS recommend in terms of how the security updates should be deployed?

Choose 2 answers from the options given below.

- [ ] **A.** Create and start new instances to replace your current online instances. Then delete the current instances. ✔
- [ ] **B.** Create a new Opswork stack with the new instances.
- [ ] **C.** On Linux-based instances in Chef 11.10 or older stacks, run the Update Dependencies stack command. ✔
- [ ] **D.** Create a cloudformation template which can be used to replace the instances.

Explanation :

Answer – A and C
The AWS Documentation mentions the following
By default, AWS OpsWorks Stacks automatically installs the latest updates during setup, after an instance finishes booting. AWS OpsWorks Stacks does not automatically install updates after an instance is online, to avoid interruptions such as restarting application servers. Instead, you manage updates to your online instances yourself, so you can minimize any disruptions.
We recommend that you use one of the following to update your online instances.

- Create and start new instances to replace your current online instances. Then delete the current instances.

The new instances will have the latest set of security patches installed during setup.

- On Linux-based instances in Chef 11.10 or older stacks, run the Update Dependencies stack command, which installs the current set of security patches and other updates on the specified instances.

For more information on Opswork updates, please visit the below url

- http://docs.aws.amazon.com/opsworks/latest/userguide/best-practices-updates.html (http://docs.aws.amazon.com/opsworks/latest/userguide/best-practices-updates.html)

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QUESTION 11 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You want to use Code Deploy to deploy code that is hosted on your github repository. Which of the following additional services can help fulfil this requirement.

- A. Use the CodePipeline service ✔
- B. Use the CodeCommit service
- C. Use the CodeBatch service
- D. Use the SQS service

Explanation :

Answer – A
The AWS Documentation mentions the following
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 CodePipeline, please visit the below URL:

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

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QUESTION 12 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

Which of the following tools for EC2 can be used to administer instances without the need to SSH or RDP into the instance.

- A. AWS Config
- B. AWS CodePipeline
- C. Run Command ✔
- D. EC2Config

Explanation :

Answer - C
You can use Run Command from the Amazon EC2 console to configure instances without having to login to each instance
For more information on the Run Command , please visit the below URL:

- http://docs.aws.amazon.com/systems-manager/latest/userguide/rc-console.html (http://docs.aws.amazon.com/systems-manager/latest/userguide/rc-console.html)

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QUESTION 13 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

An application is currently writing a large number of records to a DynamoDB table in one region. There is a requirement for a secondary application to just take in the changes to the DynamoDB table every 2 hours and process the updates accordingly. Which of the following is an ideal way to ensure the secondary application can get the relevant changes from the DynamoDB table.

- **A.** Insert a timestamp for each record and then scan the entire table for the timestamp as per the last 2 hours.
- **B.** Create another DynamoDB table with the records modified in the last 2 hours.
- **C.** Use DynamoDB streams to monitor the changes in the DynamoDB table. ✔
- **D.** Transfer the records to S3 which were modified in the last 2 hours

Explanation :

Answer – C
The AWS Documentation mentions the following
A DynamoDB stream is an ordered flow of information about changes to items in an Amazon DynamoDB table. When you enable a stream on a table, DynamoDB captures information about every modification to data items in the table.
Whenever an application creates, updates, or deletes items in the table, DynamoDB Streams writes a stream record with the primary key attribute(s) of the items that were modified. Astream record contains information about a data modification to a single item in a DynamoDB table. You can configure the stream so that the stream records capture additional information, such as the "before" and "after" images of modified items.
For more information on DynamoDB streams , please visit the below URL:

- http://docs.aws.amazon.com/amazondynamodb/latest/developerguide/Streams.html (http://docs.aws.amazon.com/amazondynamodb/latest/developerguide/Streams.html)

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QUESTION 14 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You are creating a cloudformation templates which takes in a database password as a parameter. How can you ensure that the password is not visible when anybody tries to describes the stack

- A. Use the password attribute for the resource
- B. Use the NoEcho property for the parameter value ✔
- C. Use the hidden property for the parameter value
- D. Set the hidden attribute for the Cloudformation resource.

Explanation :

Answer - B
The AWS Documentation mentions
For sensitive parameter values (such as passwords), set the NoEcho property to true. That way, whenever anyone describes your stack, the parameter value is shown as asterisks (*****).
For more information on Cloudformation parameters, please visit the below URL:

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

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QUESTION 15 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You are creating a Cloudformation template in which Userdata is going to be passed to underlying EC2 Instance. Which of the below functions is normally used to pass data to the UserData section in the Cloudformation template?

- A. "UserData": { "Fn::Base64": { ✔
- B. "UserData": { "Fn::Ref": {
- C. "UserData": { "Fn::GetAtt": {
- D. "UserData": { "Fn::FindInMap": {

Explanation :

Answer – A
The AWS Documentation mentions
The intrinsic function Fn::Base64 returns the Base64 representation of the input string. This function

is typically used to pass encoded data to Amazon EC2 instances by way of theUserData property.
For more information on the Fn::Base64 function, please visit the below URL:

- http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/intrinsic-function-reference-base64.html (http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/intrinsic-function-reference-base64.html)

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QUESTION 16 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

Which of the following Cloudformation helper scripts can help install packages on EC2 resources

- A. cfn-init ✔
- B. cfn-signal
- C. cfn-get-metadata
- D. cfn-hup

Explanation :

Answer - A
The AWS Documentation mentions
Currently, AWS CloudFormation provides the following helpers:

- cfn-init (http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/cfn-init.html): Used to retrieve and interpret the resource metadata, installing packages, creating files and starting services.
- cfn-signal (http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/cfn-signal.html): A simple wrapper to signal an AWS CloudFormation CreationPolicy or WaitCondition, enabling you to synchronize other resources in the stack with the application being ready.
- cfn-get-metadata (http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/cfn-get-metadata.html): A wrapper script making it easy to retrieve either all metadata defined for a resource or path to a specific key or subtree of the resource metadata.
- cfn-hup (http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/cfn-hup.html): A daemon to check for updates to metadata and execute custom hooks when the changes are detected.

For more information on helper scripts, please visit the below URL:
http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/cfn-helper-scripts-reference.html (http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/cfn-helper-scripts-reference.html)

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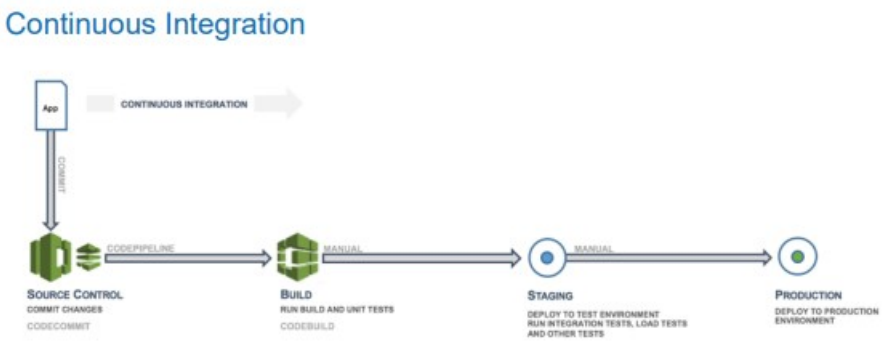
QUESTION 17 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

Which of the following are the basic stages of a CI/CD Pipeline. Choose 3 answers from the options below

- [ ] **A.** SourceControl ✔
- [ ] **B.** Build ✔
- [ ] **C.** Run
- [ ] **D.** Production ✔

**Explanation :**

Answer – A,B and D
The below diagram shows the stages of a typical CI/CD pipeline




For more information on AWS Continuous Integration, please visit the below URL:
https://d0.awsstatic.com/whitepapers/DevOps/practicing-continuous-integration-continuous-delivery-on-AWS.pdf (https://d0.awsstatic.com/whitepapers/DevOps/practicing-continuous-integration-continuous-delivery-on-AWS.pdf)

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QUESTION 18 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You are trying to debug the creation of Cloudformation stack resources. Which of the following can be used to help in the debugging process?

Choose 2 answers from the options below

- [ ] **A.** Use Cloudtrail to debug all the API call's sent by the Cloudformation stack.
- [ ] **B.** Use the AWS CloudFormation console to view the status of your stack. ✔
- [ ] **C.** See the logs in the /var/log directory for Linux instances ✔
- [ ] **D.** Use AWSConfig to debug all the API call's sent by the Cloudformation stack.

Explanation :

Answer – B and C
The AWS Documentation mentions
Use the AWS CloudFormation console (https://console.aws.amazon.com/cloudformation/) to view the status of your stack. In the console, you can view a list of stack events while your stack is being created, updated, or deleted. From this list, find the failure event and then view the status reason for that event.
For Amazon EC2 issues, view the cloud-init and cfn logs. These logs are published on the Amazon EC2 instance in the /var/log/ directory. These logs capture processes and command outputs while AWS CloudFormation is setting up your instance. For Windows, view the EC2Configure service and cfn logs in %ProgramFiles%\Amazon\EC2ConfigService and C:\cfn\log.
For more information on Cloudformation Troubleshooting, 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 19 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

Which of the following services along with Cloudformation helps in building a Continuous Delivery release practice

- ○ **A.** AWS Config
- ○ **B.** AWS Lambda
- ○ **C.** AWS Cloudtrail
- ○ **D.** AWS CodePipeline ✔

Explanation :

Answer - D
The AWS Documentation mentions

Continuous delivery is a release practice in which code changes are automatically built, tested, and prepared for release to production. With AWS CloudFormation and AWS CodePipeline, you can use continuous delivery to automatically build and test changes to your AWS CloudFormation templates before promoting them to production stacks. This release process lets you rapidly and reliably make changes to your AWS infrastructure.
For more information on Continuous Delivery, please visit the below URL:
http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/continuous-delivery-codepipeline.html
(http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/continuous-delivery-codepipeline.html)

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QUESTION 20 UNATTEMPTED

CONTINUOUS DELIVERY AND PROCESS AUTOMATION

Which of the following CLI commands can be used to describe the stack resources.

- A. aws cloudformation describe-stack
- B. aws cloudformation describe-stack-resources
- C. aws cloudformation list-stack-resources ✔
- D. aws cloudformation list-stack

Explanation :

Answer - C
This is given in the AWS Documentation
**list-stack-resources**
**Description**
Returns descriptions of all resources of the specified stack.
For deleted stacks, ListStackResources returns resource information for up to 90 days after the stack has been deleted.
See also: AWS API Documentation
See 'aws help' for descriptions of global parameters.
list-stack-resources is a paginated operation. Multiple API calls may be issued in order to retrieve the entire data set of results. You can disable pagination by providing the --no-paginate argument. When using --output text and the --query argument on a paginated response, the --query argument must extract data from the results of the following query expressions: StackResourceSummaries

For more information on the CLI command, please visit the below URL:
http://docs.aws.amazon.com/cli/latest/reference/cloudformation/list-stack-resources.html
(http://docs.aws.amazon.com/cli/latest/reference/cloudformation/list-stack-resources.html)

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QUESTION 21 UNATTEMPTED HIGH AVAILABILITY AND ELASTICITY

Your application is having a very high traffic, so you have enabled autoscaling in multi availability zone to suffice the needs of your application but you observe that one of the availability zone is not receiving any traffic. What can be wrong here?

- A. Autoscaling only works for single availability zone
- B. Autoscaling can be enabled for multi AZ only in north Virginia region
- C. Availability zone is not added to Elastic load balancer ✔
- D. Instances need to manually added to availability zone

Explanation :

Answer – C
When you add an Availability Zone to your load balancer, Elastic Load Balancing creates a load balancer node in the Availability Zone. Load balancer nodes accept traffic from clients and forward requests to the healthy registered instances in one or more Availability Zones.

For more information on adding AZ's to ELB, please refer to the below URL:

- http://docs.aws.amazon.com/elasticloadbalancing/latest/classic/enable-disable-az.html (http://docs.aws.amazon.com/elasticloadbalancing/latest/classic/enable-disable-az.html)

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QUESTION 22 UNATTEMPTED SECURITY, GOVERNANCE, AND VALIDATION

You have just developed a new mobile application that handles analytics workloads on large scale datasets that are stored on Amazon Redshift. Consequently, the application needs to access Amazon Redshift tables. Which of the below methods would be the best, both practically and security-wise, to access the tables? Choose the correct answer from the options below

- **A.** Create an IAM user and generate encryption keys for that user. Create a policy for RedShift read-only access. Embed the keys in the application.
- **B.** Create a HSM client certificate in Redshift and authenticate using this certificate.
- **C.** Create a RedShift read-only access policy in IAM and embed those credentials in the application.
- **D.** Use roles that allow a web identity federated user to assume a role that allows access to the RedShift table by providing temporary credentials. ✔

Explanation :

Answer – D
For access to any AWS service, the ideal approach for any application is to use Roles. This is the first preference. Hence option A and C are wrong.
For more information on IAM policies please refer to the below link:
http://docs.aws.amazon.com/IAM/latest/UserGuide/access_policies.html
(http://docs.aws.amazon.com/IAM/latest/UserGuide/access_policies.html)
Next for any web application, you need to use web identity federation. Hence option D is the right option. This along with the usage of roles is highly stressed in the AWS documentation.
"When you write such an app, you'll make requests to AWS services that must be signed with an AWS access key. However, we strongly recommend that you do not embed or distribute long-term AWS credentials with apps that a user downloads to a device, even in an encrypted store. Instead, build your app so that it requests temporary AWS security credentials dynamically when needed using web identity federation. The supplied temporary credentials map to an AWS role that has only the permissions needed to perform the tasks required by the mobile app".

For more information on web identity federation please refer to the below link:
http://docs.aws.amazon.com/IAM/latest/UserGuide/id_roles_providers_oidc.html
(http://docs.aws.amazon.com/IAM/latest/UserGuide/id_roles_providers_oidc.html)

Ask our Experts

QUESTION 23 UNATTEMPTED SECURITY, GOVERNANCE, AND VALIDATION

The company you work for has a huge amount of infrastructure built on AWS. However there has been some concerns recently about the security of this infrastructure, and an external auditor has been given the task of running a thorough check of all of your company's AWS assets. The auditor will be in the USA while your company's infrastructure resides in the Asia Pacific (Sydney) region on AWS. Initially, he needs to check all of your VPC assets, specifically, security groups and NACLs You have been assigned the task of providing the auditor with a login to be able to do this.

Which of the following would be the best and most secure solution to provide the auditor with so he can begin his initial investigations? Choose the correct answer from the options below

- **A.** Create an IAM user tied to an administrator role. Also provide an additional level of security with MFA.
- **B.** Give him root access to your AWS Infrastructure, because he is an auditor he will need access to every service.
- **C.** Create an IAM user who will have read-only access to your AWS VPC infrastructure and provide the auditor with those credentials. ✔
- **D.** Create an IAM user with full VPC access but set a condition that will not allow him to modify anything if the request is from any IP other than his own.

Explanation :

Answer – C
Generally you should refrain from giving high level permissions and give only the required permissions.
In this case option C fits well by just providing the relevant access which is required.
For more information on IAM please see the below link:

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

Ask our Experts

QUESTION 24 UNATTEMPTED

CONTINUOUS DELIVERY AND PROCESS AUTOMATION

What are the benefits when you implement a Blue Green deployment for your infrastructure or application level changes. Choose 3 answers from the options given below

- **A.** Near zero-downtime release for new changes ✔
- **B.** Better rollback capabilities ✔
- **C.** Ability to deploy with higher risk
- **D.** Good turnaround time for application deployments ✔

Explanation :

Answer – A ,B and D

The AWS Documentation mentions the following
Blue/green deployments provide near zero-downtime release and rollback capabilities. The fundamental idea behind blue/green deployment is to shift traffic between two identical environments that are running different versions of your application. The blue environment represents the current application version serving production traffic. In parallel, the green environment is staged running a different version of your application. After the green environment is ready and tested, production traffic is redirected from blue to green.
For more information on Blue Green deployments please see the below link:

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

Ask our Experts

QUESTION 25 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You work for a startup that has developed a new photo-sharing application for mobile devices. Over recent months your application has increased in popularity; this has resulted in a decrease in the performance of the application due to the increased load. Your application has a two-tier architecture that is composed of an Auto Scaling PHP application tier and a MySQL RDS instance initially deployed with AWS CloudFormation. Your Auto Scaling group has a min value of 4 and a max value of 8. The desired capacity is now at 8 due to the high CPU utilization of the instances. After some analysis, you are confident that the performance issues stem from a constraint in CPU capacity, while memory utilization remains low. You therefore decide to move from the general-purpose M3 instances to the compute-optimized C3 instances.

How would you deploy this change while minimizing any interruption to your end users?

- **A.** Sign into the AWS Management Console, copy the old launch configuration, and create a new launch configuration that specifies the C3 instances. Update the AutoScaling group with the new launch configuration. Auto Scaling will then update the instance type of all running instances
- **B.** Sign into the AWS Management Console and update the existing launch configuration with the new C3 instance type. Add an UpdatePolicy attribute to your AutoScaling group that specifies an AutoScaling RollingUpdate.
- **C.** Update the launch configuration specified in the AWS CloudFormation template with the new C3 instance type. Run a stack update with the new template. Auto Scaling will then update the instances with the new instance type.

- **D.** Update the launch configuration specified in the AWS CloudFormation template with the new C3 instance type. Also add an UpdatePolicy attribute to your Auto Scalinggroup that specifies an AutoScalingRollingUpdate. Run a stack update with the new template ✔

Explanation :

Answer – D
The AWS Documentation mentions the below
The AWS::AutoScaling::AutoScalingGroup (http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/aws-properties-as-group.html) resource supports an UpdatePolicy (http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/aws-attribute-updatepolicy.html) 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 (http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/aws-attribute-updatepolicy.html#cfn-attributes-updatepolicy-rollingupdate) policy. This retains the same Auto Scaling group and replaces old instances with new ones, according to the parameters specified.
For more information on Rolling Updates for Autoscaling please see 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/)

**Note:**
You can update the launch configuration in Cloudformation.

AWS::AutoScaling::LaunchConfiguration - Creates an Auto Scaling launch configuration that can be used by an Auto Scaling group to configure Auto Scaling instances.

An update simply replaces the LaunchConfiguration so that when the auto scaling group launches new instances, they will get the updated configuration, but existing instances continue to run with the configuration that they were originally launched with. This works the same way as if you made similar changes manually to an auto scaling group.

Please check the below link to know more about it:

- https://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/aws-properties-as-launchconfig.html (https://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/aws-properties-as-launchconfig.html)

When you update a property of the LaunchConfiguration resource, AWS CloudFormation deletes that resource and creates a new launch configuration with the updated properties and a new name.

Further, if the new launch configuration goes wrong, we can roll back and update the previous launch configuration to continue the production.

Please check the below link to know more about rollback:

- https://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/using-cfn-updating-stacks-continueupdaterollback.html

(https://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/using-cfn-updating-stacks-continueupdaterollback.html)

Ask our Experts

QUESTION 26 UNATTEMPTED

CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You have implemented a system to automate deployments of your configuration and application dynamically after an Amazon EC2 instance in an Auto Scaling group is launched. Your system uses a configuration management tool that works in a standalone configuration, where there is no master node. Due to the volatility of application load, new instances must be brought into service within three minutes of the launch of the instance operating system. The deployment stages take the following times to complete:

1) Installing configuration management agent: 2mins

2) Configuring instance using artifacts: 4mins

3) Installing application framework: 15mins

4) Deploying application code: 1min

What process should you use to automate the deployment using this type of standalone agent

configuration?

- **A.** Configure your Auto Scaling launch configuration with an Amazon EC2 UserData script to install the agent, pull configuration artifacts and application code from an Amazon S3 bucket, and then execute the agent to configure the infrastructure and application.
- **B.** Build a custom Amazon Machine Image that includes all components pre-installed, including an agent, configuration artifacts, application frameworks, and code. Create a startup script that executes the agent to configure the system onstartup. ✔

- **C.** Build a custom Amazon Machine Image that includes the configuration management agent and application framework pre-installed. Configure your Auto Scaling launch configuration with an Amazon EC2 UserData script to pull configuration artifacts and application code from an Amazon S3 bucket, and then execute the agent to configure the system.
- **D.** Create a web service that polls the Amazon EC2 API to check for new instances that are launched in an Auto Scaling group. When it recognizes a new instance, execute a remote script via SSH to install the agent, SCP the configuration artifacts and application code, and finally execute the agent to configure the system

Explanation :

Answer – B

Since the new instances need to be brought up in 3 minutes , hence the best option is to pre-bake all the components into an AMI. If you try to user the User Data option , it will just take time , based on the time mentioned in the question to install and configure the various components.

For more information on AMI design please see the below link:

- https://aws.amazon.com/answers/configuration-management/aws-ami-design/ (https://aws.amazon.com/answers/configuration-management/aws-ami-design/)

Ask our Experts

QUESTION 27 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

As part of your continuous deployment process, your application undergoes an I/O load performance test before it is deployed to production using new AMIs. The application uses one Amazon EBS PIOPS volume per instance and requires consistent I/O performance.

Which of the following must be carried out to ensure that I/O load performance tests yield the correct results in a repeatable manner?

- **A.** Ensure that the I/O block sizes for the test are randomly selected.

- **B.** Ensure that the Amazon EBS volumes have been pre-warmed by reading all the blocks before the test. ✔
- **C.** Ensure that snapshots of the Amazon EBS volumes are created as a backup.
- **D.** Ensure that the Amazon EBS volume is encrypted.

Explanation :

Answer – B
Since the AMI will get all the data from S3 as snapshots , always ensure the volume is prewarmed before it is set for the load test.
For more information on benchmarking procedures please see the below link:

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

Ask our Experts

QUESTION 28 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
The AWS Documentation mentions the below

Because Elastic Beanstalk performs an in-place update when you update your application versions, your application may become unavailable to users for a short period of time. It is possible to avoid this downtime by performing a blue/green deployment, where you deploy the new version to a separate environment, and then swap CNAMEs of the two environments to redirect traffic to the new version instantly
For more information on Elastic beanstalk swap URL please see the below link:

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

Ask our Experts

QUESTION 29 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 AutoScaling 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

Explanation :

Answer – C
The AWS Documentation mentions the below
Amazon Kinesis makes it easy to collect, process, and analyze real-time, streaming data (https://aws.amazon.com/streaming-data/) so you can get timely insights and react quickly to new information. Amazon Kinesis offers key capabilities (https://aws.amazon.com/kinesis/#kinesis-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 AWS Kinesis please see the below link:

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

Ask our Experts

QUESTION 30 UNATTEMPTED

CONTINUOUS DELIVERY AND PROCESS AUTOMATION

Your social media marketing application has a component written in Ruby running on AWS Elastic Beanstalk. This application component posts messages to social media sites in support of various marketing campaigns. Your management now requires you to record replies to these social media messages to analyze the effectiveness of the marketing campaign in comparison to past and future efforts. You've already developed a new application component to interface with the social media site APIs in order to read the replies. Which process should you use to record the social media replies in a durable data store that can be accessed at any time for analytics of historical data?

- **A.** Deploy the new application component in an Auto Scaling group of Amazon EC2 instances, read the data from the social media sites, store it with Amazon Elastic Block Store, and use AWS Data Pipeline to publish it to Amazon Kinesis for analytics.
- **B.** Deploy the new application component as an Elastic Beanstalk application, read the data from the social media sites, store it in DynamoDB, and use Apache Hive with Amazon Elastic MapReduce for analytics. ✔
- **C.** Deploy the new application component in an Auto Scaling group of Amazon EC2 instances, read the data from the social media sites, store it in Amazon Glacier, and use AWS Data Pipeline to publish it to Amazon RedShift for analytics.
- **D.** Deploy the new application component as an Amazon Elastic Beanstalk application, read the data from the social media site, store it with Amazon Elastic Block store,and use Amazon Kinesis to stream the data to Amazon CloudWatch for analytics

Explanation :

Answer – B
The AWS Documentation mentions the below

Amazon DynamoDB is a fast and flexible NoSQL database (https://aws.amazon.com/nosql/) service for all applications that need consistent, single-digit millisecond latency at any scale. It is a fully managed cloud database and supports both document and key-value store models. Its flexible data model, reliable performance, and automatic scaling of throughput capacity, makes it a great fit for mobile, web, gaming, ad tech, IoT, and many other applications.
For more information on AWS DynamoDB please see the below link:

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

Ask our Experts

QUESTION 31 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You are managing an application that contains Go as the front end , MongoDB for document management and is hosted on a relevant Web server. You pre-bake AMI's with the latest version of the Web server, then user the User Data section to setup the application. You now have a change to the underlying Operating system version and need to deploy that accordingly. How can this be done in the easiest way possible.

- **A.** Create a new EBS Volume with the relevant OS patches and attach it to the EC2 Instance.
- **B.** Create a Cloudformation stack with the new AMI and then deploy the application accordingly.
- **C.** Create a new pre-baked AMI with the new OS and use the User Data seciton to deploy the application. ✔
- **D.** Create an Opswork stack with the new AMI and then deploy the application accordingly.

Explanation :

Answer – C
The best way in this scenario is to continue the same deployment process which was being used and create a new AMI and then use the User Data section to deploy the application.
For more information on AWS AMI's please see the below link:

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

Ask our Experts

QUESTION 32 UNATTEMPTED MONITORING, METRICS, AND LOGGING

You are managing the development of an application that uses DynamoDB to store JSON data. You have already set the Read and Write capacity of the DynamoDB table. You are unsure of the amount of the traffic that will be received by the application during the deployment time. How can you ensure that the DynamoDB is not highly throttled and does not become a bottleneck for the application? Choose 2 answers from the options below.

- [ ] **A.** Monitor the ConsumedReadCapacityUnits and ConsumedWriteCapacityUnits metric using Cloudwatch. ✔
- [ ] **B.** Monitor the SystemErrors metric using Cloudwatch
- [ ] **C.** Create a Cloudwatch alarm which would then send a trigger to AWS Lambda to increase the Read and Write capacity of the DynamoDB table. ✔
- [ ] **D.** Create a Cloudwatch alarm which would then send a trigger to AWS Lambda to create a new DynamoDB table.

Explanation :

Answer – A and C
Refer to the following AWS Documentation that specifies what should be monitored for a DynamoDB table.

| | |
|---|---|
| *How can I determine how much of my provisioned throughput is being used?* | You can monitor `ConsumedReadCapacityUnits` or `ConsumedWriteCapacityUnits` over the specified time period, to track how much of your provisioned throughput is being used. |

For more information on monitoring DynamoDB please see the below link:

- http://docs.aws.amazon.com/amazondynamodb/latest/developerguide/monitoring-cloudwatch.html (http://docs.aws.amazon.com/amazondynamodb/latest/developerguide/monitoring-cloudwatch.html)

Ask our Experts

QUESTION 33 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

Which of the following can be configured as targets for Cloudwatch Events. Choose 3 answers from the options given below

- [ ] **A.** Amazon EC2 Instances ✔
- [ ] **B.** AWS Lambda Functions ✔
- [ ] **C.** Amazon CodeCommit
- [ ] **D.** Amazon ECS Tasks ✔

**Explanation :**

Answer - A,B and D
The AWS Documentation mentions the below
You can configure the following AWS services as targets for CloudWatch Events:

- Amazon EC2 instances
- AWS Lambda functions
- Streams in Amazon Kinesis Streams
- Delivery streams in Amazon Kinesis Firehose
- Amazon ECS tasks
- SSM Run Command
- SSM Automation
- Step Functions state machines
- Pipelines in AWS CodePipeline
- Amazon Inspector assessment templates
- Amazon SNS topics
- Amazon SQS queues
- Built-in targets
- The default event bus of another AWS account

For more information on Cloudwatch events please see the below link:

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

Ask our Experts

QUESTION 34 UNATTEMPTED

CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You are using Elastic Beanstalk for your development team. You are responsible for deploying multiple versions of your application. How can you ensure, in an ideal way, that you don't cross the application version limit in Elastic beanstalk?

- A. Create a lambda function to delete the older versions.
- B. Create a script to delete the older versions.
- C. Use AWSConfig to delete the older versions
- D. Use lifecyle policies in Elastic beanstalk ✔

Explanation :

Answer - D
The AWS Documentation mentions
Each time you upload a new version of your application with the Elastic Beanstalk console or the EB CLI, Elastic Beanstalk creates an application version. If you don't delete versions that you no longer use, you will eventually reach the application version limit and be unable to create new versions of that application.
You can avoid hitting the limit by applying an application version lifecycle policy to your applications. A lifecycle policy tells Elastic Beanstalk to delete application versions that are old, or to delete application versions when the total number of versions for an application exceeds a specified number.
For more information on Elastic Beanstalk lifecycle policies please see the below link:

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

Ask our Experts

QUESTION 35 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

When deploying applications to Elastic Beanstalk , which of the following statements is false with regards to application deployment

- A. The application can be bundled in a zip file
- B. Can include parent directories ✔
- C. Should not exceed 512 MB in size
- D. Can be a war file which can be deployed to the application server

Explanation :

Answer – B
The AWS Documentation mentions
When you use the AWS Elastic Beanstalk console to deploy a new application or an application version, you'll need to upload a source bundle. Your source bundle must meet the following requirements:

- Consist of a single ZIP file or WAR file (you can include multiple WAR files inside your ZIP file)
- Not exceed 512 MB
- Not include a parent folder or top-level directory (subdirectories are fine)

For more information on deploying applications to Elastic Beanstalk please see the below link:

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

Ask our Experts

QUESTION 36 UNATTEMPTED

CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You have an Autoscaling Group which is launching a set of t2.small instances. You now need to replace those instances with a larger instance type. How would you go about making this change in an ideal manner?

- A. Change the Instance type in the current launch configuration to the new instance type.
- B. Create another Autoscaling Group and attach the new instance type.
- C. Create a new launch configuration with the new instance type and update your Autoscaling Group. ✔

- D. Change the Instance type of the Underlying EC2 instance directly.

Explanation :

Answer – C
The AWS Documentation mentions
A launch configuration is a template that an Auto Scaling group uses to launch EC2 instances. When you create a launch configuration, you specify information for the instances such as the ID of the Amazon Machine Image (AMI), the instance type, a key pair, one or more security groups, and a block device mapping. If you've launched an EC2 instance before, you specified the same information in order to launch the instance.
When you create an Auto Scaling group, you must specify a launch configuration. You can specify your launch configuration with multiple Auto Scaling groups. However, you can only specify one launch configuration for an Auto Scaling group at a time, and you can't modify a launch configuration after you've created it. Therefore, if you want to change the launch configuration for your Auto Scaling group, you must create a launch configuration and then update your Auto Scaling group with the new launch configuration.
For more information on launch configurations please see the below link:

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

Ask our Experts

QUESTION 37 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You are planning on configuring logs for your Elastic Load balancer. At what intervals does the logs get produced by the Elastic Load balancer service. Choose 2 answers from the options given below

- A. 5 minutes ✔
- B. 60 minutes ✔
- C. 1 minute
- D. 30 seconds

Explanation :

Answer – A and B

The AWS Documentation mentions
Elastic Load Balancing publishes a log file for each load balancer node at the interval you specify. You can specify a publishing interval of either 5 minutes or 60 minutes when you enable the access log for your load balancer. By default, Elastic Load Balancing publishes logs at a 60-minute interval.
For more information on Elastic load balancer logs please see the below link:

- http://docs.aws.amazon.com/elasticloadbalancing/latest/classic/access-log-collection.html (http://docs.aws.amazon.com/elasticloadbalancing/latest/classic/access-log-collection.html)

Ask our Experts

QUESTION 38 UNATTEMPTED

CONTINUOUS DELIVERY AND PROCESS AUTOMATION

Your application has an Auto Scaling group of three EC2 instances behind an Elastic Load Balancer. Your Auto Scaling group was updated with a new launch configuration that refers to an updated AMI. During the deployment, customers complained that they were receiving several errors even though all instances passed the ELB health checks. How can you prevent this from happening again?

- **A.** Create a new ELB and attach the Autoscaling Group to the ELB
- **B.** Create a new launch configuration with the updated AMI and associate it with the AutoScaling group. Increase the size of the group to six and when instances become healthy revert to three. ✔
- **C.** Manually terminate the instances with the older launch configuration.
- **D.** Update the launch configuration instead of updating the Autoscaling Group

Explanation :

Answer - B
An Auto Scaling group is associated with one launch configuration at a time, and you can't modify a launch configuration after you've created it. To change the launch configuration for an Auto Scaling group, you can use an existing launch configuration as the basis for a new launch configuration and then update the Auto Scaling group to use the new launch configuration.
After you change the launch configuration for an Auto Scaling group, any new instances are launched using the new configuration options, but existing instances are not affected.
Then to ensure the new instances are launches , change the size of the Autoscaling Group to 6 and once the new instances are launched, change it back to 3.
For more information on instances scale-in process and Auto Scaling Group's termination policies

please view the following link:

- https://docs.aws.amazon.com/autoscaling/ec2/userguide/as-instance-termination.html#default-termination-policy (https://docs.aws.amazon.com/autoscaling/ec2/userguide/as-instance-termination.html#default-termination-policy)

For more information on changing the launch configuration please see the below link:

- http://docs.aws.amazon.com/autoscaling/latest/userguide/change-launch-config.html (http://docs.aws.amazon.com/autoscaling/latest/userguide/change-launch-config.html)

Ask our Experts

QUESTION 39 UNATTEMPTED MONITORING, METRICS, AND LOGGING

You are a Devops Engineer for your company. You are in charge of an application that uses EC2, ELB and Autoscaling. You have been requested to get the ELB access logs. When you try to access the logs , you can see that nothing has been recorded in S3. Why is this the case?

- **A.** You don't have the necessary access to the logs generated by ELB.
- **B.** By default ELB access logs are disabled. ✔
- **C.** The Autoscaling service is not sending the required logs to ELB
- **D.** The EC2 Instances are not sending the required logs to ELB

Explanation :

Answer – B
The AWS Documentation mentions
Access logging is an optional feature of Elastic Load Balancing that is disabled by default. After you enable access logging for your load balancer, Elastic Load Balancing captures the logs and stores them in the Amazon S3 bucket that you specify. You can disable access logging at any time.
For more information on ELB access logs please see the below link:

- http://docs.aws.amazon.com/elasticloadbalancing/latest/classic/access-log-collection.html (http://docs.aws.amazon.com/elasticloadbalancing/latest/classic/access-log-collection.html)

Ask our Experts

QUESTION 40 UNATTEMPTED

CONTINUOUS DELIVERY AND PROCESS AUTOMATION

When you implement a lifecycle hook in Autoscaling , by default what is the time limit in which the instance will be a pending state.

- A. 60 seconds
- B. 5 minutes
- C. 60 minutes ✔
- D. 120 minutes

Explanation :

Answer - C
The AWS Documentation mentions
By default, the instance remains in a wait state for one hour, and then Auto Scaling continues the launch or terminate process (Pending:Proceed or Terminating:Proceed). If you need more time, you can restart the timeout period by recording a heartbeat. If you finish before the timeout period ends, you can complete the lifecycle action, which continues the launch or termination process.
For more information on Autoscaling lifecycle hooks please see the below link:

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

Ask our Experts

QUESTION 41 UNATTEMPTED MONITORING, METRICS, AND LOGGING

You are a Devops Engineer for your company. You are planning on using Cloudwatch for monitoring the resources hosted in AWS. Which of the following can you do with Cloudwatch logs ideally. Choose 3 answers from the options given below

- [ ] A. Stream the log data to Amazon Kinesis for further processing ✔
- [ ] B. Send the log data to AWS Lambda for custom processing ✔

- [x] **C.** Stream the log data into Amazon Elasticsearch for any search analysis required. ✔
- [x] **D.** Send the data to SQS for further processing.

Explanation :

Answer - A,B and C
Amazon Kinesis can be used for rapid and continuous data intake and aggregation. The type of data used includes IT infrastructure log data, application logs, social media, market data feeds, and web clickstream data
Amazon Lambda is a web service which can be used to do serverless computing of the logs which are published by Cloudwatch logs
Amazon Elasticsearch Service makes it easy to deploy, operate, and scale Elasticsearch for log analytics, full text search, application monitoring, and more.
For more information on Cloudwatch logs please see the below link:

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

Ask our Experts

QUESTION 42 UNATTEMPTED

CONTINUOUS DELIVERY AND PROCESS AUTOMATION

Which of the following tools is available to send log data from EC2 Instances.

- [ ] **A.** CloudWatch Logs Agent ✔
- [ ] **B.** CloudWatch Agent
- [ ] **C.** Logs console.
- [ ] **D.** Logs Stream

Explanation :

Answer - A
The AWS Documentation mentions the following
The CloudWatch Logs agent provides an automated way to send log data to CloudWatch Logs from Amazon EC2 instances. The agent is comprised of the following components:

- A plug-in to the AWS CLI that pushes log data to CloudWatch Logs.

- A script (daemon) that initiates the process to push data to CloudWatch Logs.
- A cron job that ensures that the daemon is always running.

For more information on Cloudwatch logs Agent, please see the below link:

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

Ask our Experts

QUESTION 43 UNATTEMPTED MONITORING, METRICS, AND LOGGING

You are running a multi-tier architecture on AWS with webserver instances running Nginx. Your users are getting errors when they use the web application. How can you diagnose the errors quickly and efficiently?

- **A.** Install the CloudWatch Logs agent and send Nginx access log data to CloudWatch. From there, pipe the log data through to a third party logging and graphing tool.
- **B.** Install the CloudWatch Logs agent and send Nginx access log data to CloudWatch. Then, filter the log streams for searching the relevant errors. ✔
- **C.** Send all the errors to AWS Lambda for processing.
- **D.** Send all the errors to AWS Config for processing

Explanation :

Answer – B
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 Analysis, please see the below link:

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

Ask our Experts

QUESTION 44 UNATTEMPTED

CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You have configured the following AWS services in your organization - Auto Scaling group, Elastic Load Balancer, and EC2 instances. You have been requested to terminate an instance from the Autoscaling Group when the CPU utilization is less than 30%. How can you achieve this.

- **A.** Create a CloudWatch alarm to send a notification to SQS. SQS can then remove one instance from the Autoscaling Group.
- **B.** Create a CloudWatch alarm to send a notification to the Auto Scaling group when the aggregated CPU utilization is less than 30% and configure the Auto Scaling policy to remove one instance. ✔
- **C.** Create a CloudWatch alarm to send a notification to the ELB. The ELB can then remove one instance from the Autoscaling Group.
- **D.** Create a CloudWatch alarm to send a notification to the admin team. The admin team can then manually terminate an instance from the Autoscaling Group.

Explanation :

Answer - B
The AWS Documentation mentions the following
You should have two policies, one for scaling in (terminating instances) and one for scaling out (launching instances), for each event to monitor. For example, if you want to scale out when the network bandwidth reaches a certain level, create a policy specifying that Auto Scaling should start a certain number of instances to help with your traffic. But you may also want an accompanying policy to scale in by a certain number when the network bandwidth level goes back down
For more information on the scaling plans, please see the below link:

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

Ask our Experts

QUESTION 45 UNATTEMPTED SECURITY, GOVERNANCE, AND VALIDATION

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. Option B and D is wrong because it just adds an overhead for having 3 S3 buckets and SNS notifications.
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)

Ask our Experts

QUESTION 46 UNATTEMPTED MONITORING, METRICS, AND LOGGING

Which of the following is a container for metrics in Cloudwatch?

- **A.** MetricCollection
- **B.** Namespaces ✔
- **C.** Packages
- **D.** Locale

Explanation :

Answer - B
The AWS Documentation mentions the following
CloudWatch namespaces are containers for metrics. Metrics in different namespaces are isolated from each other, so that metrics from different applications are not mistakenly aggregated into the same statistics. All AWS services that provide Amazon CloudWatch data use a namespace string, beginning with "AWS/". When you create custom metrics, you must also specify a namespace as a container for custom metrics. The following services push metric data points to CloudWatch.
For more information on Cloudwatch namespaces, please visit the below URL:

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

Ask our Experts

QUESTION 47 UNATTEMPTED

CONTINUOUS DELIVERY AND PROCESS AUTOMATION

Which of the following is not a supported platform for the Elastic beanstalk service

- A. Java
- B. AngularJS ✔
- C. PHP
- D. .Net

Explanation :

Answer - B
Below are the supported platforms for Elastic beanstalk
**Platforms**

- Packer Builder (http://docs.aws.amazon.com/elasticbeanstalk/latest/dg/concepts.platforms.html#concepts.platforms.packer)
- Single Container Docker (http://docs.aws.amazon.com/elasticbeanstalk/latest/dg/concepts.platforms.html#concepts.platforms.docker)
- Multicontainer Docker (http://docs.aws.amazon.com/elasticbeanstalk/latest/dg/concepts.platforms.html#concepts.platforms.mcdocker)
- Preconfigured Docker (http://docs.aws.amazon.com/elasticbeanstalk/latest/dg/concepts.platforms.html#concepts.platforms.dockerpre
- Go (http://docs.aws.amazon.com/elasticbeanstalk/latest/dg/concepts.platforms.html#concepts.platforms.go)
- Java SE (http://docs.aws.amazon.com/elasticbeanstalk/latest/dg/concepts.platforms.html#concepts.platforms.javase)

- Java with Tomcat
(http://docs.aws.amazon.com/elasticbeanstalk/latest/dg/concepts.platforms.html#concepts.platforms.java)
- .NET on Windows Server with IIS
(http://docs.aws.amazon.com/elasticbeanstalk/latest/dg/concepts.platforms.html#concepts.platforms.net)
- Node.js
(http://docs.aws.amazon.com/elasticbeanstalk/latest/dg/concepts.platforms.html#concepts.platforms.nodejs)
- PHP
(http://docs.aws.amazon.com/elasticbeanstalk/latest/dg/concepts.platforms.html#concepts.platforms.PHP)
- Python
(http://docs.aws.amazon.com/elasticbeanstalk/latest/dg/concepts.platforms.html#concepts.platforms.python)
- Ruby
(http://docs.aws.amazon.com/elasticbeanstalk/latest/dg/concepts.platforms.html#concepts.platforms.ruby)

For more information on Elastic beanstalk, please visit the below URL:

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

Ask our Experts

QUESTION 48 UNATTEMPTED

CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You work as a Devops Engineer for your company. There are currently a number of environments hosted via Elastic beanstalk. There is a requirement to ensure to use the fastest deployment method for changes to the Elastic Beanstalk environment. Which deployment method is the fastest with Elastic Beanstalk?

- A. Rolling with additional batch
- B. All at Once ✔
- C. Blue/Green
- D. Rolling

Explanation :

Answer – B
The below table from the AWS documentation shows that the least amount of time is spent via the "All at Once" deployment strategy

**Deployment Methods**

| Method | Impact of Failed Deployment | Deploy Time | Zero Downtime | No DNS Change | Rollback Process | Code Deployed To |
|---|---|---|---|---|---|---|
| **All at once** | Downtime | ◷ | ✗ | ✓ | Manual Redeploy | Existing instances |
| **Rolling** | Single batch out of service; any successful batches prior to failure running new application version | ◷ ◷ † | ✓ | ✓ | Manual Redeploy | Existing instances |
| **Rolling with additional batch** | Minimal if first batch fails, otherwise, similar to **Rolling** | ◷ ◷ ◷ † | ✓ | ✓ | Manual Redeploy | New and existing instances |
| **Immutable** | Minimal | ◷ ◷ ◷ ◷ | ✓ | ✓ | Terminate New Instances | New instances |
| **Blue/green** | Minimal | ◷ ◷ ◷ ◷ | ✓ | ✗ | Swap URL | New instances |

For more information on Elastic beanstalk deployment strategies, please visit the below URL:

- 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)

Ask our Experts

QUESTION 49 UNATTEMPTED

CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You are a Devops engineer for your company.There is a requirement to host a custom application which has custom dependencies for a development team. This needs to be done using AWS service. Which of the following is the ideal way to fulfil this requirement.

- **A.** Package the application and dependencies with Docker, and deploy the Docker container with CloudFormation.
- **B.** Package the application and dependencies with Docker, and deploy the Docker container with Elastic Beanstalk. ✔

- C. Package the application and dependencies in an S3 file, and deploy the Docker container with Elastic Beanstalk.
- D. Package the application and dependencies with in Elastic Beanstalk, and deploy with Elastic Beanstalk

Explanation :

Answer - B

The AWS Documentation mentions
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 visit 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 50 UNATTEMPTED

CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You work as a Devops Engineer for your company. There are currently a number of environments hosted via Elastic beanstalk. There is a requirement to ensure to ensure that the rollback time for a new version application deployment is kept to a minimal. Which elastic beanstalk deployment method would fulfil this requirement ?

- A. Rolling with additional batch
- B. All at Once
- C. Blue/Green ✔
- D. Rolling

Explanation :

Answer – C

The below table from the AWS documentation shows that the least amount of time is spent in rollbacks when it comes to Blue Green deployments. This is because the only thing that needs to be done is for URL's to be swapped.

| Deployment Methods | | | | | | |
|---|---|---|---|---|---|---|
| Method | Impact of Failed Deployment | Deploy Time | Zero Downtime | No DNS Change | Rollback Process | Code Deployed To |
| **All at once** | Downtime | 🕒 | ✗ | ✓ | Manual Redeploy | Existing instances |
| **Rolling** | Single batch out of service; any successful batches prior to failure running new application version | 🕒 🕒 † | ✓ | ✓ | Manual Redeploy | Existing instances |
| **Rolling with additional batch** | Minimal if first batch fails, otherwise, similar to **Rolling** | 🕒 🕒 🕒 † | ✓ | ✓ | Manual Redeploy | New and existing instances |
| **Immutable** | Minimal | 🕒 🕒 🕒 🕒 | ✓ | ✓ | Terminate New Instances | New instances |
| **Blue/green** | Minimal | 🕒 🕒 🕒 🕒 | ✓ | ✗ | Swap URL | New instances |

For more information on Elastic beanstalk deployment strategies, please visit the below URL:

- 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)

Ask our Experts

QUESTION 51 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

Which of the below is not a lifecycle event in Opswork?

- A. Setup
- B. Uninstall ✔
- C. Configure
- D. Shutdown

Explanation :

Answer - B

Below are the Lifecycle events of Opsstack
1) Setup - This event occurs after a started instance has finished booting.
2) Configure - This event occurs on all of the stack's instances when one of the following occurs:
a) An instance enters or leaves the online state.
b) You associate an Elastic IP address with an instance or disassociate one from an instance.
c) You attach an Elastic Load Balancing load balancer to a layer, or detach one from a layer.
3) Deploy - This event occurs when you run a Deploy command, typically to deploy an application to a set of application server instances.
4) Undeploy - This event occurs when you delete an app or run an Undeploy command to remove an app from a set of application server instances.
5) Shutdown - This event occurs after you direct AWS OpsWorks Stacks to shut an instance down but before the associated Amazon EC2 instance is actually terminated
For more information on Opswork lifecycle events, please visit 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)

Ask our Experts

QUESTION 52 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

By default in Opswork , how many application versions can you rollback up to?

- A. 1
- B. 2
- C. 3
- D. 4 ✔

Explanation :

Answer - D
The AWS Documentation mentions the following
Restores the previously deployed app version. For example, if you have deployed the app three times and then run Rollback, the server will serve the app from the second deployment. If you run Rollback again, the server will serve the app from the first deployment. By default, AWS OpsWorks Stacks stores the five most recent deployments, which allows you to roll back up to four versions. If you exceed the number of stored versions, the command fails and leaves the oldest version in place.
For more information on Opswork app deployment, please visit the below URL:

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

Ask our Experts

QUESTION 53 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You have defined a Linux based instance stack in Opswork. You now want to attach a database to the Opswork stack. Which of the below is an important step to ensure that the application on the Linux instances can communicate with the database

- A. Add another stack with the database layer and attach it to the application stack.
- B. Configure SSL so that the instance can communicate with the database
- C. Add the appropriate driver packages to ensure the application can work with the database ✔
- D. Configure database tags for the Opswork application layer

Explanation :

Answer – C
The AWS documentation mentions the below point

Important
For Linux stacks, if you want to associate an Amazon RDS service layer with your app, you must add the appropriate driver package to the associated app server layer, as follows:

1. Click Layers in the navigation pane and open the app server's Recipes tab.
2. Click Edit and add the appropriate driver package to OS Packages. For example, you should specify mysql if the layer contains Amazon Linux instances and mysql-client if the layer contains Ubuntu instances.
3. Save the changes and redeploy the app.

For more information on Opswork app connectivity, please visit the below URL:
http://docs.aws.amazon.com/opsworks/latest/userguide/workingapps-connectdb.html
(http://docs.aws.amazon.com/opsworks/latest/userguide/workingapps-connectdb.html)

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QUESTION 54 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You have an Opswork stack defined with Linux instances. You have executed a recipe , but the execution has failed. What is one of the ways that you can use to diagnose what was the reason why the recipe did not execute correctly.

- A. Use AWS Cloudtrail and check the Opswork logs to diagnose the error
- B. Use AWS Config and check the Opswork logs to diagnose the error
- C. Log into the instance and check if the recipe was properly configured. ✔
- D. Deregister the instance and check the EC2 Logs

Explanation :

Answer - C
The AWS Documentation mentions the following
If a recipe fails, the instance will end up in the setup_failed state instead of online. Even though the instance is not online as far as AWS OpsWorks Stacks is concerned, the EC2 instance is running and it's often useful to log in to troubleshoot the issue. For example, you can check whether an application or custom cookbook is correctly installed. The AWS OpsWorks Stacks built-in support for SSH (http://docs.aws.amazon.com/opsworks/latest/userguide/workinginstances-ssh.html) and RDP (http://docs.aws.amazon.com/opsworks/latest/userguide/workinginstances-rdp.html) login is available only for instances in the online state.
For more information on Opswork troubleshooting, please visit the below URL:

- http://docs.aws.amazon.com/opsworks/latest/userguide/troubleshoot-debug-login.html (http://docs.aws.amazon.com/opsworks/latest/userguide/troubleshoot-debug-login.html)

Ask our Experts

QUESTION 55 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

Your application requires long-term storage for backups and other data that you need to keep readily available but with lower cost. Which S3 storage option should you use?

- A. Amazon S3 Standard - Infrequent Access ✔
- B. S3 Standard
- C. Glacier
- D. Reduced Redundancy Storage

Explanation :

Answer – A
The AWS Documentation mentions the following

Amazon S3 Standard - Infrequent Access (Standard - IA) is an Amazon S3 storage class for data that is accessed less frequently, but requires rapid access when needed. Standard - IA offers the high durability, throughput, and low latency of Amazon S3 Standard, with a low per GB storage price and per GB retrieval fee.
For more information on S3 Storage classes, please visit the below URL:

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

Ask our Experts

QUESTION 56 UNATTEMPTED

CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You work for an accounting firm and need to store important financial data for clients. Initial frequent access to data is required, but after a period of 2 months , the data can be archived and brought back only in the case of an audit. What is the most cost-effective way to do this?

- **A.** Store all data in a Glacier
- **B.** Store all data in a private S3 bucket
- **C.** Use lifecycle management to store all data in Glacier
- **D.** Store data in Amazon S3 and use lifecycle management to move data from S3 to Glacier after 2 months. ✔

Explanation :

Answer – D
The AWS Documentation mentions the following
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)

Ask our Experts

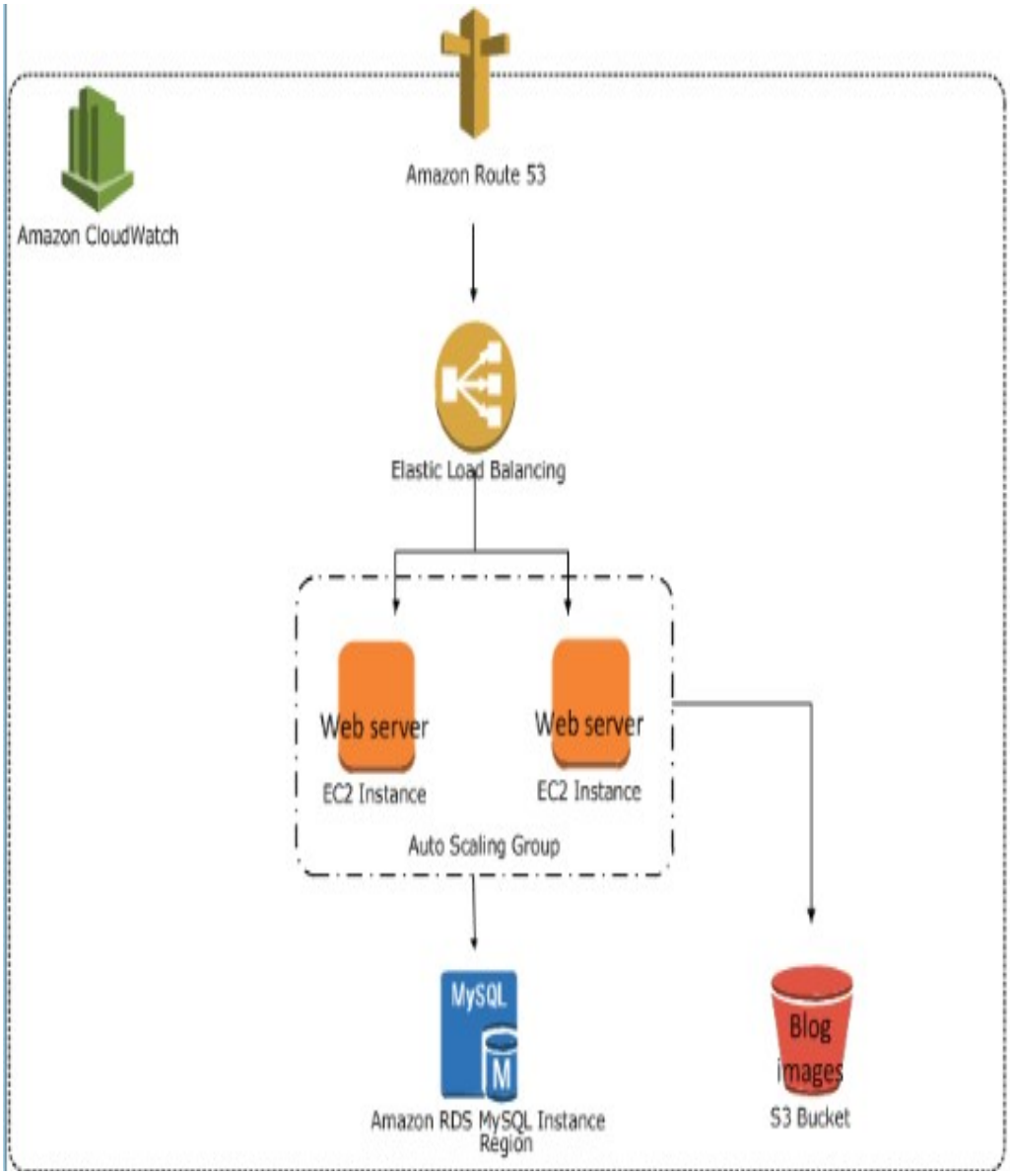
QUESTION 57 UNATTEMPTED HIGH AVAILABILITY AND ELASTICITY

A company is building a two-tier web application to serve dynamic transaction-based content. The data tier is leveraging an Online Transactional Processing (OLTP) database. What services should you leverage to enable an elastic and scalable web tier?

- **A.** Elastic Load Balancing, Amazon EC2, and Auto Scaling ✔
- **B.** Elastic Load Balancing, Amazon RDS with Multi-AZ, and Amazon S3
- **C.** Amazon RDS with Multi-AZ andAuto Scaling
- **D.** Amazon EC2, Amazon Dynamo DB, and Amazon S3

Explanation :

Answer – A
The question mentioned a scalable web tier and not a database tier. So Option C, D and B are already automated eliminated, since we do not need a database option.
The below example shows an Elastic Load balancer 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 best practices for AWS Cloud applications , please visit the below URL:
https://d0.awsstatic.com/whitepapers/AWS_Cloud_Best_Practices.pdf
(https://d0.awsstatic.com/whitepapers/AWS_Cloud_Best_Practices.pdf)

Ask our Experts

QUESTION 58 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 best practices for AWS Cloud applications , please visit the below URL:

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

Ask our Experts

You have an ELB on AWS which has a set of web servers behind them. There is a requirement that the SSL key used to encrypt data is always kept secure. Secondly the logs of ELB should only be decrypted by a subset of users. Which of these architectures meets all of the requirements?

- **A.** Use Elastic Load Balancing to distribute traffic to a set of web servers. To protect the SSL private key, upload the key to the load balancer and configure the load balancer to offload the SSL traffic. Write your web server logs to an ephemeral volume that has been encrypted using a randomly generated AES key.
- **B.** Use Elastic Load Balancing to distribute traffic to a set of web servers. Use TCP load balancing on the load balancer and configure your web servers to retrieve the private key from a private Amazon S3 bucket on boot. Write your web server logs to a private Amazon S3 bucket using Amazon S3 server-side encryption.
- **C.** Use Elastic Load Balancing to distribute traffic to a set of web servers, configure the load balancer to perform TCP load balancing, use an AWS CloudHSM to perform the SSL transactions, and write your web server logs to a private Amazon S3 bucket using Amazon S3 server-side encryption. ✔
- **D.** Use Elastic Load Balancing to distribute traffic to a set of web servers. Configure the load balancer to perform TCP load balancing, use an AWS CloudHSM to perform the SSL transactions, and write your web server logs to an ephemeral volume that has been encrypted using a randomly generated AES key.

Explanation :

Answer – C
The AWS CloudHSM service helps you meet corporate, contractual and regulatory compliance requirements for data security by using dedicated Hardware Security Module (HSM) appliances within the AWS cloud. With CloudHSM, you control the encryption keys and cryptographic operations performed by the HSM.
Option D is wrong with the CloudHSM option because of the ephemeral volume which this is temporary storage
For more information on cloudhsm , please refer to the link:

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

Ask our Experts

QUESTION 60 UNATTEMPTED

CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You are working with a customer who is using Chef Configuration management in their data center. Which service is designed to let the customer leverage existing Chef recipes in AWS?

- A. Amazon Simple Workflow Service
- B. AWS Elastic Beanstalk
- C. AWS CloudFormation
- D. AWS OpsWorks ✔

**Explanation :**

Answer – D
AWS OpsWorks is a configuration management service that helps you configure and operate applications of all shapes and sizes using Chef. You can define the application's architecture and the specification of each component including package installation, software configuration and resources such as storage. Start from templates for common technologies like application servers and databases or build your own to perform any task that can be scripted. AWS OpsWorks includes automation to scale your application based on time or load and dynamic configuration to orchestrate changes as your environment scales.
For more information on Opswork, please visit the link:

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

Ask our Experts

QUESTION 61 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

A company wants to create standard templates for deployment of their Infrastructure. Which AWS service can be used in this regard? Please choose one option.

- A. Amazon Simple Workflow Service
- B. AWS Elastic Beanstalk
- C. AWS CloudFormation ✔
- D. AWS OpsWorks

Explanation :

Answer – C
AWS CloudFormation gives developers and systems administrators an easy way to create and manage a collection of related AWS resources, provisioning and updating them in an orderly and predictable fashion.
You can use AWS Cloud Formation's sample templates or create your own templates to describe the AWS resources, and any associated dependencies or runtime parameters, required to run your application. You don't need to figure out the order for provisioning AWS services or the subtleties of making those dependencies work. CloudFormation takes care of this for you. After the AWS resources are deployed, you can modify and update them in a controlled and predictable way, in effect applying version control to your AWS infrastructure the same way you do with your software. You can also visualize your templates as diagrams and edit them using a drag-and-drop interface with the AWS CloudFormation Designer.
For more information on Cloudformation, please visit the link:

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

Ask our Experts

QUESTION 62 UNATTEMPTED

CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You recently encountered a major bug in your web application during a deployment cycle. During this failed deployment, it took the team four hours to roll back to a previously working state, which left customers with a poor user experience. During the post-mortem, you team discussed the need to provide a quicker, more robust way to roll back failed deployments. You currently run your web application on Amazon EC2 and use Elastic Load Balancing for your load balancing needs.

Which technique should you use to solve this problem?

- **A.** Create deployable versioned bundles of your application. Store the bundle on Amazon S3. Re-deploy your web application on Elastic Beanstalk and enable the Elastic Beanstalk auto – rollback feature tied to CloudWatch metrics that define failure.
- **B.** Use an AWS OpsWorks stack to re-deploy your web application and use AWS OpsWorks DeploymentCommand to initiate a rollback during failures. ✔
- **C.** Create deployable versioned bundles of your application. Store the bundle on Amazon S3. Use an AWS OpsWorks stack to redeploy your web application and use AWS OpsWorks application versioning to initiate a rollback during failures.
- **D.** Using Elastic BeanStalk redeploy your web application and use the Elastic BeanStalk API to trigger a FailedDeployment API call to initiate a rollback to the previous version.

Explanation :

Answer – B
The AWS Documentation mentions the following

AWS DeploymentCommand has a rollback option in it. Following commands are available for apps to use:
deploy: Deploy App.
Ruby on Rails apps have an optional args parameter named migrate. Set Args to {"migrate":["true"]} to migrate the database.
The default setting is {"migrate":["false"]}.
The "rollback" feature Rolls the app back to the previous version.
When we are updating an app, AWS OpsWorks stores the previous versions, maximum of upto five versions.
We can use this command to roll an app back as many as four versions.
Reference Link:

- http://docs.aws.amazon.com/opsworks/latest/APIReference/API_DeploymentCommand.html (http://docs.aws.amazon.com/opsworks/latest/APIReference/API_DeploymentCommand.html)

Ask our Experts

You are designing an application that contains protected health information. Security and compliance requirements for your application mandate that all protected health information in the application use encryption at rest and in transit. The application uses a three-tier architecture where data flows through the load balancer and is stored on Amazon EBS volumes for processing and the results are stored in Amazon S3 using the AWS SDK.

Which of the following two options satisfy the security requirements? (Select two)

- ☐ **A.** Use SSL termination on the load balancer, Amazon EBS encryption on Amazon EC2 instances and Amazon S3 with server- side encryption.
- ☐ **B.** Use SSL termination with a SAN SSL certificate on the load balancer. Amazon EC2 with all Amazon EBS volumes using Amazon EBS encryption, and Amazon S3 with server-side encryption with customer-managed keys.
- ☐ **C.** Use TCP load balancing on the load balancer. SSL termination on the Amazon EC2 instances. OS-level disk encryption on the Amazon EBS volumes and Amazon S3 with server-side encryption. ✔
- ☐ **D.** Use TCP load balancing on the load balancer. SSL termination on the Amazon EC2 instances and Amazon S3 with server-side encryption.
- ☐ **E.** Use SSL termination on the load balancer an SSL listener on the Amazon EC2 instances, Amazon EBS encryption on EBS volumes containing PHI and Amazon S3 with server-side encryption. ✔

Explanation :

Answer – C and E

The AWS Documentation mentions the following :

HTTPS/SSL Listeners
You can create a load balancer with the following security features.

SSL Server Certificates
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). For more information, see SSL/TLS Certificates for Classic Load Balancers.

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.

Reference Link:

- http://docs.aws.amazon.com/elasticloadbalancing/latest/classic/elb-listener-config.html (http://docs.aws.amazon.com/elasticloadbalancing/latest/classic/elb-listener-config.html)

**Create a Classic Load Balancer with an HTTPS Listener**

A load balancer takes requests from clients and distributes them across the EC2 instances that are registered with the load balancer.

You can create a load balancer that listens on both the HTTP (80) and HTTPS (443) ports. If you specify that the HTTPS listener sends requests to the instances on port 80, the load balancer terminates the requests and communication from the load balancer to the instances is not encrypted. If the HTTPS listener sends requests to the instances on port 443, communication from the load balancer to the instances is encrypted.

Reference Link:

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

Option A & B are incorrect because they are missing encryption in transit between ELB and EC2 instances.

Option D is incorrect because it is missing encryption at rest on the data associated with the EC2 instances.

**Ask our Experts**

**QUESTION 64** **UNATTEMPTED**

**CONTINUOUS DELIVERY AND PROCESS AUTOMATION**

You have an AWS OpsWorks Stack running Chef Version 11.10. Your company hosts its own proprietary cookbook on Amazon S3, and this is specified as a custom cookbook in the stack. You want to use an open-source cookbook located in an external Git repository. What tasks should you perform to enable the use of both custom cookbooks?

- **A.** In the AWS OpsWorks stack settings, enable Berkshelf. Create a new cookbook with a Berksfile that specifies the other two cookbooks. Configure the stack to use this new cookbook. ✔
- **B.** In the OpsWorks stack settings add the open source project's cookbook details in addition to your cookbook.
- **C.** Contact the open source project's maintainers and request that they pull your cookbook into theirs. Update the stack to use their cookbook.
- **D.** In your cookbook create an S3 symlink object that points to the open source project's cookbook.

Explanation :

Answer – A
To use an external cookbook on an instance, you need a way to install it and manage any dependencies. The preferred approach is to implement a cookbook that supports a dependency manager named Berkshelf. Berkshelf works on Amazon EC2 instances, including AWS OpsWorks Stacks instances, but it is also designed to work with Test Kitchen and Vagrant.
For more information on Opswork and Berkshelf, please visit the link:

- http://docs.aws.amazon.com/opsworks/latest/userguide/cookbooks-101-opsworks-berkshelf.html (http://docs.aws.amazon.com/opsworks/latest/userguide/cookbooks-101-opsworks-berkshelf.html)

Ask our Experts

QUESTION 65 UNATTEMPTED SECURITY, GOVERNANCE, AND VALIDATION

You are responsible for an application that leverages the Amazon SDK and Amazon EC2 roles for storing and retrieving data from Amazon S3, accessing multiple DynamoDB tables, and exchanging message with Amazon SQS queues. Your VP of Compliance is concerned that you are not following security best practices for securing all of this access. He has asked you to verify that the application's AWS access keys are not older than six months and to provide control evidence that these keys will be rotated a minimum of once every six months.

Which option will provide your VP with the requested information?

- **A.** Create a script to query the IAM list-access keys API to get your application access key creation date and create a batch process to periodically create a compliance report for your VP.
- **B.** Provide your VP with a link to IAM AWS documentation to address the VP's key rotation concerns. ✔
- **C.** Update your application to log changes to its AWS access key credential file and use a periodic Amazon EMR job to create a compliance report for your VP
- **D.** Create a new set of instructions for your configuration management tool that will periodically create and rotate the application's existing access keys and provide a compliance report to your VP.

Explanation :

Answer – B
The question is focusing on IAM roles rather than using access keys for accessing the services, AWS will take care of the temporary credentials provided through the roles in accessing these services.

Ask our Experts

QUESTION 66 UNATTEMPTED

CONTINUOUS DELIVERY AND PROCESS AUTOMATION

One of your engineers has written a web application in the Go Programming language and has asked your DevOps team to deploy it to AWS. The application code is hosted on a Git repository.

What are your options? (Select Two)

- **A.** Create a new AWS Elastic Beanstalk application and configure a Go environment to host your application, Using Git check out the latest version of the code, once the local repository for Elastic Beanstalk is configured use "eb create" command to create an environment and then use "eb deploy" command to deploy the application. ✔

- [ ] **B.** Write a Dockerfile that installs the Go base image and uses Git to fetch your application. Create a new AWS OpsWorks stack that contains a Docker layer that uses the Dockerrun.aws.json file to deploy your container and then use the Dockerfile to automate the deployment.
- [ ] **C.** Write a Dockerfile that installs the Go base image and fetches your application using Git, Create a new AWS Elastic Beanstalk application and use this Dockerfile to automate the deployment. ✔
- [ ] **D.** Write a Dockerfile that installs the Go base image and fetches your application using Git, Create an AWS CloudFormation template that creates and associates an AWS::EC2::Instance resource type with an AWS::EC2::Container resource type.

Explanation :

Answer – A and C
Opsworks works with Chef recipes and not with Docker containers so Option B and E are invalid.
There is no AWS::EC2::Container resource for Cloudformation so Option D is invalid.
Below is the documentation on Elastic beanstalk and Docker
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 visit the 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)
- https://docs.aws.amazon.com/elasticbeanstalk/latest/dg/eb-cli3-getting-started.html (https://docs.aws.amazon.com/elasticbeanstalk/latest/dg/eb-cli3-getting-started.html)
- https://docs.aws.amazon.com/elasticbeanstalk/latest/dg/eb3-cli-git.html (https://docs.aws.amazon.com/elasticbeanstalk/latest/dg/eb3-cli-git.html)

Ask our Experts

QUESTION 67 UNATTEMPTED

CONTINUOUS DELIVERY AND PROCESS AUTOMATION

The development team has developed a new feature that uses an AWS service and wants to test it from inside a staging VPC. How should you test this feature with the fastest turnaround time?

- **A.** Launch an Amazon Elastic Compute Cloud (EC2) instance in the staging VPC in response to a development request, and use configuration management to set up the application. Run any testing harnesses to verify application functionality and then use Amazon Simple Notification Service (SNS) to notify the development team of the results. ✔
- **B.** Use an Amazon EC2 instance that frequently polls the version control system to detect the new feature, use AWS CloudFormation and Amazon EC2 user data to run any testing harnesses to verify application functionality and then use Amazon SNS to notify the development team of the results.
- **C.** Use an Elastic Beanstalk application that polls the version control system to detect the new feature, use AWS CloudFormation and Amazon EC2 user data to run any testing harnesses to verify application functionality and then use Amazon Kinesis to notify the development team of the results.
- **D.** Use AWS CloudFormation to launch an Amazon EC2 instance use Amazon EC2 user data to run any testing harnesses to verify application functionality and then use Amazon Kinesis to notify the development team of the results.

Explanation :

Answer – A
Using Amazon Kinesis would just take more time in setup and would not be ideal to notify the relevant team in the shortest time possible.
Since the test needs to be conducted in the staging VPC , it is best to launch the EC2 in the staging VPC.
For more information on the Simple Notification service, please visit the link:

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

**Note:**
AWS configuration management would be the best answer to this question along with SNS.

AWS Config provides a detailed inventory of the current configuration of AWS resources and continuously records configuration changes, such as the value of tags on Amazon EC2 instances, ingress/egress rules of security groups, and network ACL rules for VPCs (see the AWS Config website for a list of supported AWS resources). Customers can use AWS Config to determine how a resource was configured at any point in time, to view resource dependencies, and to send notifications when the resource configuration changes. AWS Config Rules is a new set of capabilities that allow customers to evaluate whether their AWS resources comply with desired configurations. Customers can use either predefined, AWS-managed rules or define their own, and use these rules to evaluate AWS resource compliance.

Hence option A is the correct answer.
One of the requirements is to test the application with in a staging VPC which is not detailed in Option B.

Ask our Experts

QUESTION 68 UNATTEMPTED

CONTINUOUS DELIVERY AND PROCESS AUTOMATION

A group of developers in your organization want to migrate their existing application into Elastic Beanstalk and want to use Elastic load Balancing and Amazon SQS. They are currently using a custom application server.

How would you deploy their system to Elastic Beanstalk?

- **A.** Configure an Elastic Beanstalk platform using AWS OpsWorks deploy it to Elastic Beanstalk and run a script that creates a load balancer and an Amazon SQS queue.
- **B.** Use a Docker container that has the third party application server installed on it and that creates the load balancer and an Amazon SQS queue using the application source bundle feature. ✔
- **C.** Create a custom Elastic Beanstalk platform that contains the third party application server and runs a script that creates a load balancer and an Amazon SQS queue.
- **D.** Configure an AWS OpsWorks stack that installs the third party application server and creates a load balancer and an Amazon SQS queue and then deploys it to Elastic Beanstalk.

Explanation :

Answer – B
Below is the documentation on Elastic beanstalk and Docker
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 visit the 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

You have a large multi-tier architecture that serves public facing web traffic through a load balancer and is backed by a web tier that is contained within an Amazon EC2 Auto Scaling group. During a peak in traffic, you discover that your web tier is adding new instances disproportionately compared to the amount of incoming traffic and the Auto Scaling policy that was set up.

What should you do in order to stop the Auto Scaling group from scaling incorrectly in response to incoming traffic?

- **A.** Using CloudWatch and the instance BootTime metric, increase the PauseTime and CoolDown property on the Auto Scaling group to be over the value of the metric.
- **B.** Using a custom CloudWatch metric insert the elapsed time since the instance launch to the time the instance responds to an Elastic Load Balancing health check, and periodically adjust the Pause Time and the CoolDown property on the AutoScaling group to be over the value of the metric. ✔
- **C.** Using a custom CloudWatch metric insert the elapsed time since the instance launch to the time the instance responds to an Elastic Load Balancing health check, and periodically adjust the Pause Time of the UpdatePolicy and reduce the Scaling Adjustment property by 50%
- **D.** Using a third-party configuration management tool and the AWS SDK suspend all ScheduledActions of the Auto Scaling group until after the traffic peak and then resume all scheduledActions.

Explanation :

Answer : B
The question focuses on adding instances depending up on traffic using an Auto Scaling Group.

You can add an UpdatePolicy attribute to your Auto Scaling group to control how rolling updates are performed when a change has been made to the Auto Scaling group's launch configuration. This is mainly used alongside CloudFormation Templates which use AutoScalingGroup Resource.

In the UpdatePolicy attribute of AutoScalingGroup we use PauseTime.
Performing a rolling update on an Auto Scaling group can result in unexpected behavior if you do not have the right settings configured.

PauseTime indicates the amount of time that AWS CloudFormation pauses after making a change to a batch of instances to give those instances time to start software applications. For example, you might

need to specify *PauseTime* when scaling up the number of instances in an Auto Scaling group.

For more information please visit the link:

- https://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/aws-attribute-updatepolicy.html (https://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/aws-attribute-updatepolicy.html)

Ensure custom metrics are being published which is pertinent to the application.
For more information on custom Cloudwatch metrics, please visit the link:

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

Also ensure the right cool down period is mentioned for the instances in the ELB
For more information on ELB cooldown, please visit the link:

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

Ask our Experts

QUESTION 70 UNATTEMPTED

CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You have a web application that is currently running on a three M3 instances in three AZs. You have an Auto Scaling group configured to scale from three to thirty instances. When reviewing your CloudWatch metrics, you see that sometimes your Auto Scaling group is hosting fifteen instances. The web application is reading and writing to a DynamoDB-configured backend and configured with 800 Write Capacity Units and 800 Read Capacity Units. Your DynamoDB Primary Key is the Company ID. You are hosting 25 TB of data in your web application. You have a single customer that is complaining of long load times when their staff arrives at the office at 9:00 AM and loads the website, which consists of content that is pulled from DynamoDB. You have other customers who routinely use the web application. Choose the answer that will ensure high availability and reduce the customer's access times.

- **A.** Add a caching layer in front of your web application by choosing ElastiCache Memcached instances in one of the AZs.
- **B.** Double the number of Read Capacity Units in your DynamoDB instance because the instance is probably being throttled when the customer accesses the website and your web application.
- **C.** Change your Auto Scaling group configuration to use Amazon C3 instance types, because the web application layer is probably running out of compute capacity.

- **D.** Implement an Amazon SQS queue between your DynamoDB database layer and the web application layer to minimize the large burst in traffic the customer generates when everyone arrives at the office at 9:00AM and begins accessing the website.
- **E.** Use data pipelines to migrate your DynamoDB table to a new DynamoDB table with a primary key that is evenly distributed across your dataset. Update your web application to request data from the new table ✔

Explanation :

Answer – E
The AWS documentation provide the following information on the best performance for DynamoDB tables
The optimal usage of a table's provisioned throughput depends on these factors:

- The primary key selection.
- The workload patterns on individual items.

The primary key uniquely identifies each item in a table. The primary key can be simple (partition key) or composite (partition key and sort key).
When it stores data, DynamoDB divides a table's items into multiple partitions, and distributes the data primarily based upon the partition key value. Consequently, to achieve the full amount of request throughput you have provisioned for a table, keep your workload spread evenly across the partition key values. Distributing requests across partition key values distributes the requests across partitions.
For more information on DynamoDB best practises please visit the link:

- http://docs.aws.amazon.com/amazondynamodb/latest/developerguide/GuidelinesForTables.html (http://docs.aws.amazon.com/amazondynamodb/latest/developerguide/GuidelinesForTables.html)

**Note:**
One of the AWS forumns is explaining the steps for this process in detail.
Based on that, while importing data from S3 using datapipeline to a new table in dynamodb we can create a new index.

Please find the steps given below.

1. Log into AWS console, select DynamoDB
2. Select table you want to copy
3. Click Export/Import. Export/Import uses dataPipeline and EMR to copy DynamoDB table to S3 and from S3 to DynamoDB table
4. If you have not already, you need to create two IAM roles for Export/Import. Documentation is available here (https://docs.aws.amazon.com/amazondynamodb/latest/developerguide/DataPipelineExportImport.Prereqs.html)
5. Select Export table option ( Detailed documentation for exporting table data to S3 is available here (http://docs.aws.amazon.com/amazondynamodb/latest/developerguide/DataPipelineExportImport.Exporting.html%
6. You will need to specify
a. S3 bucket where the table data will be copied and another bucket where the log files for the operation will be stored. You can use the same bucket
b. The percentage of the throughput capacity you have provisioned for the table that you want to use for reading data from the table ( to copy to S3). The default is 25%. Increasing the percentage will

speed up the backup
c. The IAM roles : The values will be defaulted
7. Select "create data pipeline" option and the backup will be scheduled. The backup could take time depending on size of the table
8. Once export is complete, check logs to verify there are no errors
9. Note details of the hash and range key of the table
10. Delete the table
11. Create table with the right index. Set the provisioned throughput
12. Import into table from S3 using the Import option
13. Once complete, verify there are no errors

For more information please view the following link:

https://forums.aws.amazon.com/thread.jspa?threadID=149069
(https://forums.aws.amazon.com/thread.jspa?threadID=149069)

Ask our Experts

QUESTION 71 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 A/B deployment technique to migrate users over in a controlled manner while the size of the fleet remains constant over a period of 12 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?

- **A.** Create an Auto scaling launch configuration with the new AMI. Configure the AutoScaling group with the new launch configuration. Use the Auto Scaling rolling updates feature to migrate to the new version.

- **B.** Create an Auto Scaling launch configuration with the new AMI. Create an Auto Scaling group configured to use the new launch configuration and to register instances with the same load balancer. Vary the desired capacity of each group to migrate.
- **C.** Create an Auto scaling launch configuration with the new AMI. Configure Auto Scaling to vary the proportion of instances launched from the two launch configurations.
- **D.** Create a load balancer. 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. Use Amazon Route53 weighted Round Robin to vary the proportion of requests sent to the load balancers. ✔
- **E.** Launch new instances using the new AMI and attach them to the Auto Scaling group. Configure Elastic Load Balancing to vary the proportion of requests sent to instances running the two application versions.

Explanation :

Answer - D
Since you want to control the usage to the new application in a controlled manner, the best way is to use Route53 weighted method. The AWS documentation mentions the following on this method Weighted routing lets you associate multiple resources with a single domain name (example.com) or subdomain name (acme.example.com) and choose how much traffic is routed to each resource. This can be useful for a variety of purposes, including load balancing and testing new versions of software. For more information on Weighted Round Robin method, please visit the link:

- http://docs.aws.amazon.com/Route53/latest/DeveloperGuide/routing-policy.html#routing-policy-weighted (http://docs.aws.amazon.com/Route53/latest/DeveloperGuide/routing-policy.html#routing-policy-weighted)

Ask our Experts

QUESTION 72 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You have an I/O and network-intensive application running on multiple Amazon EC2 instances that cannot handle a large ongoing increase in traffic. The Amazon EC2 instances are using two Amazon EBS PIOPS volumes each, and each instance is identical.

Which of the following approaches should be taken in order to reduce load on the instances with the least disruption to the application?

- **A.** Create an AMI from each instance, and set up Auto Scaling groups with a larger instance type that has enhanced networking enabled and is Amazon EBS-optimized.
- **B.** Stop each instance and change each instance to a larger Amazon EC2 instance type that has enhanced networking enabled and is Amazon EBS-optimized. Ensure that RAID striping is also set up on each instance.
- **C.** Add an instance-store volume for each running Amazon EC2 instance and implement RAID striping to improve I/O performance.
- **D.** Add an Amazon EBS volume for each running Amazon EC2 instance and implement RAID striping to improve I/O performance.
- **E.** Create an AMI from an instance, and set up an Auto Scaling group with an instance type that has enhanced networking enabled and is Amazon EBS-optimized. ✔

Explanation :

Answer – E
The AWS Documentation mentions the following on AMI's
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 AMI's, please visit the link:

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

Ask our Experts

QUESTION 73 UNATTEMPTED MONITORING, METRICS, AND LOGGING

Your application uses Amazon SQS and Auto Scaling to process background jobs. The Auto Scaling policy is based on the number of messages in the queue, with a maximum instance count of 100. Since the application was launched, the group has never scaled above 50. The Auto scaling group has now scaled to 100, the queue size is increasing and very few jobs are being completed. The number of messages being sent to the queue is at normal levels. What should you do to identity why the queue size is unusually high and to reduce it?

- **A.** Temporarily increase the AutoScaling group's desired value to 200. When the queue size has been reduced,reduce it to 50.
- **B.** Analyze the application logs to identify possible reasons for message processing failure and resolve the cause for failures. ✔
- **C.** Create additional Auto Scaling groups enabling the processing of the queue to be performed in parallel.
- **D.** Analyze CloudTrail logs for Amazon SQS to ensure that the instances Amazon EC2 role has permission to receive messages from the queue.

Explanation :

Answer : B

Here the best option is to look at the application logs and resolve the failure. You could be having a functionality issue in the application that is causing the messages to queue up and increase the fleet of instances in the Autoscaling group.
For more information on centralized logging system implementation in AWS, please visit this link : https://aws.amazon.com/answers/logging/centralized-logging/ (https://aws.amazon.com/answers/logging/centralized-logging/)

Ask our Experts

QUESTION 74 UNATTEMPTED MONITORING, METRICS, AND LOGGING

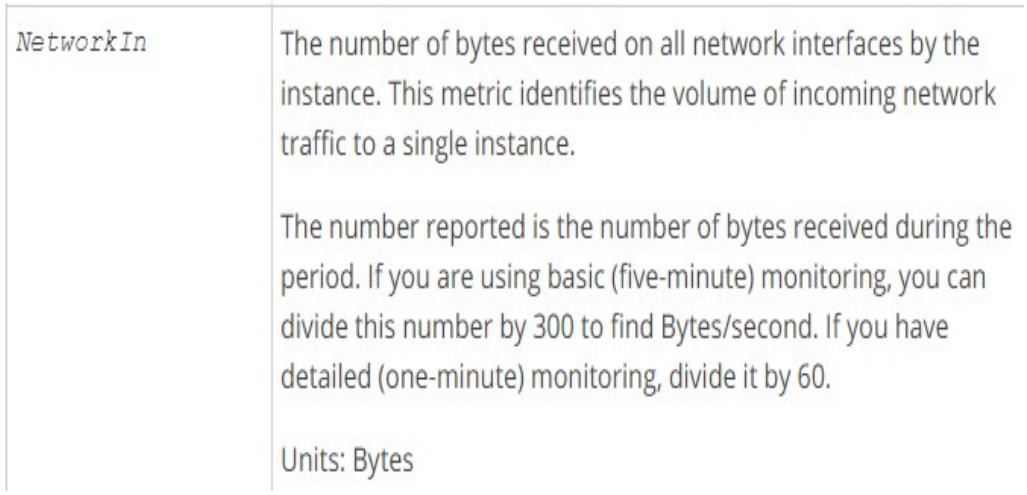
Your public website uses a load balancer and an Auto Scaling group in a virtual private cloud. Your chief security officer has asked you to set up a monitoring system that quickly detects and alerts your team when a large sudden traffic increase occurs. How should you set this up?

- **A.** Set up an Amazon CloudWatch alarm for the Elastic Load Balancing NetworkIn metric and then use Amazon SNS to alert your team.
- **B.** Use an Amazon EMR job to run every thirty minutes, analyze the Elastic Load Balancing access logs in a batch manner to detect a sharp increase in traffic and then use the Amazon Simple Email Service to alert your team.
- **C.** Use an Amazon EMR job to run every thirty minutes analyze the CloudWatch logs from your application Amazon EC2 instances in a batch manner to detect a sharp increase in traffic and then use the Amazon SNS SMS notification to alert your team
- **D.** Set up an Amazon CloudWatch alarm for the Amazon EC2 NetworkIn metric for the Auto Scaling group and then use Amazon SNS to alert your team. ✔

- **E.** Set up a cron job to actively monitor the AWS CloudTrail logs for increased traffic and use Amazon SNS to alert your team.

Explanation :

Answer - D
The below snapshot from the AWS documentation gives details on the NetworkIn metric



| | |
|---|---|
| NetworkIn | The number of bytes received on all network interfaces by the instance. This metric identifies the volume of incoming network traffic to a single instance.<br><br>The number reported is the number of bytes received during the period. If you are using basic (five-minute) monitoring, you can divide this number by 300 to find Bytes/second. If you have detailed (one-minute) monitoring, divide it by 60.<br><br>Units: Bytes |

For more information on EC2 metrics, please visit the link:

- http://docs.aws.amazon.com/AmazonCloudWatch/latest/monitoring/ec2-metricscollected.html (http://docs.aws.amazon.com/AmazonCloudWatch/latest/monitoring/ec2-metricscollected.html)

Ask our Experts

QUESTION 75 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

As part of your deployment process, you are configuring your continuous integration (CI) system to build AMIs. You want to build them in an automated manner that is also cost-efficient. Which method should you use?

- **A.** Attach an Amazon EBS volume to your CI instance, build the root file system of your image on the volume, and use the CreateImage API call to create an AMI out of this volume.

- **B.** Have the CI system launch a new instance, bootstrap the code and apps onto the instance and create an AMI out of it.
- **C.** Upload all contents of the image to Amazon S3 launch the base instance, download all of the contents from Amazon S3 and create the AMI.
- **D.** Have the CI system launch a new spot instance bootstrap the code and apps onto the instance and create an AMI out of it. ✔

Explanation :

Answer – D
The AWS documentation mentions the following
If your organization uses Jenkins software in a CI/CD pipeline, you can add Automation as a post-build step to pre-install application releases into Amazon Machine Images (AMIs). You can also use the Jenkins scheduling feature to call Automation and create your own operating system (OS) patching cadence
For more information on Automation with Jenkins, please visit the link:

- http://docs.aws.amazon.com/systems-manager/latest/userguide/automation-jenkins.html (http://docs.aws.amazon.com/systems-manager/latest/userguide/automation-jenkins.html)
- https://wiki.jenkins.io/display/JENKINS/Amazon+EC2+Plugin (https://wiki.jenkins.io/display/JENKINS/Amazon+EC2+Plugin)

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QUESTION 76 UNATTEMPTED

CONTINUOUS DELIVERY AND PROCESS AUTOMATION

As part of your deployment pipeline, you want to enable automated testing of your AWS CloudFormation template. What testing should be performed to enable faster feedback while minimizing costs and risk? Select three answers from the options given below

- **A.** Use the AWS CloudFormation Validate Template to validate the syntax of the template ✔
- **B.** Use the AWS CloudFormation Validate Template to validate the properties of resources defined in the template.
- **C.** Validate the template's is syntax using a general JSON parser.
- **D.** Validate the AWS CloudFormation template against the official XSD scheme definition published by Amazon Web Services.

- [ ] **E.** Update the stack with the template. If the template fails rollback will return the stack and its resources to exactly the same state. ✔
- [ ] **F.** When creating the stack, specify an Amazon SNS topic to which your testing system is subscribed. Your testing system runs tests when it receives notification that the stack is created or updated. ✔

Explanation :

Answer – A,E and F
The AWS documentation mentions the following
The aws cloudformation validate-template command is designed to check only the syntax of your template. It does not ensure that the property values that you have specified for a resource are valid for that resource. Nor does it determine the number of resources that will exist when the stack is created.
To check the operational validity, you need to attempt to create the stack. There is no sandbox or test area for AWS CloudFormation stacks, so you are charged for the resources you create during testing.
Option F is needed for notification.
For more information on Cloudformation template validation, please visit the link:

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

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QUESTION 77 UNATTEMPTED CONTINUOUS DELIVERY AND PROCESS AUTOMATION

You set up a web application development environment by using a third party configuration management tool to create a Docker container that is run on local developer machines.

What should you do to ensure that the web application and supporting network storage and security infrastructure does not impact your application after you deploy into AWS for staging and production environments?

- ○ **A.** Write a script using the AWS SDK or CLI to deploy the application code from version control to the local development environments staging and production using AWS OpsWorks.
- ○ **B.** Define an AWS CloudFormation template to place your infrastructure into version control and use the same template to deploy the Docker container into Elastic Beanstalk for staging and production. ✔

- **C.** Because the application is inside a Docker container, there are no infrastructure differences to be taken into account when moving from the local development environments to AWS for staging and production.
- **D.** Define an AWS CloudFormation template for each stage of the application deployment lifecycle –development, staging and production –and have tagging in each template to define the environment.

Explanation :

Answer - B
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.

**By using Docker with Elastic Beanstalk, you have an infrastructure** that automatically handles the details of capacity provisioning, load balancing, scaling, and application health monitoring.

This seems to be more appropriate than Option D.

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

For more information on Cloudformation best practises, please visit the link:

- 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 78 UNATTEMPTED

CONTINUOUS DELIVERY AND PROCESS AUTOMATION

Which of the following services allows you to easily run and manage Docker-enabled applications across a cluster of Amazon EC2 instances

- **A.** Elastic beanstalk
- **B.** Elastic Container service ✔
- **C.** Opswork
- **D.** Cloudwatch

Explanation :

Answer - B

The AWS documentation provides the following information
Amazon EC2 Container Service (ECS) allows you to easily run and manage Docker-enabled applications across a cluster of Amazon EC2 instances. Applications packaged as containers locally will deploy and run in the same way as containers managed by Amazon ECS. Amazon ECS eliminates the need to install, operate, and scale your own cluster management infrastructure, and allows you to schedule Docker-enabled applications across your cluster based on your resource needs and availability requirements.
For more information on ECS, please visit the link:

- https://aws.amazon.com/ecs/details/ (https://aws.amazon.com/ecs/details/)

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QUESTION 79 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. We have used CloudFormation Template to launch our architecture and have currently 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 options listed below 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 80 UNATTEMPTED

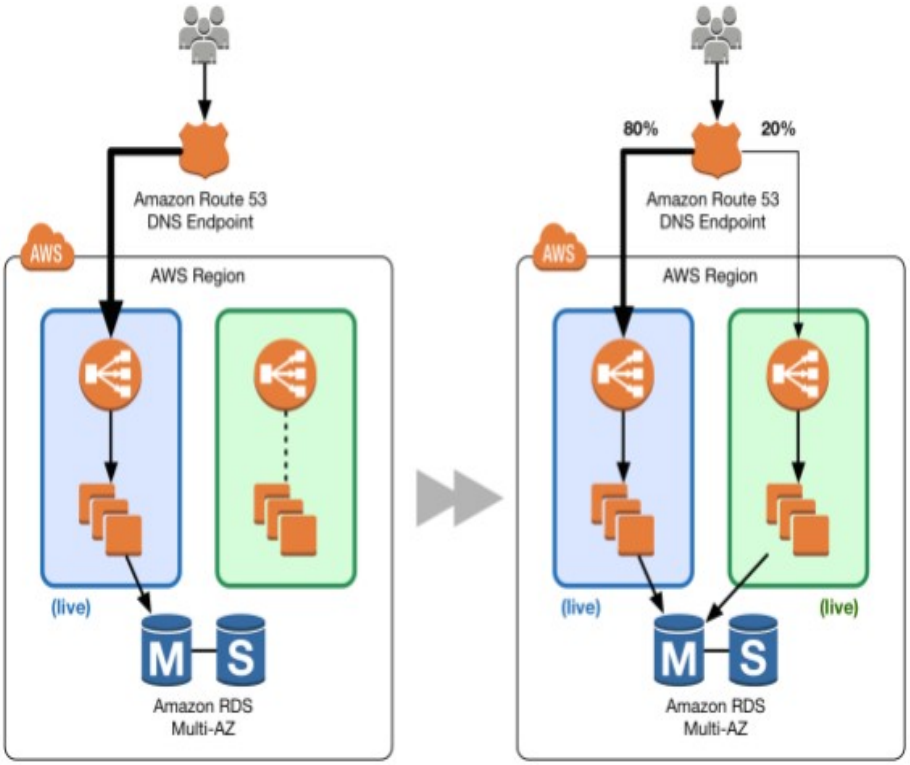
CONTINUOUS DELIVERY AND PROCESS AUTOMATION

Your application is currently running on Amazon EC2 instances behind a load balancer. Your management has decided to use a Blue/Green deployment strategy. How should you implement this for each deployment?

- **A.** Set up Amazon Route 53 health checks to fail over from any Amazon EC2 instance that is currently being deployed to.
- **B.** Using AWS CloudFormation, create a test stack for validating the code, and then deploy the code to each production Amazon EC2 instance.
- **C.** Create a new load balancer with new Amazon EC2 instances, carry out the deployment, and then switch DNS over to the new load balancer using Amazon Route 53 after testing. ✔
- **D.** Launch more Amazon EC2 instances to ensure high availability, de-register each Amazon EC2 instance from the load balancer, upgrade it, and test it, and then register it again with the load balancer.

Explanation :

Answer – C
The below diagram shows how this can be done




1) First create a new ELB which will be used to point to the new production changes.
2) Use the Weighted Route policy for Route53 to distribute the traffic to the 2 ELB's based on a 80-20% traffic scenario. This is the normal case , the % can be changed based on the requirement.
3) Finally when all changes have been tested , Route53 can be set to 100% for the new ELB.
Option A is incorrect because this is a failover scenario and cannot be used for Blue green deployments. In Blue Green deployments, you need to have 2 environments running side by side.
Option B is incorrect , because you need to a have a production stack with the changes which will run side by side.
Option D is incorrect because this is not a blue green deployment scenario. You cannot control which users will go the new EC2 instances.
For more information on blue green deployments , please refer to the below document link: from AWS

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

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Finish Review (https://www.whizlabs.com/learn/course/aws-devops-professional-practice-test/quiz/14587)

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