



CSAA FREE TEST

Attempt 1

Marks Obtained 14 / 20

Your score is 70%

Completed on Friday , 12 April 2019 , 02:36 AM

Time Taken 00 H 13 M 45 S

Result Pass

Domains / Skills wise Quiz Performance Report

S.No.	Skill	Total Questions	Correct	Incorrect	Unattempted
1	Define Performant Architectures	5	2	3	0
2	Define Operationally-Excellent Architectures	6	5	1	0
3	Specify Secure Applications and Architectures	5	4	1	0
4	Design Resilient Architectures	4	3	1	0
Total	All Domain	20	14	6	0

Show Answers

All



QUESTION 1

INCORRECT

DEFINE PERFORMANCE ARCHITECTURES

An application is going to be developed using AWS. The application needs a storage layer to store important documents. Which of the following option is incorrect to fulfill this requirement?

- A. Amazon S3 ✗
- B. Amazon EBS
- C. Amazon EFS
- D. Amazon Storage Gateway VTL ✓

Explanation:

Answer: D

It's used to take the data backups to the cloud.

- For more information, please refer to the below AWS doc link:
 - <https://aws.amazon.com/storagegateway/vtl/> (<https://aws.amazon.com/storagegateway/vtl/>)

NOTE:

The question is asking about which of the below options is "**incorrect**" for storing of "**important**" documents in the cloud, and Option D is correct. The question is not asking about data archival, rather storing. So, Option D is not suited for our requirement.



QUESTION 2

CORRECT

DEFINE OPERATIONALLY-EXCELLENT ARCHITECTURES

Your company is planning on hosting an e-commerce application on the AWS Cloud. There is a requirement for sessions to be always maintained for users. Which of the following can be used for storing session data?

Choose 2 answers from the options given below.

- A. CloudWatch
- B. DynamoDB ✓
- C. Elastic Load Balancing
- D. ElastiCache ✓
- E. Storage Gateway

Explanation :

Answer - B and D

DynamoDB and ElastiCache are perfect options for storing session data.

AWS Documentation mentions the following on these services:

Amazon DynamoDB is a fast and flexible NoSQL database 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 visit the following URL:

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

ElastiCache is a web service that makes it easy to set up, manage, and scale a distributed in-memory data store or cache environment in the cloud. It provides a high-performance, scalable, and cost-effective caching solution while removing the complexity associated with deploying and managing a distributed cache environment.

For more information on AWS ElastiCache, please visit the following URL:

- [\(https://docs.aws.amazon.com/AmazonElastiCache/latest/UserGuide/WhatIs.html\)](https://docs.aws.amazon.com/AmazonElastiCache/latest/UserGuide/WhatIs.html)
- [\(https://aws.amazon.com/caching/session-management/\)](https://aws.amazon.com/caching/session-management/)

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QUESTION 3

CORRECT

DEFINE PERFORMANCE ARCHITECTURES

A company needs to have its object-based data stored on AWS. The initial size of data would be around 500 GB, with overall growth expected to go into 80TB over the next couple of months. The solution must also be durable.

Which of the following would be an ideal storage option to use for such a requirement?

- A. DynamoDB
- B. Amazon S3 ✓
- C. Amazon Aurora
- D. Amazon Redshift

Explanation :

Answer – B

Amazon S3 is object storage (<https://aws.amazon.com/what-is-cloud-object-storage/>) built to store and retrieve any amount of data from anywhere – web sites and mobile apps, corporate applications, and data from IoT sensors or devices. It is designed to deliver 99.999999999% durability, and stores data for millions of applications used by market leaders in every industry. S3 provides comprehensive security and compliance capabilities that meet even the most stringent regulatory requirements. It gives customers flexibility in the way they manage data for cost optimization, access control, and compliance. S3 provides query-in-place functionality, allowing you to run powerful analytics directly on your data at rest in S3.

For more information on AWS S3, please visit the following URL:

- [\(https://docs.aws.amazon.com/AmazonS3/latest/dev/Introduction.html\)](https://docs.aws.amazon.com/AmazonS3/latest/dev/Introduction.html)

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QUESTION 4

INCORRECT

DEFINE PERFORMANCE ARCHITECTURES

A company has decided to host a MongoDB database on an EC2 Instance. There is an expectancy of a large number of reads and writes on the database. Which of the following EBS storage types would be the ideal one to implement for the database?

- A. EBS Provisioned IOPS SSD ✓
- B. EBS Throughput Optimized HDD ✗
- C. EBS General Purpose SSD
- D. EBS Cold HDD

Explanation :

Answer – A

Since there is a high performance requirement with high IOPS needed, one needs to opt for EBS Provisioned IOPS SSD.

The below snapshot from the AWS Documentation mentions the need for using Provisioned IOPS for better IOPS performance in database-based applications.

Solid-State Drives (SSD)		
Volume Type	General Purpose SSD (gp2)*	Provisioned IOPS SSD (io1)
Description	General purpose SSD volume that balances price and performance for a wide variety of workloads	Highest-performance SSD volume for mission-critical low-latency or high-throughput workloads
Use Cases	<ul style="list-style-type: none">Recommended for most workloadsSystem boot volumesVirtual desktopsLow-latency interactive appsDevelopment and test environments	<ul style="list-style-type: none">Critical business applications that require sustained IOPS performance, or more than 10,000 IOPS or 160 MiB/s of throughput per volumeLarge database workloads, such as:<ul style="list-style-type: none">MongoDBCassandraMicrosoft SQL ServerMySQLPostgreSQLOracle
API Name	gp2	io1
Volume Size	1 GiB - 16 TiB	4 GiB - 16 TiB
Max. IOPS**/Volume	10,000	32,000***
Max. Throughput/Volume	160 MiB/s****	500 MiB/s†
Max. IOPS/Instance	80,000	80,000
Max. Throughput/Instance††	1,750 MiB/s	1,750 MiB/s
Dominant Performance Attribute	IOPS	IOPS

For more information on AWS EBS Volume types, please visit the following URL:

- <https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/EBSVolumeTypes.html>
(<https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/EBSVolumeTypes.html>)

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QUESTION 5

INCORRECT

DEFINE OPERATIONALLY-EXCELLENT ARCHITECTURES

A company is planning to use AWS Simple Storage Service for hosting their project documents. At the end of the project, the documents need to be moved to archival storage. Which of the following implementation steps would ensure the documents are managed accordingly?

What feature will enable this requirement?

- A. Adding a bucket policy on the S3 bucket ✗
- B. Configuring lifecycle configuration rules on the S3 bucket ✓
- C. Creating an IAM policy for the S3 bucket
- D. Enabling CORS on the S3 bucket

Explanation:

Answer – B

The AWS Documentation mentions the following on lifecycle policies.

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 AWS S3 Lifecycle policies, please visit the following URL:

- [\(https://docs.aws.amazon.com/AmazonS3/latest/dev/object-lifecycle-mgmt.html\)](https://docs.aws.amazon.com/AmazonS3/latest/dev/object-lifecycle-mgmt.html)

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QUESTION 6

CORRECT

DEFINE OPERATIONALLY-EXCELLENT ARCHITECTURES

Your company is planning on developing a new application. Your development team needs a quick environment setup in AWS using NGINX as the underlying web server environment.

Which of the following services can be used to quickly provision such an environment? Please select 2 correct options.

- A. AWS EC2 ✓
- B. AWS Elastic Beanstalk ✓
- C. AWS SQS
- D. AWS ELB

Explanation:

Answer – A & B

NGINX is an open source software for web serving, reverse proxying, caching, load balancing etc. It complements the load balancing capabilities of Amazon ELB and ALB by adding support for multiple HTTP, HTTP/2, and SSL/TLS services, content-based routing rules, caching, Auto Scaling support, and traffic management policies.

NGINX can be hosted on an EC2 instance through a series of clear steps- Launch an EC2 instance through console, SSH into the instance and use the command `yum install -y nginx` to install nginx. Also, make sure that it is configured to restart automatically after a reboot.

Java SE

Elastic Beanstalk supports the following Java SE configurations.

Configuration and Solution Stack Name	AMI	Language	Tools	AWS X-Ray	Proxy Server
Java 8 version 2.6.5 <i>64bit Amazon Linux 2017.09 v2.6.5 running Java 8</i>	2017.09.1	Java 1.8.0_151	Ant 1.9.6, Gradle 2.7, Maven 3.3.3	2.0.0	nginx 1.12.1
Java 7 version 2.6.5 <i>64bit Amazon Linux 2017.09 v2.6.5 running Java 7</i>	2017.09.1	Java 1.7.0_161	Ant 1.9.6, Gradle 2.7, Maven 3.3.3	2.0.0	nginx 1.12.1

It can also be installed with an Elastic Beanstalk service.

To enable the NGINX proxy server with your Tomcat application, you must add a configuration file to `.ebextensions` in the application source bundle that you upload to Elastic Beanstalk.

For more details, please check below AWS Docs:

- <https://docs.aws.amazon.com/elasticbeanstalk/latest/dg/java-tomcat-platform.html#java-tomcat-proxy>
(<https://docs.aws.amazon.com/elasticbeanstalk/latest/dg/java-tomcat-platform.html#java-tomcat-proxy>)

The below snippet from AWS Documentation shows the server available for Web server environments that can be created via Elastic

Elastic Beanstalk. The server shows that nginx servers can be provisioned via the Elastic Beanstalk service.



Nginx Stack With Webmin

★★★★★ (0) | 1.3 Previous versions | Sold by Aurora

\$0.02/hr for software + AWS usage fees

Linux/Unix, Ubuntu 16.04 LTS | 64-bit Amazon Machine Image (AMI) | Updated: 1/3/18

Aurora's Nginx stack greatly simplifies the development and deployment of PHP applications. It includes ready-to-run versions of NGINX, MySQL, PHP, Webmin, FastCGI, Cache, CURL, ...

Product highlights:

- Nginx stack is configured with FastCGI for deploying PHP based applications.
- includes Cache, MySQL, PHP, Webmin.
- Nginx stack is also known as LEMP (Linux, Nginx, MySQL and PHP)

Aurora's Nginx stack greatly simplifies the development and deployment of PHP applications. It includes ready-to-run versions of NGINX, MySQL, PHP, Webmin, FastCGI, Cache, CURL, PEAR, PECL, DDOS Protection and other components.

[Nginx Stack With Webmin product detail page on AWS Marketplace](#)

[Show less](#)

For more information on the supported platforms for AWS Elastic Beanstalk, please visit the following URL:

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

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QUESTION 7

CORRECT

DEFINE PERFORMANCE ARCHITECTURES

A company is planning on a Facebook-type application where users will upload videos and images. These are going to be stored in S3. There is a concern that there could be an overwhelming number of read and write requests on the S3 bucket.

Which of the following could be an implementation step to help ensure optimal performance on the underlying S3 storage bucket?

- A. Use a sequential ID for the prefix
- B. Use a hexadecimal hash for the prefix ✓
- C. Use a hexadecimal hash for the suffix
- D. Use a sequential ID for the suffix

Explanation:

Answer – B

This recommendation for increasing performance if you have a high request rate in S3 is given in the AWS documentation.

Example 1: Add a Hex Hash Prefix to Key Name

One way to introduce randomness to key names is to add a hash string as prefix to the key name. For example, you can compute an MD5 hash of the character sequence that you plan to assign as the key name. From the hash, pick a specific number of characters, and add them as the prefix to the key name. The following example shows key names with a four-character hash.

Note

A hashed prefix of three or four characters should be sufficient. We strongly recommend using a hexadecimal hash as the prefix.



```
examplebucket/232a-2013-26-05-15-00-00/cust1234234/photo1.jpg  
examplebucket/7b54-2013-26-05-15-00-00/cust3857422/photo2.jpg  
examplebucket/921c-2013-26-05-15-00-00/cust1248473/photo2.jpg  
examplebucket/ba65-2013-26-05-15-00-00/cust8474937/photo2.jpg  
examplebucket/8761-2013-26-05-15-00-00/cust1248473/photo3.jpg  
examplebucket/2e4f-2013-26-05-15-00-01/cust1248473/photo4.jpg  
examplebucket/9810-2013-26-05-15-00-01/cust1248473/photo5.jpg  
examplebucket/7e34-2013-26-05-15-00-01/cust1248473/photo6.jpg  
examplebucket/c34a-2013-26-05-15-00-01/cust1248473/photo7.jpg  
...
```

For more information on S3 performance considerations, please visit the following URL:

- [\(https://docs.aws.amazon.com/AmazonS3/latest/dev/request-rate-perf-considerations.html\)](https://docs.aws.amazon.com/AmazonS3/latest/dev/request-rate-perf-considerations.html)

NOTE:

First of all, Question doesn't mention about the "request rate of read and write(exact number)" and AWS mentioned in this same document as follows.

AWS says "Applications running on Amazon S3 today will enjoy this performance improvement with no changes, and customers building new applications on S3 do not have to make any application customizations to achieve this performance. Amazon S3's support for parallel

requests means you can scale your S3 performance by the factor of your compute cluster, without making any customizations to your

application. Performance scales per prefix, so you can use as many prefixes as you need in parallel to achieve the required throughput. There are no limits to the number of prefixes."

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QUESTION 8

CORRECT

SPECIFY SECURE APPLICATIONS AND ARCHITECTURES

A company has a set of resources hosted in a VPC on the AWS Cloud. The IT Security department has now mandated that all IP traffic from all network interfaces in the VPC be monitored. Which of the following would help suffice this requirement?

- A. Trusted Advisor
- B. VPC Flow Logs ✓
- C. Use CloudWatch metrics
- D. Use CloudTrail

Explanation:

Answer – B

The AWS Documentation mentions the following:

VPC Flow Logs is a feature that enables you to capture information about the IP traffic going to and from network interfaces in your VPC. Flow log data is stored using Amazon CloudWatch Logs. After you've created a flow log, you can view and retrieve its data in Amazon CloudWatch Logs.

For more information on VPC Flow Logs, please visit the following URL:

- <https://docs.aws.amazon.com/AmazonVPC/latest/UserGuide/flow-logs.html>

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QUESTION 9

CORRECT

DESIGN RESILIENT ARCHITECTURES

A company has a requirement to implement block level storage. Each storage device will store around 100 GB of data. Which of the following can be used to fulfill this requirement?

- A. AWS EBS Volumes ✓
- B. AWS S3
- C. AWS Glacier
- D. AWS EFS

Explanation:

Answer - A

For block level storage, you need to consider EBS Volumes.

Options B and C are incorrect since they provide object level storage.

Option D is incorrect since this is file level storage.

For more information on EBS volumes, please visit the following URL:

- <https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/EBSVolumes.html>
(<https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/EBSVolumes.html>)



QUESTION 10

CORRECT

DESIGN RESILIENT ARCHITECTURES

An application consists of EC2 Instances placed in different Availability Zones. The EC2 Instances sit behind an application load balancer. The EC2 Instances are managed via an Auto Scaling Group. There is a NAT Instance which is used for the EC2 Instances to download updates from the Internet.

Which of the following is a bottleneck in the architecture?

- A. The EC2 Instances
- B. The ELB
- C. The NAT Instance ✓
- D. The Auto Scaling Group

Explanation:

Answer – C

Since there is only one NAT instance, this is a bottleneck for the architecture. For high availability, launch NAT instances in multiple Availability Zones and make it a part of an Auto Scaling Group.

For more information on NAT Instances, please visit the following URL:

- [\(https://docs.aws.amazon.com/AmazonVPC/latest/UserGuide/VPC_NAT_Instance.html\)](https://docs.aws.amazon.com/AmazonVPC/latest/UserGuide/VPC_NAT_Instance.html)



QUESTION 11

CORRECT

DEFINE OPERATIONALLY-EXCELLENT ARCHITECTURES

A development team wants to deploy a complete serverless application on the AWS Cloud. This application will be invoked by users across the globe. Which of the following services would be an ideal component in such an architecture?

Choose 2 services from the options given below.

- A. AWS Lambda ✓
- B. API Gateway ✓
- C. AWS RDS
- D. AWS EC2

Explanation :

Answer – A and B

AWS Lambda is the serverless compute component provided by AWS. One can easily place their running code on this service. And then, the API gateway can be used as an invocation point for the AWS Lambda function.

For more information on AWS Lambda, please visit the following URL:

- <https://docs.aws.amazon.com/lambda/latest/dg/welcome.html> (<https://docs.aws.amazon.com/lambda/latest/dg/welcome.html>)

For more information on AWS API gateway, please visit the following URL:

- <https://aws.amazon.com/api-gateway/> (<https://aws.amazon.com/api-gateway/>)

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QUESTION 12

CORRECT

DEFINE OPERATIONALLY-EXCELLENT ARCHITECTURES

A company has decided to use Amazon Glacier to store all of their archived documents. The management has now issued an update that documents stored in Glacier need to be accessed within a time span of 20 minutes for an IT audit requirement. Which of the following would allow for documents stored in Amazon Glacier to be accessed within the required time frame after the retrieval request?

- A. Vault Lock
- B. Expedited retrieval ✓
- C. Bulk retrieval
- D. Standard retrieval

Explanation:

Answer – B

The AWS Documentation mentions the following:

Expedited retrievals allow you to quickly access your data when occasional urgent requests for a subset of archives are required.

For more information on AWS Glacier Retrieval, please visit the following URL:

- <https://docs.aws.amazon.com/amazonglacier/latest/dev/downloading-an-archive-two-steps.html>
(<https://docs.aws.amazon.com/amazonglacier/latest/dev/downloading-an-archive-two-steps.html>)

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QUESTION 13

INCORRECT

DEFINE PERFORMANCE ARCHITECTURES

An application is hosted on EC2 Instances. There is a promotional campaign due to start in two weeks for the application. There is a mandate from the management to ensure that no performance problems are encountered due to traffic growth during this time.

What action must be taken on the Auto Scaling Group to ensure this requirement can be fulfilled?

- A. Configure step scaling for the Auto Scaling Group.
- B. Configure Dynamic scaling for the Auto Scaling Group. ✓
- C. Configure Scheduled scaling for the Auto Scaling Group. ✗
- D. Configure Static scaling for the Auto Scaling Group.

Explanation:

Answer – B

As per AWS documentation,

If you are scaling based on a metric that is a utilization metric that increases or decreases proportionally to the number of instances in the Auto Scaling group, we recommend that you use a target tracking scaling policy instead.

In Target tracking scaling policies you select a predefined metric or configure a customized metric, and set a target value. EC2 Auto Scaling creates and manages the CloudWatch alarms that trigger the scaling policy and calculates the scaling adjustment based on the metric and the target value. The scaling policy adds or removes capacity as required to keep the metric at, or close to, the specified target value.

Scheduled scaling works better when you can predict the load changes and also when you know how long you need to run. Here in our scenario we just know that there will be a heavy traffic during the campaign period (period is not specified) but not sure about the actual traffic. Don't have any history to predict it either.

For more information , please visit the following URL:

- [\(https://docs.aws.amazon.com/autoscaling/ec2/userguide/schedule_time.html\)](https://docs.aws.amazon.com/autoscaling/ec2/userguide/schedule_time.html)
- [\(https://docs.aws.amazon.com/autoscaling/ec2/userguide/as-scaling-simple-step.html\)](https://docs.aws.amazon.com/autoscaling/ec2/userguide/as-scaling-simple-step.html)
- [\(https://docs.aws.amazon.com/autoscaling/ec2/userguide/as-scaling-target-tracking.html\)](https://docs.aws.amazon.com/autoscaling/ec2/userguide/as-scaling-target-tracking.html)

Note:

In this particular question, **Dynamic Scaling** is most appropriate solution than **scheduled Scaling**.

In the question we are mentioning that a marketing campaign will start in 2 weeks. We haven't mentioned that how long it is going to run. So if we go for Scheduled scaling we don't know how long we are going to run. So we cannot specify the Start time or End time.

More over scheduled scaling works better when you can predict the load changes. Here in our scenario we just know that there will be a heavy traffic during the campaign period but not sure about the actual traffic. Don't have any history to predict it either.

But if we go for Dynamic Scaling and use Target tracking scaling Policy type, it Increases or decreases? the current capacity of the group based on a target value for a specific metric. This is similar to the way that your thermostat maintains the temperature of your home – you select a temperature and the thermostat does the rest.

- [\(https://docs.aws.amazon.com/autoscaling/ec2/userguide/as-scale-based-on-demand.html\)](https://docs.aws.amazon.com/autoscaling/ec2/userguide/as-scale-based-on-demand.html)

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A company is planning on hosting an application in AWS. The application will consist of a web layer and database layer. Both will be hosted in a VPC. The web server is created in a public subnet and the MySQL database in a private subnet. All subnets are created with the default ACL settings. Following are the key requirements:

- a) The web servers must be accessible only to customers on an SSL connection.
- b) The database should only be accessible to web servers in a public subnet.

Which solution meets these requirements without impacting other running applications?

Select 2 answers from the options given below:

- A. Create a network ACL on the web server's subnets, allow HTTPS port 443 inbound and specify the source as 0.0.0.0/0.
- B. Create a web server security group that allows HTTPS port 443 inbound traffic from anywhere (0.0.0.0/0) and apply it to the web servers. ✓
- C. Create a DB server security group that allows MySQL port 3306 inbound and specify the source as the web server security group. ✓
- D. Create a network ACL on the DB subnet, allow MySQL port 3306 inbound for web servers and deny all outbound traffic.

Explanation :

Answer – B and C

The AWS documentation explains this sort of setup.

- 1) Option B: To ensure that secure traffic can flow into your web server from anywhere, you need to allow inbound security at 443.
- 2) Option C: This is to ensure that traffic can flow from the database server to the web server via the database security group.

The below snapshot from the AWS Documentation shows the rules table for security groups which relate to the same requirements as the

question:

DBServerSG: Recommended Rules

Inbound			
Source	Protocol	Port Range	Comments
The ID of your WebServerSG security group	TCP	1433	Allow inbound Microsoft SQL Server access from the web servers associated with the WebServerSG security group.
The ID of your WebServerSG security group	TCP	3306	Allow inbound MySQL Server access from the web servers associated with the WebServerSG security group.

For more information on this use case scenario, please visit the following URL:

- [\(https://docs.aws.amazon.com/AmazonVPC/latest/UserGuide/VPC_Scenario2.html\)](https://docs.aws.amazon.com/AmazonVPC/latest/UserGuide/VPC_Scenario2.html)

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QUESTION 15

CORRECT

SPECIFY SECURE APPLICATIONS AND ARCHITECTURES

Your development team has just finished developing an application on AWS. This application is created in .NET and is hosted on an EC2 instance. The application currently accesses a DynamoDB table and is now going to be deployed to production.

Which of the following is the ideal and most secure way for the application to access the DynamoDB table?

- A. Pass API credentials to the instance using instance user data.

- B. Store API credentials as an object in Amazon S3.
- C. Embed the API credentials into your JAR files.
- D. Assign IAM roles to the EC2 Instances. ✓

Explanation:

Answer - D

The AWS Documentation mentions the following:

- You can use roles to delegate access to users, applications, or services that don't normally have access to your AWS resources.
- It is not a best practice to use IAM credentials for any production based application. It is always a good practice to use IAM Roles.

For more information on IAM Roles, please visit the following URL:

- https://docs.aws.amazon.com/IAM/latest/UserGuide/id_roles.html
(https://docs.aws.amazon.com/IAM/latest/UserGuide/id_roles.html)

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QUESTION 16

CORRECT

DEFINE OPERATIONALLY-EXCELLENT ARCHITECTURES

A company is planning to adopt Infrastructure as Code (IaC) since the priority from senior management is to achieve as much automation as required.

Which of the following components would help them achieve this purpose?

- A. AWS Beanstalk

- B. AWS CloudFormation ✓
- C. AWS CodeBuild
- D. AWS CodeDeploy

Explanation:

Answer - B

The AWS Documentation mentions the below on AWS CloudFormation. This supplements the requirement in the question by allowing consultants to use their architecture diagrams to construct cloudFormation templates.

AWS CloudFormation is a service that helps you model and set up your Amazon Web Service resources so that you can spend less time managing those resources and more time focusing on your applications that run on AWS. All you have to do is create a template that describes all the AWS resources that you want (Amazon EC2 instances or Amazon RDS DB instances), and AWS CloudFormation takes care of provisioning and configuring those resources for you.

For more information on AWS CloudFormation, please visit the following URL:

- <https://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide>Welcome.html>
(<https://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide>Welcome.html>)

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QUESTION 17

CORRECT

SPECIFY SECURE APPLICATIONS AND ARCHITECTURES

A company has a set of EC2 Instances that store critical data on EBS Volumes. The IT Security team has now mandated that the data on the disk needs to be encrypted.

Which of the following can be used to achieve this purpose?

- A. AWS KMS API ✓
- B. AWS Certificate Manager
- C. API Gateway with STS
- D. IAM Access Key

Explanation :

Answer – A

Option B is incorrect - The AWS Certificate Manager can be used to generate SSL certificates to encrypt traffic in transit, but not at rest.

Option C is incorrect - This is used for issuing tokens while using API gateway for traffic in transit.

Option D is incorrect - This is used for secure access to EC2 Instances.

The AWS Documentation mentions the following on AWS KMS:

AWS Key Management Service (AWS KMS) is a managed service that makes it easy to create and control the encryption keys used to encrypt your data. AWS KMS is integrated with other AWS services including Amazon Elastic Block Store (Amazon EBS), Amazon Simple Storage Service (Amazon S3), Amazon Redshift, Amazon Elastic Transcoder, Amazon WorkMail, Amazon Relational Database Service (Amazon RDS), and others, to make it simple to encrypt your data with encryption keys that you manage.

For more information on AWS KMS, please visit the following URL:

- <https://docs.aws.amazon.com/kms/latest/developerguide/overview.html>
(<https://docs.aws.amazon.com/kms/latest/developerguide/overview.html>)

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A company has a set of EC2 Instances that store critical data on EBS Volumes. There is a fear from IT Supervisors that if data on the EBS Volumes is lost, then it could result in a lot of effort to recover the data from other sources. Which of the following would help alleviate this concern in an economical way?

- A. Take regular EBS Snapshots. ✓
- B. Enable EBS Volume encryption
- C. Create a script to copy data to an EC2 Instance Store
- D. Mirror data across 2 EBS Volumes ✗

Explanation:

Answer – A

Option B is incorrect because it does not help in durability of EBS Volumes.

Option C is incorrect since EC2 Instance stores are not durable.

Option D is incorrect since mirroring data across EBS Volumes is inefficient when you already have an option for EBS Snapshots.

The AWS Documentation mentions the following on AWS EBS Snapshots:

You can back up the data on your Amazon EBS Volumes to Amazon S3 by taking point-in-time snapshots. Snapshots are *incremental*/backups, which means that only the blocks on the device that have changed after your most recent snapshot are saved. This minimizes the time required to create the snapshot and saves on storage costs by not duplicating data. When you delete a snapshot, only the data unique to that snapshot is removed. Each snapshot contains all of the information needed to restore your data (from the moment when the snapshot was taken) to a new EBS volume.

For more information on AWS EBS Snapshots, please visit the following URL:

- [\(https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/EBSSnapshots.html\)](https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/EBSSnapshots.html)



QUESTION 19

CORRECT

DESIGN RESILIENT ARCHITECTURES

A team is planning to host data on the AWS Cloud. Following are the key requirements:

- a) Ability to store JSON documents
- b) High availability and durability

Select the ideal storage mechanism that should be employed to fit this requirement.

- A. Amazon EFS
- B. Amazon Redshift
- C. DynamoDB ✓
- D. AWS CloudFormation

Explanation:

Answer – C

AWS Documentation mentions the following on DynamoDB:

- Amazon DynamoDB is a fully managed NoSQL database service that provides fast and predictable performance with seamless scalability.
- The data in DynamoDB is stored in JSON format and hence is the perfect data store for the requirement in question.

For more information on AWS DynamoDB, please visit the following URL:

- <https://docs.aws.amazon.com/amazondynamodb/latest/developerguide/Introduction.html>

(<https://docs.aws.amazon.com/amazondynamodb/latest/developerguide/introauction.html>)

Note:

As per AWS Docs

"DynamoDBMapper has a new feature that allows you to save an object as a JSON document in a DynamoDB attribute. The mapper does the heavy work of converting the object into a JSON document and storing it in DynamoDB. DynamoDBMapper also takes care of loading the Java object from the JSON document when requested by the user."

For more information, please check the below AWS docs:

- <https://aws.amazon.com/about-aws/whats-new/2014/10/08/amazon-dynamodb-now-supports-json-document-data-structure-and-large-items/> (<https://aws.amazon.com/about-aws/whats-new/2014/10/08/amazon-dynamodb-now-supports-json-document-data-structure-and-large-items/>)
- <https://aws.amazon.com/blogs/developer/storing-json-documents-in-amazon-dynamodb-tables/> (<https://aws.amazon.com/blogs/developer/storing-json-documents-in-amazon-dynamodb-tables/>)

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QUESTION 20

INCORRECT

SPECIFY SECURE APPLICATIONS AND ARCHITECTURES

A Solutions Architect is designing a shared service for hosting containers from several customers on Amazon ECS. These containers will use several AWS services. A container from one customer must not be able access data from another customer.

Which solution should the architect use to meet the above requirements?

- A. IAM roles for tasks ✓
- B. IAM roles for EC2 Instances

C. IAM Instance profile for EC2 Instances

D. Security Group rules 

Explanation:

Answer – A

AWS Documentation mentions the following:

With IAM roles for Amazon ECS tasks, you can specify an IAM role that can be used by the containers in a task. Applications must sign their AWS API requests with AWS credentials, and this feature provides a strategy for managing credentials for your applications to use, similar to the way that Amazon EC2 instance profiles provide credentials to EC2 instances.

For more information on configuring IAM Roles for tasks in ECS, please visit the following URL:

- [\(https://docs.aws.amazon.com/AmazonECS/latest/developerguide/task-iam-roles.html\)](https://docs.aws.amazon.com/AmazonECS/latest/developerguide/task-iam-roles.html)

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