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## Attempt 1

[All Questions ▾](#)Question 1: Skipped

Bucket names must be unique across all S3.

 A. True

(Correct)

 B. False**Explanation**

Bucket names must be unique across all regions. Let's say you have created a bucket named devtoolslogging in the Singapore region. Now if you want to create a bucket of the same name in the Oregon region, you will get an error that the bucket already exists.

Question 2: Skipped

A customer has enabled website hosting on a bucket named "devtoolslogging" in the Singapore region. What website URL is assigned to your bucket?

 A. devtoolslogging.s3-website-ap-southeast-1.amazonaws.com

(Correct)

 B. s3-website.devtoolslogging.amazonaws.com C. s3-website.devtoolslogging.website-ap-southeast-1.amazonaws.com D. devtoolslogging.ap-southeast-1.amazonaws.com**Explanation**

You have the chance to enable static web site hosting for S3 buckets. This can be done via the properties option for the bucket. The end point of the bucket for static hosting will also be configured.

Question 3: Skipped

As a solutions architect, it is your job to design for high availability and fault tolerance. Company-A is utilizing Amazon S3 to store large amounts of file data. What steps would you take to ensure that if an availability zone was lost due to a natural disaster your files would still be in place and accessible

- A. Copy the S3 bucket to an EBS optimized backed EC2 instance
- B. Amazon S3 is highly available and fault tolerant by design and requires no additional configuration (Correct)
- C. Enable AWS Storage Gateway using gateway-stored setup
- D. None of the above

#### Explanation

AWS S3 is already highly available and fault tolerant. This is very clearly mentioned in its FAQ's  
- <https://aws.amazon.com/s3/faqs/>

Question 4: Skipped

What are the different options available when creating a VPC using the VPC wizard? Please choose all options that apply.

- A. VPC with a Primary and Secondary subnet
- B. VPC with Public and Private Subnets (Correct)
- C. VPC with Public and Private Subnets and Hardware VPN Access (Correct)
- D. VPC with default settings

#### Explanation

When you launch the VPC wizard, you will get these options in the VPC wizard.

Question 5: Skipped

When an EC2 EBS-backed (EBS root) instance is stopped, what happens to the data on any ephemeral store volumes?

- A. Data is automatically saved in an EBS volume.
- B. Data is unavailable until the instance is restarted.

C. Data will be deleted and will no longer be accessible.

(Correct)

D. Data is automatically saved as an EBS snapshot.

### Explanation

ephemeral is temporary storage that is always deleted when an instance is restarted in aws. When you stop or terminate an instance, every block of storage in the instance store is reset. Therefore, your data cannot be accessed through the instance store of another instance. Data on the EBS volume is LOST only if the Root Volume is EBS backed and the Delete On Termination flag is checked (Checked by default) Find more details in AWS documentation here : <http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/InstanceStorage.html?shortFooter=true#instance-store-lifetime>

Question 6: Skipped

SQS provides a timeout which is a period of time during which Amazon SQS prevents other consuming components from receiving and processing. What is this time period called?

A. Component Timeout

(Correct)

B. Visibility Timeout

C. Processing Timeout

D. Receiving Timeout

### Explanation

Please refer to the AWS SQS FAQ section - <https://aws.amazon.com/sqs/faqs/>

Question 7: Skipped

You are currently hosting an infrastructure and most of the EC2 instances are near 90 - 100% utilized. What is the type of EC2 instances you would utilize to ensure costs are minimized? Assume that the EC2 instance will be running continuously throughout the year.

A. Reserved instances

(Correct)

B. On-demand instances

C. Spot instances

D. Regular instances

### Explanation

When you have instances that will be used continuously and throughout the year, the best option is to buy reserved instances. By buying reserved instances, you are actually allocated an instance for the entire year or the duration you specify with a reduced cost. To understand more on reserved instances, please visit the link: <https://aws.amazon.com/ec2/pricing/reserved-instances/> <https://blog.cloudability.com/maximizing-cost-savings-aws-reserved-instances/> <https://awsinsider.net/articles/2017/03/21/controlling-aws-costs.aspx>

Question 8: Skipped

What is the ability provided by AWS to enable fast, easy, and secure transfers of files over long distances between your client and your Amazon S3 bucket.

A. File Transfer

B. HTTP Transfer

C. Transfer Acceleration

(Correct)

D. S3 Acceleration

### Explanation

Please refer to the AWS S3 FAQ section - <https://aws.amazon.com/s3/faqs/>

Question 9: Skipped

What is one key difference between an Amazon EBS-backed and an instance-store backed instance?

A. Amazon EBS-backed instances can be stopped and restarted.

(Correct)

B. Instance-store backed instances can be stopped and restarted.

C. Auto scaling requires using Amazon EBS-backed instances.

D. Virtual Private Cloud requires EBS backed instances.

### Explanation

Amazon EBS-backed instances can be stopped and restarted. So we can say Instance-store backed instances cannot be restarted. Please see the url for the key differences between EBS and instance store volumes  
- <http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/ComponentsAMIs.html>

Question 10: Skipped

You have an application hosted in AWS. The logs from the application are sent to Cloudwatch. The application has recently been encountering some errors. A patch needs to be developed for the error to be rectified. For the moment you need to automate the restart of the server whenever the error occurs. How can you achieve this?

A. Check the Cloudwatch logs for the error keywords , create an alarm and then restart the server

(Correct)

B. Create a cloudwatch metric which looks at the CPU utilization and then restarts the server

C. Create a cloudwatch metric which looks at the Memory utilization and then restarts the server

D. Check the Cloudwatch logs for the error keywords, then send a notification to SQS to restart the server

### Explanation

The AWS Documentation mentions the following on Cloudwatch Logs You can use CloudWatch Logs to monitor applications and systems using log data. For example, CloudWatch Logs can track the number of errors that occur in your application logs and send you a notification whenever the rate of errors exceeds a threshold you specify. CloudWatch Logs uses your log data for monitoring; so, no code changes are required. For example, you can monitor application logs for specific literal terms (such as "NullReferenceException") or count the number of occurrences of a literal term at a particular position in log data (such as "404" status codes in an Apache access log). When the term you are searching for is found, CloudWatch Logs reports the data to a CloudWatch metric that you specify. Log data is encrypted while in transit and while it is at rest. For more information on Cloudwatch logs , please visit the below URL:

<http://docs.aws.amazon.com/AmazonCloudWatch/latest/logs/WhatIsCloudWatchLogs.html>

Question 11: Skipped

A company wants to utilize aws storage. For them low storage cost is paramount, the data is rarely retrieved, and data retrieval times of several hours are acceptable for them. What is the best storage option to use?

A. Glacier

(Correct)

B. Reduced Redundancy Storage

C. EBS backed storage connected to EC2

D. Cloud Front

### Explanation

With the above requirements, the best option is to opt for Amazon Glacier. Please refer to the Glacier FAQ's <https://aws.amazon.com/glacier/faqs/>

Question 12: Skipped

A client application requires operating system privileges on a relational database server. What is an appropriate configuration for a highly available database architecture?

- A. Standalone Amazon EC2 instance
- B. Amazon RDS in a Multi-AZ configuration
- C. Amazon EC2 instances in a replication configuration utilizing a Single Availability Zone
- D. Amazon EC2 instances in a replication configuration utilizing two different Availability Zones

(Correct)

#### Explanation

You can not access OS of RDS Databases, as RDS is fully managed service by AWS. In case a customer wants to have access to OS for their Database for more granular control or other compliance reason, then they can install their Database engine in EC2 instance. In choice D , DB needs to be installed in EC2 for OS access with replication to support failover. Please follow below link for reference, which shows steps to install and configure Oracle in EC2 instance <https://oracle-base.com/articles/vm/aws-ec2-installation-of-oracle> Since the client wants privilege on the RDS, option B is not valid. Since there is a requirement for highly availability, you cannot have just one AZ and one EC2 instance. Hence D is the right answer. Please refer below link showing an architecture example to enable Oracle database high availability on EC2 server.

<http://docs.aws.amazon.com/quickstart/latest/oracle-database/architecture.html> For more information, please read the below link: [http://docs.aws.amazon.com/dms/latest/userguide/CHAP\\_Introduction.ReplicationInstance.html](http://docs.aws.amazon.com/dms/latest/userguide/CHAP_Introduction.ReplicationInstance.html)

Question 13: Skipped

Which aws service is used to monitor all API calls to AWS

- A. Amazon SES
- B. Amazon Cloudtrail
- C. Amazon CloudFront
- D. Amazon S3

(Correct)

#### Explanation

Please refer to the product description for AWS Cloutrail at the URL - <https://aws.amazon.com/cloudtrail/>

Question 14: Skipped

A company needs to deploy virtual desktops to its customers in a virtual private cloud, leveraging existing security controls. Which set of AWS services and features will meet the company's requirements?

- A. Virtual Private Network connection, AWS Directory Services, and ClassicLink
- B. Virtual Private Network connection, AWS Directory Services, and Amazon Workspaces (Correct)
- C. AWS Directory Service, Amazon Workspaces, and AWS Identity and Access Management
- D. Amazon Elastic Compute Cloud, and AWS Identity and Access Management

#### Explanation

Option B is the correct answer because AWS Directory Services are used to authenticate to an existing on-premises AD through VPN and AWS WorkSpaces service is used for Virtual desktops. Option A is incorrect because a ClassicLink, within the same region, allows us to link an EC2-Classic instance to a VPC in our account. Option C is incorrect because AWS Dictionary service needs a VPN connection to interact with an On-premise AD directory. Option D is incorrect because we need WorkSpaces for virtual desktops.

Question 15: Skipped

Which of the following statements are true about Amazon Reduced Redundancy Storage (RRS)? Choose the correct 3 answers from the below options.

- A. RRS has the ability to provide eleven nines availability.
- B. RRS has the ability to provide 99.99% availability. (Correct)
- C. RRS has the ability to provide 99.99% durability. (Correct)
- D. If there is a requirement to store data that is easily reproducible or durably stored elsewhere, then RRS is the ideal option. (Correct)

#### Explanation

The Durability and availability are given in the aws site for RRS. Reduced Redundancy Storage (RRS) is an Amazon S3 storage option that enables customers to store non-critical, reproducible data at lower levels of redundancy than Amazon S3's standard storage. S3 is the most reliable and durable storage service from Amazon. Where as if you have data that is non-critical and can be easily reproducible if lost, then that can be stored in RRS to reduce the cost of your storage. The RRS option stores objects on multiple devices across multiple facilities, providing 400 times the durability of a typical disk drive, but does not replicate objects as many times as standard Amazon S3 storage. You can read more about RRS in the below link:  
<https://aws.amazon.com/s3/reduced-redundancy/>

Question 16: Skipped

After creating a new IAM user which of the following must be done before they can successfully make API calls?

- A. Add a password to the user.
- B. Enable Multi-Factor Authentication for the user.
- C. Assign a Password Policy to the user.
- D. Create a set of Access Keys for the user.

(Correct)

#### Explanation

In IAM , when you create a user , you need to download the Access Key ID and Secret access key so that the user can access aws.

Question 17: Skipped

What is the AWS service provided which provides a fully managed NoSQL database service that provides fast and predictable performance with seamless scalability.

- A. AWS RDS
- B. DynamoDB
- C. Oracle RDS
- D. Elastic Map Reduce

(Correct)

#### Explanation

DynamoDB is a fully managed NoSQL offering provided by AWS. It is now available in most regions for users to consume. The link provides the full details on the product

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

Question 18: Skipped

A company's application is intending to use Auto Scaling and has the requirement to store user state information. Which of the following AWS services provides a shared data store with durability and low latency?

- A. AWS ElastiCache Memcached

B. Amazon Simple Storage Service

C. Amazon EC2 instance storage

D. Amazon DynamoDB

(Correct)

### Explanation

Amazon Dynamo DB is used for storing small amounts of data such as user state information. And this service offer's durability and low latency. Visit KB Article for the snapshot of when to use S3 and DynamoDB from the DynamoDB FAQ's  
- <https://aws.amazon.com/dynamodb/faqs/>

Question 19: Skipped

You have a read intensive application hosted in AWS. The application is currently using the MySQL RDS feature in AWS. Which of the following can be used to reduce the read throughput on the MySQL database

A. Enable the Multi-AZ on the MySQL RDS

B. Use Cold Storage Volumes for the MySQL RDS

C. Enable Read Replica's and offload the reads to the replica's

(Correct)

D. Use SQS to queue up the reads

### Explanation

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

Question 20: Skipped

The Trusted Advisor service provides insight regarding which four categories of an AWS account?

A. Security, fault tolerance, high availability, and connectivity

B. Security, access control, high availability, and performance

C. Performance, cost optimization, security, and fault tolerance

(Correct)

- D. Performance, cost optimization, access control, and connectivity

## Explanation

For more information on Trusted Advisor Dashboard offers. Please visit:  
<https://aws.amazon.com/premiumsupport/trustedadvisor/>

Question 21: Skipped

When will you incur costs with an Elastic IP address (EIP)?

- A. When an EIP is allocated.
- B. When it is allocated and associated with a running instance.
- C. When it is allocated and associated with a stopped instance. **(Correct)**
- D. Costs are incurred regardless of whether the EIP is associated with a running instance.

## Explanation

The correct answer for this question is option "C". The option D is little bit tricky and which will make us think that it might be correct even though its not. Following AWS docs shows us when costs are not incurred. An Elastic IP address doesn't incur charges as long as the following conditions are true: The Elastic IP address is associated with an Amazon EC2 instance. The instance associated with the Elastic IP address is running. The instance has only one Elastic IP address attached to it. If you've stopped or terminated an EC2 instance with an associated Elastic IP address and you don't need that Elastic IP address any more, consider disassociating or releasing the Elastic IP address by following the instructions at Working with Elastic IP Addresses. Note: After an Elastic IP address is released, you can't provision that same Elastic IP address again, though you can provision a different Elastic IP address. AWS doesn't want you waste the static public IP's . You will be charged for elastic IP 1 - If EIP is created but not allocated to any instance. 2 - If EIP is attached to a stop instance. Reference link: <https://aws.amazon.com/premiumsupport/knowledge-center/elastic-ip-charges/> Please find details below regarding Elastic IP Charges: <https://aws.amazon.com/premiumsupport/knowledge-center/elastic-ip-charges/>

Question 22: Skipped

How many availability zones are mapped to a subnet?

- A. 1 **(Correct)**
- B. 2
- C. Depends on aws at the time of creating a subnet

- D. Depends on the number of instances you are going to host in the subnet.

### Explanation

Remember that when a subnet is created, it is always mapped to one availability zone. When you go to the VPC dashboard, and go to the Subnet section, you can click on Create Subnet. When you create the subnet, you can only attach one AZ to the subnet.

Question 23: Skipped

A company is building a service in which Amazon EC2 worker instances process an uploaded audio file and generate a text file. You must store both of these files in the same durable storage until the text file is retrieved. You do not know what the storage capacity requirements are. Which storage option is both cost-efficient and scalable?

- A. Multiple Amazon EBS volume with snapshots

- B. A single Amazon Glacier vault

- C. A single Amazon S3 bucket

(Correct)

- D. Multiple instance stores

### Explanation

For any sort of storage for file based system, it must be done in Amazon S3.

Question 24: Skipped

A custom script needs to be passed to a new Amazon Linux instances created in your Auto Scaling group. Which feature allows you to accomplish this?

- A. User data

(Correct)

- B. EC2Config service

- C. IAM roles

- D. AWS Config

### Explanation

When you configure an instance during creation, you can add custom scripts to the User data section. So in Step 3 of creating an instance, in the Advanced Details section, we can enter custom scripts in the User Data section. The below script installs Perl during the instance creation of the EC2 instance.

Question 25: Skipped

A company is building software on AWS that require access to various AWS services. Which configuration should be used to ensure that AWS Credentials like Access Keys and Secret access keys are not compromised? (Choose Two Options)

A. Enable Multi-Factor Authentication for your AWS root account.

(Correct)

B. Assign an IAM role to the Amazon EC2 instance.

(Correct)

C. Store the AWS Access Key ID/Secret Access Key combination in software comments.

D. Assign an IAM user to the Amazon EC2 Instance.

### Explanation

It is the best practice to always create IAM roles which can be assigned to EC2 instances and enable MFA for the root account. This will help to not compromise the Access Key ID/Secret Access Key combination.

Question 26: Skipped

A company has the requirement to store data using AWS storage services. The data is not frequently accessed. If data recovery time not an issue, Which of the below is the best and cost efficient solution to fulfil this requirement ?

A. S3 Standard

B. S3 Standard - IA (Infrequently Accessed)

C. Glacier

(Correct)

D. Reduced Redundancy Storage?

### Explanation

The default time interval is one minute. Note: Answer can also be B. S3 Standard - IA (Infrequently Accessed). However since other details are mentioned in question. we can say C. Glacier is most effective way of cost saving in this case. Reference link: <https://aws.amazon.com/products/storage/>

Question 27: Skipped

Resources that are created in AWS are identified by a unique identifier which is known as what option given below

A. Amazon Resource Number

B. Amazon Resource Nametag

C. Amazon Resource Name (Correct)

D. Amazon Resource Namespace

### Explanation

Amazon Resource Names (ARNs) are used to uniquely identify AWS resources. For information on ARN's, refer to the link - <http://docs.aws.amazon.com/general/latest/gr/aws-arns-and-namespaces.html>

Question 28: Skipped

When you are using Route53 for a web site hosted in S3 , what are the one of the rules that must be adhered to? Choose the correct answer from the options below

A. The S3 bucket name must be the same as the domain name

(Correct)

B. The record set cannot use an alias

C. The record set must be of type "MX"

D. The S3 bucket must be in the same region as the hosted zone

### Explanation

This is given in the aws documentation For more information on using Route53 along with S3, please visit the link <http://docs.aws.amazon.com/Route53/latest/DeveloperGuide/RoutingToS3Bucket.html>

Question 29: Skipped

What are some of the benefits of using the Cloudformation service? Choose 2 answers from the options given below

A. Can automatically increase instance capacity

B. A storage location for your applications code

C. Version control your infrastructure (Correct)

- D. A great disaster recovery option

(Correct)

### Explanation

The justification for Infrastructure as code is given in the aws documentation For the justification on disaster recovery, please visit the below link <https://aws.amazon.com/blogs/aws/new-whitepaper-use-aws-for-disaster-recovery/> For more information on Cloudformation, please visit the link <https://aws.amazon.com/cloudformation/>

Question 30: Skipped

AWS thrives on the concept of high availability. Which of the below follows the concept of high availability. Choose the correct answer from the options below

- A. Implementing security procedures

- B. Implementing multiple AWS services

- C. The ability of system to easily increase in size.

- D. A durable system that can operate for long periods of time without failure.

(Correct)

### Explanation

High availability is a characteristic of a system, which aims to ensure an agreed level of operational performance, usually uptime, for a higher than normal period. For more information on high availability, please refer to the following link [https://en.wikipedia.org/wiki/High\\_availability](https://en.wikipedia.org/wiki/High_availability)

Question 31: Skipped

What best describes the "Principal of Least Privilege"? Choose the correct answer from the options given below

- A. All users should have the same baseline permissions granted to them to use basic AWS services.

- B. Users should be granted permission to access only resources they need to do their assigned job.

(Correct)

- C. Users should submit all access request in written so that there is a paper trail of who needs access to different AWS resources.

- D. Users should always have a little more access granted to them then they need, just in case they end up needed it in the future.

## Explanation

The principle means giving a user account only those privileges which are essential to perform its intended function. For example, a user account for the sole purpose of creating backups does not need to install software: hence, it has rights only to run backup and backup-related applications. For more information on principle of least privilege, please refer to the following link [https://en.wikipedia.org/wiki/Principle\\_of\\_least\\_privilege](https://en.wikipedia.org/wiki/Principle_of_least_privilege)

Question 32: Skipped

Which of the following best describes the purpose of an Elastic Load Balancer. Choose an answer from the options given below. Choose the correct answer from the options given below

- A. To scale more EC2 instances on demand
- B. To evenly distribute traffic among multiple EC2 instances located in single or different Availability Zones. (Correct)
- C. To distribute traffic to a second instance once the first instance capacity has reached it's limit.
- D. To evenly distribute traffic among multiple EC2 instances in the same Availability Zone.

## Explanation

Elastic Load Balancing automatically distributes incoming application traffic across multiple Amazon EC2 instances. It enables you to achieve fault tolerance in your applications, seamlessly providing the required amount of load balancing capacity needed to route application traffic. And the ELB is used to distribute traffic between instances in Multiple AZ's. For more information on Elastic Load Balancer, please refer to the following link <https://aws.amazon.com/elasticloadbalancing/> Some more key points about ELB: Elastic Load Balancer (ELB) is used for routing traffic to various EC2 instances located across the multiple Availability Zones(AZs). ELB can detect the healthy and unhealthy EC2 instances. It will not route traffic to the unhealthy EC2 instances. If all the instances in the same AZ is not healthy, it will route the traffic to other AZ EC2 instances. Achieve higher levels of fault tolerance for your applications by using Elastic Load Balancing to automatically route traffic across multiple instances and multiple Availability Zones. Elastic Load Balancing ensures that only healthy Amazon EC2 instances receive traffic by detecting unhealthy instances and rerouting traffic across the remaining healthy instances. If all of your EC2 instances in one Availability Zone are unhealthy, and you have set up EC2 instances in multiple Availability Zones, Elastic Load Balancing will route traffic to your healthy EC2 instances in those other zones.

Question 33: Skipped

When you create a default VPC, what are the services you get by default in the VPC? Select 2 options.

- A. An Elastic Load Balancer
- B. Default subnet in each Availability Zone (Correct)
- C. An Internet Gateway attached to the default VPC (Correct)
- D. A light weight rds such as SQL Server Express

## Explanation

For the list of default services given for a default VPC, follow the link <http://docs.aws.amazon.com/AmazonVPC/latest/UserGuide/default-vpc.html> to get more information on what comes as part of a default VPC.

Question 34: Skipped

In an Autoscaling policy what best describes what the purpose of a scaling policy is. Choose an answer from the options below.

- A. A set of CloudWatch metric thresholds that dictate when to add or remove instances from the Auto Scaling group.

(Correct)

- B. The IAM access policy granted to an Auto Scaling group.

- C. The percentage at which an ELB will send traffic to an instance before it sends traffic to a different instance.

- D. An SNS notification alert.

## Explanation

You can create a scaling policy that uses CloudWatch alarms to determine when your Auto Scaling group should scale out or scale in. Each CloudWatch alarm watches a single metric and sends messages to Auto Scaling when the metric breaches a threshold that you specify in your policy. You can use alarms to monitor any of the metrics that the services in AWS that you're using send to CloudWatch, or you can create and monitor your own custom metrics. For more information on Scaling policies, please refer to the following link [http://docs.aws.amazon.com/autoscaling/latest/userguide/policy\\_creating.html](http://docs.aws.amazon.com/autoscaling/latest/userguide/policy_creating.html)

Question 35: Skipped

A company has a solution hosted in AWS. This solution consists of a set of EC2 instances. They have been recently getting attacks as their IT security departments identified that attacks are from a set of IP addresses. Which of the following methods can be adopted to help in this situation.

- A. Place the EC2 instances into private subnets, and set up an NAT gateway so employees can access them.

- B. Remove the IGW from the VPC so that no outside traffic can reach the EC2 instances.

- C. Lock down of NACL for the set to IP address.

(Correct)

- D. Place the EC2 instances into private subnets, and set up a bastion host so employees can access them.

## Explanation

The NACL's can be modified to be most secure by only denying the traffic from the set of IP addresses. For more information on NACL, please refer to the following link [http://docs.aws.amazon.com/AmazonVPC/latest/UserGuide/VPC\\_ACLs.html](http://docs.aws.amazon.com/AmazonVPC/latest/UserGuide/VPC_ACLs.html)

Question 36: Skipped

You have an ELB distributing traffic a fleet of EC2 instances inside your VPC, evenly spread across two Availability Zones. However, you realize that only half of our instances are actually receiving traffic. What is the most likely cause of this problem? Choose the correct answer from the options given below

- A. The ELBs listener is not set to port 80.
- B. One or more security groups do not allow HTTP traffic.
- C. Cross-zone load balancing has not been enabled.
- D. The health check ping port is set to port 80, but should be set to port 22.

(Correct)

## Explanation

For environments where clients cache DNS lookups, incoming requests might favor one of the Availability Zones. Using cross-zone load balancing, this imbalance in the request load is spread across all available instances in the region, reducing the impact of misbehaving clients. By default, your Classic Load Balancer distributes incoming requests evenly across its enabled Availability Zones. For example, if you have ten instances in Availability Zone us-west-2a and two instances in us-west-2b, the requests are distributed evenly between the two Availability Zones. As a result, the two instances in us-west-2b serve the same amount of traffic as the ten instances in us-west-2a. To ensure that your load balancer distributes incoming requests evenly across all instances in its enabled Availability Zones, enable cross-zone load balancing. For more information on ELB Cross load balancer, please refer to the following link <http://docs.aws.amazon.com/elasticloadbalancing/latest/classic/enable-disable-crosszone-lb.html>

Question 37: Skipped

You have an application currently running on five EC2 instances as part of an Auto Scaling group. For the past 30 minutes all five instances have been running at 100 CPU Utilization; however, the Auto Scaling group has not added any more instances to the group. What is the most likely cause? Choose 2 likely answers from the options given below

- A. You already have 20 on-demand instances running. (Correct)
- B. The Auto Scaling group's MAX size is set at five. (Correct)
- C. The Auto Scaling group's scale down policy is too high.
- D. The Auto Scaling group's scale up policy has not yet been reached.

### Explanation

Twenty instances limit is at the account level and you might have other applications running more EC2 instances across your account (may be in another region) which may cause a total number to exceed the limit. This is provided in the aws documentation For more information on troubleshooting Autoscaling, please refer to the following link  
<http://docs.aws.amazon.com/autoscaling/latest/userguide/ts-as-capacity.html>

Question 38: Skipped

What is the minimum size of an object that can be uploaded to Amazon S3?

A. 1Megabyte

B. 0Bytes

(Correct)

C. 1Byte

D. 5TB

### Explanation

The minimum size of an object in S3 can be 0 bytes. You can refer to the S3 FAQ's for more information on the allowable storage on S3. <https://aws.amazon.com/s3/faqs/>

Question 39: Skipped

A company is trying to reduce their storage costs and want a more cost effective solution than Amazon S3. Secondly they claim that their data store is not frequently accessed. What is the best and cost efficient solution that should be considered?

A. Amazon Storage Gateway

B. Amazon Glacier

(Correct)

C. Amazon EBS

D. Amazon S3

### Explanation

Since the data is not required to be accessed frequently, the data can be stored on Amazon glacier for cheaper storage. Remember that the recovery time for getting data from Glacier is from 3-5 hours. All other options are not correct and expensive compared to Amazon Glacier service. For more information on Glacier please visit the below URL:  
<https://aws.amazon.com/glacier/faqs/>

Question 40: Skipped

A company does not want to manage their databases. Which of the following services are fully managed databases provided by AWS?

A. AWS RDS

B. DynamoDB

(Correct)

C. Oracle RDS

D. Elastic Map Reduce

### Explanation

DynamoDB is a fully managed NoSQL offering provided by AWS. It is now available in most regions for users to consume. AWS RDS database is not fully managed database, it is partially managed. For RDS, we still need to specify the server capacity , security group etc. This is the point most of them are confused, because they assume that RDS is the fully managed database. Even though the question doesn't ask about the type of database (NOSQL), the correct option is DynamoDB. For the fully managed option it is Aurora and DynamoDB. So, the correct option in this question is DynamoDB. The link provides the full details on the product 1. <http://docs.aws.amazon.com/amazondynamodb/latest/developerguide/Introduction.html> 2. <https://aws.amazon.com/products/databases/>

Question 41: Skipped

Which of the following requires a custom CloudWatch metric to monitor?

A. Memory Utilization of an EC2 instance

(Correct)

B. CPU Utilization of an EC2 instance

C. Disk Reads activity of an EC2 instance

D. Networks packets out of an EC2 instance

### Explanation

Memory Utilization is a metric not offered directly by Cloudwatch. So when you view the Cloudwatch metrics for your EC2 instance, you can see CPU Utilization and Disk Read Operations metrics. You can also see Network statistics for Data transfer, but you will not be able to see Memory Utilization. This will be a custom Cloudwatch metric. For more information on Cloudwatch, please refer the below URL: <https://aws.amazon.com/cloudwatch/faqs/>

Question 42: Skipped

Which of the following instance types are available as SSD backed storage? Choose 2 answers from the options below

A. General purpose T2

B. General purpose M3 (Correct)

C. Compute-optimized C4

D. Compute-optimized C3 (Correct)

### Explanation

The screenshots show the details for M3 and C3 instance types. For details for all instance types, please visit the URL:  
<https://aws.amazon.com/ec2/instance-types/>

Question 43: Skipped

There is a requirement to install Perl on a Linux instance when it is launched. Which feature allows you to accomplish this requirement?

A. User Data (Correct)

B. EC2Config Service

C. IAM Roles

D. AWS Config

### Explanation

When you configure an instance during creation, you can add custom scripts to the User data section. So in Step 3 of creating an instance, in the Advanced Details section, we can enter custom scripts in the User Data section. The below script installs Perl during the instance creation of the EC2 instance. For more information on user metadata and user data , please visit the below URL: <http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/ec2-instance-metadata.html>

Question 44: Skipped

An IAM user has been created in AWS. But the user is not able to perform any actions. What is the reason for this?

A. IAM users are created by default with partial permissions

B. IAM users are created by default with full permissions

C. IAM users are created by default with no permissions

(Correct)

### Explanation

By default no permissions are given to the user when they are created. Below is a snapshot of a newly created user. You can see that by default no permissions are assigned to the user. For more information on IAM users , please visit the below URL:  
<https://aws.amazon.com/iam/details/manage-users/>

Question 45: Skipped

What happens when an instance behind an ELB fails a health check?

A. The instance gets terminated automatically by the ELB.

B. The instance gets quarantined by the ELB for root cause analysis.

C. The instance is replaced automatically by the ELB.

D. The ELB stops sending traffic to the instance that failed its health check

(Correct)

### Explanation

To discover the availability of your EC2 instances, a load balancer periodically sends pings, attempts connections, or sends requests to test the EC2 instances. These tests are called health checks. The status of the instances that are healthy at the time of the health check is InService. The status of any instances that are unhealthy at the time of the health check is OutOfService. The load balancer performs health checks on all registered instances, whether the instance is in a healthy state or an unhealthy state. The load balancer routes requests only to the healthy instances. When the load balancer determines that an instance is unhealthy, it stops routing requests to that instance. The load balancer resumes routing requests to the instance when it has been restored to a healthy state. You can see the status of the instance in the Registered Instances section of the load balancer. For more information on ELB health checks , please visit the below URL:  
<http://docs.aws.amazon.com/elasticloadbalancing/latest/classic/elb-healthchecks.html>

Question 46: Skipped

In S3, what is the feature that is available to automatically transfer or archive data to Glacier?

A. Use an EC2 instance and schedule a job to transfer the stale data from their S3 location to Amazon Glacier.

B. Use Life-Cycle Policies

(Correct)

C. Use AWS SQS

- D. There is no option, the users will have to download the data and then transfer the data to AWS manually.

### Explanation

With Amazon lifecycle policies you can create transition actions in which you define when objects transition to another Amazon S3 storage class. 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. Follow the below steps to get this in place: Step 1) Go to the Lifecycle section of the S3 bucket and click on Add Rule Step 2) Choose what you want to export Step 3) Choose the Action to perform and then confirm on the Rule creation in the next screen. For more information on Lifecycle management, click on the link: <http://docs.aws.amazon.com/AmazonS3/latest/dev/object-lifecycle-mgmt.html>

Question 47: Skipped

Someone has initiated the snapshot creation of an EBS volume. One of the application still needs to use the same EBS volume. Which of the following scenarios are possible when it comes to usage of an EBS volume while the snapshot is initiated and not completed?

- A. Can be used while the snapshot is in progress. (Correct)
- B. Cannot be detached or attached to an EC2 instance until the snapshot completes
- C. Can be used in read-only mode while the snapshot is in progress.
- D. Cannot be used until the snapshot completes.

### Explanation

Snapshots occur asynchronously; the point-in-time snapshot is created immediately, but the status of the snapshot is pending until the snapshot is complete (when all of the modified blocks have been transferred to Amazon S3), which can take several hours for large initial snapshots or subsequent snapshots where many blocks have changed. While it is completing, an in-progress snapshot is not affected by ongoing reads and writes to the volume. You can easily create a snapshot from a volume while the instance is running and the volume is in use. You can do this from the EC2 dashboard. For more information on EBS snapshots, please visit the link: <http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/EBSSnapshots.html>

Question 48: Skipped

There is a requirement to ensure that an EC2 instance can only be accessed from an IP address of 72.34.51.100. The users should be able to SSH into the instance. Which option will meet the customer requirement?

- A. Security Group Inbound Rule: Protocol – TCP, Port Range – 22, Source 72.34.51.100/32 (Correct)
- B. Security Group Inbound Rule: Protocol – UDP, Port Range – 22, Source 72.34.51.100/32
- C. Network ACL Inbound Rule: Protocol – UDP, Port Range – 22, Source 72.34.51.100/32

- D. Network ACL Inbound Rule: Protocol – TCP, Port Range-22, Source 72.34.51.100/0

### Explanation

For SSH access, the protocol has to be TCP, so Option B and C are wrong. For Bastion host, only the IP of the client should be put and not the entire network of 72.34.51.100/0 as given in option D. So this option is also wrong. A bastion host is a special purpose computer on a network specifically designed and configured to withstand attacks. The computer generally hosts a single application, for example a proxy server, and all other services are removed or limited to reduce the threat to the computer. In AWS, A bastion host is kept on a public subnet. Users log on to the bastion host via SSH or RDP and then use that session to manage other hosts in the private subnets. This is a security practice adopted by many organization to secure the assets in their private subnets. For more information on security groups, please refer the below URL:  
<http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/using-network-security.html>

Question 49: Skipped

Which of the following statements are true about Amazon Reduced Redundancy Storage (RRS) when it comes to availability?

- A. RRS has the ability to provide eleven nines availability.

- B. RRS has the ability to provide 99.99% availability.

(Correct)

- C. RRS has the ability to provide 99% availability.

- D. RRS has the ability to provide 100% durability.

### Explanation

The Durability and availability are given in the aws site for RRS. For more information on RRS please visit the URL:  
<https://aws.amazon.com/s3/reduced-redundancy/>

Question 50: Skipped

Which service from AWS allows one to work with existing Chef server configuration?

- A. AWS OpsWorks

(Correct)

- B. AWS Elastic Beanstalk

- C. AWS CloudFormation

- D. AWS SNS

## Explanation

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/chefautomate/>

Question 51: Skipped

Which of the below AWS service can be used to deploy infrastructure using stacks and templates?

A. Amazon Simple Workflow Service

B. AWS Elastic Beanstalk

C. AWS CloudFormation

(Correct)

D. AWS OpsWorks

## Explanation

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 CloudFormation'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/>

Question 52: Skipped

Your company currently uses templates to deploy servers in their on-premise infrastructure. They want to have the same template configurations applied when deploying EC2 Instances. Which of the following can be done to ensure that EC2 Instances can be deployed as per the template standards defined by the organization.

A. Use the EC2 metadata feature to deploy those features at runtime.

B. Use the AWSConfig service to deploy updates to the EC2 Instances before they are launched.

C. Create pre-built AMI's with the desired configuration as the organization templates.

(Correct)

- D. It is not possible to define templates for EC2 Instances. You need to deploy the changes manually

### Explanation

The AWS Documentation mentions the following 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. An AMI includes the following:

- A template for the root volume for the instance (for example, an operating system, an application server, and applications)
- Launch permissions that control which AWS accounts can use the AMI to launch instances
- A block device mapping that specifies the volumes to attach to the instance when it's launched

For more information on AMI's, please visit the below URL: <http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/AMIs.html>

Question 53: Skipped

What can be used for EC2 instances in a private subnet to connect to the internet? Choose an answer from the options below.

- A. WAF

- B. Direct Connect

- C. NAT Gateway

(Correct)

- D. VPN

### Explanation

You can use a Network Address Translation (NAT) gateway to enable instances in a private subnet to connect to the Internet or other AWS services, but prevent the Internet from initiating a connection with those instances. The below diagram from aws showcases how the NAT instance is used For more information on NAT Gateways, please visit the URL: <http://docs.aws.amazon.com/AmazonVPC/latest/UserGuide/vpc-nat-gateway.html>

Question 54: Skipped

Which AWS service allows businesses and web application developers an easy and cost effective way to distribute content with low latency and high data transfer speeds?

- A. Amazon SES

- B. Amazon Cloudtrail

- C. Amazon CloudFront

(Correct)

- D. Amazon S3

## Explanation

Amazon CloudFront is a web service that gives businesses and web application developers an easy and cost effective way to distribute content with low latency and high data transfer speeds. Like other AWS services, Amazon CloudFront is a self-service, pay-per-use offering, requiring no long term commitments or minimum fees. With CloudFront, your files are delivered to end-users using a global network of edge locations. For more information on CloudFront, please visit the link: <https://aws.amazon.com/cloudfront/>

Question 55: Skipped

You try to connect to a newly created Amazon EC2 instance via SSH using PuTTY and get one of the following error messages: Error: Server refused our key (or) Error: No supported authentication methods available. What steps should you take to identify the source of the behavior? Choose 2 answers.

- A. You should also verify that your private key (.pem) file has been correctly converted to the format recognized by PuTTY (.ppk). (Correct)

- B. Verify that your IAM user policy has permission to launch Amazon EC2 instances.

- C. Verify that you are connecting with the appropriate user name for your AMI. (Correct)

- D. Verify that the Amazon EC2 Instance was launched with the proper IAM role.

## Explanation

This is clearly given in the AWS documentation: For more information on the connection errors to EC2 instances, please visit the link: <http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/TroubleshootingInstancesConnecting.html>

Question 56: Skipped

Which feature in AWS is commonly used and best solution to store session data for web based applications?

- A. MySQL Installed on two Amazon EC2 Instances in a single Availability Zone

- B. Amazon RDS for MySQL with Multi-AZ

- C. Amazon ElastiCache (Correct)

- D. Amazon DynamoDB

## Explanation

Amazon ElastiCache is a web service that makes it easy to deploy, operate, and scale an in-memory data store or cache in the cloud. The service improves the performance of web applications by allowing you to retrieve information from fast, managed, in-memory data stores, instead of relying entirely on slower disk-based databases. Elastic Cache is a better option when compared to DynamoDB. The main consideration would be the performance. AWS Docs provides following details: In order to address scalability and to provide a shared data storage for sessions that can be accessible from any individual web server, you can abstract the HTTP sessions from the web servers themselves. A common solution to for this is to leverage an In-Memory Key/Value store such as Redis and Memcached. While Key/Value data stores are known to be extremely fast and provide sub-millisecond latency, the added network latency and added cost are the drawbacks. An added benefit of leveraging Key/Value stores is that they can also be utilized to cache any data, not just HTTP sessions, which can help boost the overall performance of your applications. For more information on Elastic cache, please visit the link: <https://aws.amazon.com/elasticache/> <https://aws.amazon.com/caching/session-management/>

Question 57: Skipped

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

(Correct)

### Explanation

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>

Question 58: Skipped

Your company currently has an application hosted in their on-premise infrastructure. There is a mandate from management to move the application to the AWS Cloud. As an architect you want to be cautious for the deployment of the application onto AWS. You have suggested to divert a percentage of the traffic from the users to the new application in AWS during the launch. Once it is confirmed that the cloud based application works with no issues , a full diversion to the new site can be implemented. Which of the following mechanisms can be used to ensure this scenario can be implemented.

- A. Use the Classic Elastic Load balancer to divert and proportion the traffic between the on-premise and AWS hosted application.
- B. Use the Application Elastic Load balancer to divert and proportion the traffic between the on-premise and AWS hosted application.
- C. Use Route53 with failover routing policy to divert and proportion the traffic between the on-premise and AWS hosted application.

- D. Use Route53 with Weighted routing policy to divert and proportion the traffic between the on-premise and AWS hosted application.

(Correct)

### Explanation

The Weighted Routing policy is the best option here. You can ensure that the CNAME for your domain gets a lower proportion for the application hosted in AWS initially. Later on the percentage can be increased based on the application performance. The AWS documentation mentions the following on Route 53 Weighted Routing policy: 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 Routing policy, please refer to the below URL:  
<http://docs.aws.amazon.com/Route53/latest/DeveloperGuide/routing-policy.html>

Question 59: Skipped

What step from the below options can be carried out to ensure that after an EBS volume is deleted, a similar volume with the same data can be created at a later stage.

- A. Create a copy of the EBS volume (not a snapshot)

- B. Store a snapshot of the volume

(Correct)

- C. Download the content to an EC2 instance

- D. Back up the data in to a physical disk

### Explanation

Snapshots occur asynchronously; the point-in-time snapshot is created immediately, but the status of the snapshot is pending until the snapshot is complete (when all of the modified blocks have been transferred to Amazon S3), which can take several hours for large initial snapshots or subsequent snapshots where many blocks have changed. While it is completing, an in-progress snapshot is not affected by ongoing reads and writes to the volume. You can easily create a snapshot from a volume while the instance is running and the volume is in use. You can do this from the EC2 dashboard. For more information on EBS snapshots, please visit the link: <http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/EBSSnapshots.html>

Question 60: Skipped

Which of the AWS Services following can be used to build an application based on a serverless architecture. Choose 3 answers from the options given below

- A. AWS API Gateway

(Correct)

- B. AWS Lambda

(Correct)

C. AWS DynamoDB

(Correct)

 D. AWS EC2

### Explanation

This is given in the AWS documentation For more information on serverless platform, please refer to the below URL:  
<https://aws.amazon.com/serverless/>

Question 61: Skipped

In the Amazon CloudWatch, which metric should I be checking to ensure that your DB Instance has enough free Memory?

 A. FreeStorage B. Freeable Memory

(Correct)

 C. FreeStorageVolume D. FreeDBStorageSpace

### Explanation

When you go to the Monitoring tab for your AWS RDS instance, you will be able to see the Cloudwatch metrics. For more information on Amazon Cloudwatch, please visit the below URL: <https://aws.amazon.com/cloudwatch/>

Question 62: Skipped

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.

(Correct)

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

### Explanation

The AWS Documentation says: Always use a Launch Configuration to update the Auto Scaling group's underlying EC2 instances.

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>

Question 63: Skipped

In what events would cause Amazon RDS to initiate a failover to the standby replica? Choose 3 answers from the options given below

- A. Loss of availability in primary Availability Zone (Correct)
- B. Loss of network connectivity to primary (Correct)
- C. Storage failure on secondary (Correct)
- D. Compute unit failure on primary (Correct)

### Explanation

Amazon RDS detects and automatically recovers from the most common failure scenarios for Multi-AZ deployments so that you can resume database operations as quickly as possible without administrative intervention. Amazon RDS automatically performs a failover in the event of any of the following: Loss of availability in primary Availability Zone Loss of network connectivity to primary Compute unit failure on primary Storage failure on primary Note: When operations such as DB Instance scaling or system upgrades like OS patching are initiated for Multi-AZ deployments, for enhanced availability, they are applied first on the standby prior to an automatic failover. As a result, your availability impact is limited only to the time required for automatic failover to complete. Note that Amazon RDS Multi-AZ deployments do not failover automatically in response to database operations such as long running queries, deadlocks or database corruption errors. For more information on read replicas, please visit the below URL: <https://aws.amazon.com/rds/details/read-relicas/>

Question 64: Skipped

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

- A. CloudWatch Logs Agent (Correct)
- B. CloudWatch Agent (Correct)
- C. Logs Stream (Correct)

## Explanation

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>

Question 65: Skipped

You have a business-critical two tier web app currently deployed in 2 availability zones in a single region, using Elastic Load Balancing (ELB) and Auto-Scaling. The app depends on synchronous replication at the database layer. The application needs to remain fully available even if one application AZ goes off-line and AutoScaling cannot launch new instances in the remaining AZ. How can the current architecture be enhanced to ensure this requirement?

A. Deploy in 2 regions using Weighted Round Robin with AutoScaling minimums set of 50% peak load per Region.

B. Deploy in 3 AZ with Autoscaling minimum set to handle 33 percent peak load per zone.

C. Deploy in 3 AZ with Autoscaling minimum set to handle 50 percent peak load per zone. (Correct)

D. Deploy in 2 regions using Weighted Round Robin with AutoScaling minimums set of 100% peak load per Region.

## Explanation

Since the requirement is that the application should never go down even if an AZ is not available, we need to maintain 100% availability. Option A and D are incorrect because region deployment is not possible for ELB. ELB's can manage traffic within a region and not between regions. Option B is incorrect because even if one AZ goes down, we would be operating at only 66% and not the required 100%. For more information on Autoscaling please visit the below URL:  
<https://aws.amazon.com/autoscaling/>

Question 66: Skipped

A VPC public subnet is one that (Choose one of the correct option below):

A. Has at least one route in its associated routing table that uses an Internet gateway (Correct)

B. Includes a route in its associated routing table via a Network Address Translation(NAT) instance.

C. Has a Network Access Control List(NACL) permitting outbound traffic to 0.0.0.0/0

D. Has the public Subnet option selected in its configuration

## Explanation

The public subnet has a route table that uses the internet gateway. For more information on public subnets please visit the below link: <https://aws.amazon.com/vpc/public-subnets/>

Question 67: Skipped

What action is required to establish an VPC VPN connection between an on-premise data center and an VPC virtual private gateway?

A. Assign a static internet-routable IP Address to an Amazon VPC customer gateway

(Correct)

B. Modify the main route table to allow traffic to a network address translation instance.

C. Use a dedicated network address translation instance in the public subnet

D. Establish a dedicated networking connection using Direct Connect

### Explanation

When defining a VPN connection between the on-premise network and the VPC, you need to have a customer gateway defined. Since this is accessed over the internet, it needs to have a static internet-routable IP Address. For more information on VPC VPN connections please visit the below URL: [http://docs.aws.amazon.com/AmazonVPC/latest/UserGuide/VPC\\_Introduction.html](http://docs.aws.amazon.com/AmazonVPC/latest/UserGuide/VPC_Introduction.html)  
<http://docs.aws.amazon.com/AmazonVPC/latest/UserGuide/vpn-connections.html>

Question 68: Skipped

A startup company hired you to help them build a mobile application that will ultimately store billions of images and videos on S3. The company is lean on funding and wants to minimize operational costs however they have an aggressive marketing plan, and expect to double their current installation base every six months. Due to the nature of their business they are expecting a sudden and large increases in traffic to and from S3 and need to ensure that it can handle the performance needs of their application. What other information must you gather from this customer in order to determine whether S3 is the right option?

A. You must know how many customers the company has today because this is critical in understanding what their customer base will be in 2 years.

B. You must find out the total number of requests per second at peak usage.

(Correct)

C. You must know the size of the individual objects being written to S3, in order to properly design the key namespace.

D. In order to build the key namespace correctly you must understand the total amount of storage needs for each S3 bucket.

### Explanation

When you define an S3 bucket the billing is done on the requests. If you go to the URL:

<http://calculator.s3.amazonaws.com/index.html> which is the calculator for S3 costs, you can see that the cost is related to the total number of requests in addition to the storage. In order to find the estimated cost for the S3 storage, you should get a number of requests.

Question 69: Skipped

You have configuring a solution which uses EC2 Instances and an Elastic Load Balancer. Which of the following protocols can be used to ensure that traffic is secure from the client machine to the Elastic Load Balancer. Choose 2 answers from the options given below

A. HTTP

B. HTTPS

(Correct)

C. TCP

D. SSL

(Correct)

### Explanation

The HTTPS protocol uses the SSL protocol to establish secure connections over the HTTP layer. You can also use the SSL protocol to establish secure connections over the TCP layer. For more information on ELB Listener configuration please see the below link: <http://docs.aws.amazon.com/elasticloadbalancing/latest/classic/elb-listener-config.html>

Question 70: Skipped

After creating a new AWS account, you use the API to request 40 on-demand EC2 instances in a single AZ. After 20 successful requests, subsequent requests failed. What could be a reason for this issue, and how can you resolve it?

A. You encountered a soft limit of 20 instances per region. Submit the limit increase form and retry the failed requests once approved.

(Correct)

B. AWS allows you to provision no more than 20 instances per AZ. Select a different AZ and retry the failed request.

C. You need to use VPC in order to provision more than 20 instances in a single AZ. Simply terminate the resources already provisioned and re-launch them all in a VPC.

D. You encountered an API throttling situation and should try the failed requests using an exponential decay retry algorithm.

### Explanation

There is a soft limits of 20 instances. Since this is across an instance family, option B is wrong because it will not work even if you try another availability zone. For more information on all service limits please visit the below URL:

[https://aws.amazon.com/ec2/faqs/#How\\_many\\_instances\\_can\\_I\\_run\\_in\\_Amazon\\_EC2](https://aws.amazon.com/ec2/faqs/#How_many_instances_can_I_run_in_Amazon_EC2)

Question 71: Skipped

You have been tasked with creating a VPC network topology for your company. The VPC network must support both internet-facing applications and internally-facing applications accessed only over VPN. Both Internet-facing and internally-facing applications must be able to leverage at least 3 AZs for high availability. At a minimum, how many subnets must you create within your VPC to accommodate these requirements?

A. 2

B. 3

C. 4

D. 6

(Correct)

### Explanation

Internet as well as intranet(private) applications must be able to make use of at least three Availability Zones for high availability. So 3 subnets for internet and 3 subnets for private is 6 subnets in total. For more information on VPC and subnets please visit the below URL: [http://docs.aws.amazon.com/AmazonVPC/latest/UserGuide/VPC\\_Subnets.html](http://docs.aws.amazon.com/AmazonVPC/latest/UserGuide/VPC_Subnets.html)

Question 72: Skipped

You receive a Linux Spot Instance at a bid of \$0.05/hr. After 30 minutes, the Spot price increases to \$0.06/hr and your Spot Instance is terminated by AWS. What was the total EC2 compute cost of running your Spot Instances?

A. \$0.025

(Correct)

B. \$0.03

C. \$0.05

D. \$0.06

### Explanation

From 2nd October 2017, per second billing has come into effect for some EC2 instances and EBS. AWS per-second billing will apply to Linux On-Demand, Reserved, and Spot EC2 instances. However, Per-second billing is not applicable to Microsoft Windows instances or to all Linux distributions, so some Linux AMIs may still have an hourly charge.  
<https://aws.amazon.com/blogs/aws/new-per-second-billing-for-ec2-instances-and-ebs-volumes/> With per-second billing in effect, if AWS stops your instance, you will be billed for exactly what you have used. For example, if your instance is stopped by you after a half an hour of use, you only pay for the 30 mins instead of a full hour. For more information on spot instance pricing please visit the below URL: <https://aws.amazon.com/ec2/spot/pricing/>

Question 73: Skipped

Which of the following is a durable key-value store?

- A. Amazon Simple Storage Service (Correct)
- B. Amazon Simple Queue Service
- C. Amazon Simple Workflow Service
- D. Amazon Simple Notification Service

#### Explanation

This is clearly given in the AWS documentations: Reference 1: Reference 2: For more information on S3 please visit the below URLs: <http://docs.aws.amazon.com/AmazonS3/latest/dev/UsingObjects.html> <https://aws.amazon.com/s3/details>

Question 74: Skipped

In reviewing the Auto-Scaling events for your application you notice that your application is scaling up and down multiple times in the same hour. What design choice could you make to optimize for costs while preserving elasticity? Select 2 options.

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

#### Explanation

The Auto Scaling cooldown period is a configurable setting for your Auto Scaling group that helps to ensure that Auto Scaling doesn't launch or terminate additional instances before the previous scaling activity takes effect. After the Auto Scaling group dynamically scales using a simple scaling policy, Auto Scaling waits for the cooldown period to complete before resuming scaling activities. When you manually scale your Auto Scaling group, the default is not to wait for the cooldown period, but you can override the default and honor the cooldown period. Note that if an instance becomes unhealthy, Auto Scaling does not wait for the cooldown period to complete before replacing the unhealthy instance. For more information on Autoscale cool down timers please visit the URL: <http://docs.aws.amazon.com/autoscaling/latest/userguide/Cooldown.html> You can also modify the Cloudwatch triggers to ensure the thresholds are appropriate for the scale down policy. For more information on Autoscaling user guide please visit the URL: <http://docs.aws.amazon.com/autoscaling/latest/userguide/as-scale-based-on-demand.html>

Question 75: Skipped

Which route must be added to your routing table in order to allow connections to the internet from your subnet?

A. Destination:0.0.0.0/0-->Target:your internet gateway

(Correct)

B. Destination:192.168.1.257/0-->Target:your internet gateway

C. Destination:0.0.0.0/33-->Target:your virtual private gateway

D. Destination:0.0.0.0/0-- Target:0.0.0.0/24

### Explanation

The diagram shows a public subnet. The public subnet has a route table that uses the internet gateway. For more information on public subnets please visit the below URL: [http://docs.aws.amazon.com/AmazonVPC/latest/UserGuide/VPC\\_Scenario1.html](http://docs.aws.amazon.com/AmazonVPC/latest/UserGuide/VPC_Scenario1.html)

Question 76: Skipped

You are deploying an application on Amazon EC2 that must call AWS API's. What is the method for securely passing credentials to the application that you use?

A. Embed the API credentials into your JAR files.

B. Use the AWS Identity and Access Management (IAM) roles for EC2 instances

(Correct)

C. Store API credentials as an object in S3.

D. Pass API credentials to the instance using instance userdata.

### Explanation

An IAM role is similar to a user, in that it is an AWS identity with permission policies that determine what the identity can and cannot do in AWS. However, instead of being uniquely associated with one person, a role is intended to be assumable by anyone who needs it. Also, a role does not have any credentials (password or access keys) associated with it. Instead, if a user is assigned to a role, access keys are created dynamically and provided to the user. For more information on IAM role please visit the below URL: [http://docs.aws.amazon.com/IAM/latest/UserGuide/id\\_roles.html](http://docs.aws.amazon.com/IAM/latest/UserGuide/id_roles.html)

Question 77: Skipped

What are some of the metrics that are monitored by AWS Lambda? Choose 3 answers from the options given below.

A. Invocations

(Correct)

 B. Duration

(Correct)

 C. Errors

(Correct)

 D. Database Changes

### Explanation

AWS Lambda automatically monitors functions on your behalf, reporting metrics through Amazon CloudWatch. These metrics include Invocations, Duration, and Errors. For more information on Lambda metrics please visit the below URL:  
<https://docs.aws.amazon.com/lambda/latest/dg/monitoring-functions-metrics.html>  
<http://docs.aws.amazon.com/lambda/latest/dg/monitoring-functions-access-metrics.html>

Question 78: Skipped

There is a new facility from AWS which allows for fast, easy, and secure transfers of files over long distances between your client and your Amazon S3 bucket. What is this service called?

 A. File Transfer B. HTTP Transfer C. S3 Transfer Acceleration

(Correct)

 D. Kinesis Acceleration

### Explanation

To know more about S3 transfer acceleration, please visit the below URL:  
<http://docs.aws.amazon.com/AmazonS3/latest/dev/transfer-acceleration.html>

Question 79: Skipped

What are the languages currently supported by AWS Lambda? Choose 3 answers from the options given below.

 A. Node.js

(Correct)

 B. Angular.js

C. Java

(Correct)

 D. C#

(Correct)

### Explanation

AWS Lambda runs your code on a high-availability compute infrastructure and performs all of the administration of the compute resources, including server and operating system maintenance, capacity provisioning and automatic scaling, code monitoring and logging. All you need to do is supply your code in one of the languages that AWS Lambda supports (currently Node.js, Java, C# and Python). For more information on Lambda please visit the below URL:  
<http://docs.aws.amazon.com/lambda/latest/dg/welcome.html>

Question 80: Skipped

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

 A. AWS Code Commit B. AWS Code Pipeline C. AWS CloudTrail

(Correct)

 D. AWS Cloudwatch

### Explanation

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

Question 81: Skipped

Which of the following statements are false about Amazon Glacier. Choose one answer from the options given below.

 A. It supports archive operations of Upload, Download and Delete B. The archives are mutable

(Correct)

 C. Uploading an archive is a synchronous operation

- D. Archives can be as large as 40TB

### Explanation

This is clearly given in the AWS documentation. A single archive can be as large as 40 terabytes. You can store an unlimited number of archives and an unlimited amount of data in Amazon Glacier. Each archive is assigned a unique archive ID at the time of creation, and the content of the archive is immutable, meaning that after an archive is created it cannot be updated. For more information on AWS Glacier please visit the below URL: <https://aws.amazon.com/glacier/details/>

Question 82: Skipped

Your company currently has a web application hosted on a single EC2 Instance. The load on the application has increased over time and now the users are complaining of slow response time. Which of the following implementations can help alleviate this issue.

- A. Attach an additional EBS Volume to the EC2 Instance and direct the application to make the reads from this new volume.

- B. Attach an additional network interface with an Elastic IP so that requests can be made onto multiple IP's.

- C. Launch additional EC2 Instances in a web server farm type configuration and place them behind an Elastic Load Balancer. (Correct)

- D. Launch additional EC2 Instances in a web server farm type configuration and place them behind Route53.

### Explanation

The AWS mentions the following about the Elastic Load balancer that can be used to help in this issue. A load balancer distributes incoming application traffic across multiple EC2 instances in multiple Availability Zones. This increases the fault tolerance of your applications. Elastic Load Balancing detects unhealthy instances and routes traffic only to healthy instances. Your load balancer serves as a single point of contact for clients. This increases the availability of your application. You can add and remove instances from your load balancer as your needs change, without disrupting the overall flow of requests to your application. Elastic Load Balancing scales your load balancer as traffic to your application changes over time. Elastic Load Balancing can scale to the vast majority of workloads automatically. For more information on the Elastic Load Balancer, please refer to the below link: <http://docs.aws.amazon.com/elasticloadbalancing/latest/classic/introduction.html>

Question 83: Skipped

Which of the following are used to get data records from Amazon Kinesis? Choose an answer from the options below

- A. Consumer (Correct)

- B. Stream

C. Producer

D. None of the above

### Explanation

A consumer gets data records from Amazon Kinesis streams. A consumer, known as an Amazon Kinesis Streams application, processes the data records from a stream. For more information on AWS Kinesis consumers please visit the below URL:  
<http://docs.aws.amazon.com/streams/latest/dev/amazon-kinesis-consumers.html>

Question 84: Skipped

What is the maximum possible retention period for data in Kinesis Streams? Choose an answer from the options below.

A. 5 days

B. 7 days

(Correct)

C. 10 days

D. 24 hours

### Explanation

For more information on AWS Kinesis consumers please visit the below URL:

<http://docs.aws.amazon.com/streams/latest/dev/amazon-kinesis-consumers.html> Data records are accessible for a default of 24 hours from the time they are added to a stream. This time frame is called the retention period and is configurable in hourly increments from 24 to 168 hours (1 to 7 days).

Question 85: Skipped

Which of the following is false when you create an encrypted EBS volume?

A. Data is encrypted at rest inside the volume

B. Data is encrypted when it is moved from one instance to another in the same subnet.

(Correct)

C. Data is encrypted when data is moved between the volume and the instance

D. All snapshots created from the volume are encrypted

## Explanation

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

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

For more information on EBS Encryption, please refer to the below link:  
<http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/EBSEncryption.html>

Question 86: Skipped

In AWS what constitutes temporary security credentials? Choose 3 answers from the options given below

- A. AWS Access Key ID (Correct)
- B. Secret Access Key (Correct)
- C. Security Token (Correct)
- D. SSL Keys

## Explanation

This is given in the AWS documentation: For more information on IAM please visit the below URL:  
<https://aws.amazon.com/iam/faqs/>

Question 87: Skipped

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

- A. Use the Cost Explorer to see the costs of AWS resources (Correct)
- B. Create budgets in billing section so that budgets are set beforehand (Correct)
- C. Send all logs to Cloudwatch logs and inspect the logs for billing details (Correct)
- D. Consider using the Trusted Advisor (Correct)

## Explanation

The AWS Documentation mentions the following 1) For a quick, high-level analysis use Cost Explorer, which is a free tool that you can use to view graphs of your AWS spend data. It includes a variety of filters and preconfigured views, as well as forecasting capabilities. Cost Explorer displays data from the last 13 months, the current month, and the forecasted costs for the next three

months, and it updates this data daily. 2) Consider using budgets if you have a defined spending plan for a project or service and you want to track how close your usage and costs are to exceeding your budgeted amount. Budgets use data from Cost Explorer to provide you with a quick way to see your usage-to-date and current estimated charges from AWS. You can also set up notifications that warn you if you exceed or are about to exceed your budgeted amount. 3) Visit the AWS Trusted Advisor console regularly. Trusted Advisor works like a customized cloud expert, analyzing your AWS environment and providing best practice recommendations to help you save money, improve system performance and reliability, and close security gaps. For more information on cost optimization, please visit the below URL: <https://aws.amazon.com/answers/account-management/cost-optimization-monitor/>

Question 88: Skipped

Who are federated users when it comes to AWS? Choose an answer from the options given below

A. These are IAM users in aws

B. These are IAM groups in aws

C. These are Federated users (external identities) are users you manage outside of AWS in your corporate directory

(Correct)

D. None of the above

### Explanation

This is given in the AWS documentation: For more information on IAM please visit the below URL:  
<https://aws.amazon.com/iam/faqs/>

Question 89: Skipped

As a solution architect, you have been asked to decide on whether to use Amazon EBS-backed or instance-store backed instance. What is one key difference between an Amazon EBS-backed and an instance-store backed instance that you need to keep in mind.

A. Amazon EBS-backed instances can be stopped and restarted.

(Correct)

B. Instance-store backed instances can be stopped and restarted.

C. Auto scaling requires using Amazon EBS-backed instances.

D. Virtual Private Cloud (VPC) requires EBS backed instances.

### Explanation

Amazon EBS-backed instances can be stopped and restarted. Please visit the below URL for the key differences between EBS and instance-store volumes: <http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/ConcurrentAMI.html#Amazon-EBS-backed>

instance store volumes: <http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/ComponentsAMIs.html> Amazon EBS-backed AMI can be placed in stopped state where instance is not running, but the root volume is persisted in Amazon EBS. Amazon Instance store -backed AMI cannot be in stopped state; instances are running or terminated

Question 90: Skipped

Which of the following are not supported in the classic load balancer service provided by AWS? Choose an answer from the options given below.

A. Health Checks

B. Cloudwatch Metrics

C. Host Based Routing

(Correct)

D. Access Logs

### Explanation

This is clearly given in the AWS documentation: For more information on ELB please visit the below URL:  
<https://aws.amazon.com/elasticloadbalancing/classicloadbalancer/faqs/>

Question 91: Skipped

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

A. Use the Active Directory service on AWS

B. Use the AWS Simple AD service

C. Use the Active Directory connector service on AWS

(Correct)

D. Use the ClassicLink feature on AWS

### Explanation

The AWS Documentation mentions the following AD Connector is a directory gateway with which you can redirect directory requests to your on-premises Microsoft Active Directory without caching any information in the cloud. AD Connector comes in two sizes, small and large. A small AD Connector is designed for smaller organizations of up to 500 users. A large AD Connector can support larger organizations of up to 5,000 users. For more information on the AD connector, please refer to the below URL: [http://docs.aws.amazon.com/directoryservice/latest/admin-guide/directory\\_ad\\_connector.html](http://docs.aws.amazon.com/directoryservice/latest/admin-guide/directory_ad_connector.html)

Question 92: Skipped

Which DNS record types does Amazon Route 53 support? Select 3 options.

A. A(address record)

(Correct)

B. AAAA(IPv6 address record)

(Correct)

C. TXT (txt record)

(Correct)

D. Host Information records (HINFO)

#### Explanation

For more information on Route53, please visit the below URL: <https://aws.amazon.com/route53/faqs/>

Question 93: Skipped

A user has been created in IAM but the user is still not able to make API calls. After creating a new IAM user which of the following must be done before they can successfully make API calls?

A. Add a password to the user.

B. Enable Multi-Factor Authentication for the user.

C. Assign a Password Policy to the user.

D. Create a set of Access Keys for the user.

(Correct)

#### Explanation

In IAM , when you create a user , you need to download the Access Key ID and Secret access key so that the user can access aws. For more information on IAM please visit the following URL:  
<http://docs.aws.amazon.com/IAM/latest/UserGuide/introduction.html>

Question 94: Skipped

Which of the following is not supported by AWS Import/Export?

A. Import to Amazon S3

B. Export from Amazon S3

C. Import to Amazon EBS

D. Import to Amazon Glacier

E. Export from Amazon Glacier

(Correct)

### Explanation

The AWS documentation mentions the following AWS Import/Export accelerates transferring data between the AWS cloud and portable storage devices that you mail to us. AWS Import/Export is a good choice if you have 16 terabytes (TB) or less of data to import into Amazon Simple Storage Service or Amazon Elastic Block Store (Amazon EBS). You can also export data from Amazon S3 with AWS Import/Export. Before Amazon Glacier data can be exported it needs to be restored to Amazon S3 using the S3 Lifecycle Restore feature For more information on AWS Import/Export , please refer to the below link:  
<https://docs.aws.amazon.com/amazonglacier/latest/dev/uploading-an-archive.html>  
<http://docs.aws.amazon.com/AWSImportExport/latest/DG/whatisdisk.html>

Question 95: Skipped

Which of the following programming languages have an officially supported AWS SDK? Select 2 options.

A. PHP

(Correct)

B. Pascal

C. Java

(Correct)

D. SQL

E. Perl

### Explanation

This is as per the AWS documentation For more information on aws toolkits available, please refer to the below url:  
<https://aws.amazon.com/tools/>

Question 96: Skipped

When using the following AWS services, which should be implemented in multiple Availability Zones for high availability solutions? Choose 2 answers from the options below.

A. Amazon DynamoDB

B. Amazon Elastic Compute Cloud (EC2)

(Correct)

C. Amazon Elastic Load Balancing

(Correct)

D. Amazon Simple Storage Service (S3)

### Explanation

The snapshot from the AWS documentation shows how the ELB and EC2 instances get setup for high availability. You have the ELB placed in front of the instances. The instances are placed in different AZ's. For more information on the ELB, please visit the below URL: <https://aws.amazon.com/elasticloadbalancing/> Option A is wrong because the service runs across Amazon's proven, high-availability data centers. The service replicates data across three facilities in an AWS Region to provide fault tolerance in the event of a server failure or Availability Zone outage. Option D is wrong because Amazon S3 Standard and Standard - IA redundantly stores your objects on multiple devices across multiple facilities in an Amazon S3 Region. The service is designed to sustain concurrent device failures by quickly detecting and repairing any lost redundancy

Question 97: Skipped

Which of the following statements are true with regards to EBS Volumes. Choose 3 correct answers from the options given below

A. EBS Volumes are automatically replicated within that zone to prevent data loss due to failure of any single hardware component

(Correct)

B. EBS Volumes can be attached to any EC2 Instance in any AZ.

C. After you attach a volume, it appears as a native block device similar to a hard drive or other physical device.

(Correct)

D. An EBS volume can be attached to only one instance at a time

(Correct)

### Explanation

When you create an EBS volume in an Availability Zone, it is automatically replicated within that zone to prevent data loss due to failure of any single hardware component. After you create a volume, you can attach it to any EC2 instance in the same Availability Zone. After you attach a volume, it appears as a native block device similar to a hard drive or other physical device. At that point, the instance can interact with the volume just as it would with a local drive; the instance can format the EBS volume with a file system, such as ext3, and then install applications. An EBS volume can be attached to only one instance at a time within the same Availability Zone. However, multiple volumes can be attached to a single instance. Option B is invalid because you can attach EBS Volumes to any EC2 instance in the same Availability Zone only. For more information on EBS Volumes, please visit the below URL: <http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/EBSVolumes.html>

Question 98: Skipped

You are planning on hosting a static website on an EC2 Instance. Which of the below aspects can be used to create a highly available environment. Choose 3 answers from the options given below

A. An auto scaling group to recover from EC2 instance failures

(Correct)

B. Elastic Load Balancer

(Correct)

C. An SQS queue

D. Multiple Availability Zones

(Correct)

### Explanation

The diagram from AWS documentation shows an example of a high available architecture for hosting EC2 Instances. Here you have the 1) ELB which is placed in front of the users which helps in directing the traffic to the EC2 Instances. 2) The EC2 Instances which are placed as part of an AutoScaling Group. 3) And then you have multiple subnets which are mapped to multiple availability zones. For a static web site, the SQS is not required to build such an environment. If you have a system such as an order processing systems, which has that sort of queuing of requests, then that could be a candidate for using SQS Queues. For more information on high availability, please visit the below URL:  
[https://media.amazonwebservices.com/architecturecenter/AWS\\_ac\\_ra\\_ftha\\_04.pdf](https://media.amazonwebservices.com/architecturecenter/AWS_ac_ra_ftha_04.pdf)

Question 99: Skipped

Which of the following services does not natively encrypts data at rest within an AWS region? (Choose two.)

A. AWS Storage Gateway

B. Amazon DynamoDB

C. Amazon CloudFront

(Correct)

D. Amazon Glacier

E. Amazon Simple Queue Service

(Correct)

### Explanation

CloudFront and SQS do not have Encryption at Rest. All remaining options have Encryption at Rest. This is clearly given in the AWS documentation. For information on Amazon Glacier, please refer to the below link: <https://aws.amazon.com/glacier/faqs/>. For information on Amazon Storage gateways, please refer to the below link: <https://aws.amazon.com/storagegateway/faqs/>. On Feb 8 2018, Amazon announced Encryption at Rest for DynamoDB. For information on Amazon DynamoDb Encryption at Rest, please refer to the below link: <https://docs.aws.amazon.com/amazondynamodb/latest/developerguide/EncryptionAtRest.html>.

Question 100: Skipped

Amazon's Redshift uses which block size for its columnar storage

A. 2KB

B. 8KB

C. 16KB

D. 32KB

E. 1024KB

(Correct)

### Explanation

Columnar storage for database tables is an important factor in optimizing analytic query performance because it drastically reduces the overall disk I/O requirements and reduces the amount of data you need to load from disk. Typical database block sizes range from 2 KB to 32 KB. Amazon Redshift uses a block size of 1 MB, which is more efficient and further reduces the number of I/O requests needed to perform any database loading or other operations that are part of query execution. For more information on Redshift column storage, please visit the below URL:

[http://docs.aws.amazon.com/redshift/latest/dg/c\\_columnar\\_storage\\_disk\\_mem\\_mgmt.html](http://docs.aws.amazon.com/redshift/latest/dg/c_columnar_storage_disk_mem_mgmt.html)

Question 101: Skipped

Which procedure for backing up a relational database on EC2 that is using a set of RAIDed EBS volumes for storage minimizes the time during which the database cannot be written to and results in a consistent backup?

A. 1. Detach EBS volumes, 2. Start EBS snapshot of volumes, 3. Re-attach EBS volumes

B. 1. Stop the EC2 Instance. 2. Snapshot the EBS volumes

C. 1. Suspend disk I/O, 2. Create an image of the EC2 Instance, 3. Resume disk I/O

D. 1. Suspend disk I/O, 2. Start EBS snapshot of volumes, 3. Resume disk I/O

E. 1. Suspend disk I/O, 2. Start EBS snapshot of volumes, 3. Wait for snapshots to complete, 4. Resume disk

(Correct)

### Explanation

The AWS Documentation mentions the following when considering snapshot for EBS Volumes in a RAID configuration When you take a snapshot of an attached Amazon EBS volume that is in use, the snapshot excludes data cached by applications or the operating system. For a single EBS volume, this is often not a problem. However, when cached data is excluded from snapshots of multiple EBS volumes in a RAID array, restoring the volumes from the snapshots can degrade the integrity of the array. When creating snapshots of EBS volumes that are configured in a RAID array, it is critical that there is no data I/O to or from the array during the snapshot process. EBS volumes in a RAID array must be suspended before a snapshot is taken.

volumes when the snapshots are created. RAID arrays introduce data interdependencies and a level of complexity not present in a single EBS volume configuration. For more information on this, please refer to the below link:  
<https://aws.amazon.com/premiumsupport/knowledge-center/snapshot-ebs-raid-array/>

Question 102: Skipped

For which of the following use cases are Simple Workflow Service (SWF) and Amazon EC2 an appropriate solution? Choose 2 answers

A. Using as an endpoint to collect thousands of data points per hour from a distributed fleet of sensors

B. Managing a multi-step and multi-decision checkout process of an e-commerce website (Correct)

C. Orchestrating the execution of distributed and auditable business processes (Correct)

D. Using as an SNS (Simple Notification Service) endpoint to trigger execution of video transcoding jobs

E. Using as a distributed session store for your web application

### Explanation

The AWS Documentation mentions the following on the AWS Simple Workflow service. The Amazon Simple Workflow Service (Amazon SWF) makes it easier to develop asynchronous and distributed applications by providing a programming model and infrastructure for coordinating distributed components and maintaining their execution state in a reliable way. By relying on Amazon SWF, you are freed to focus on building the aspects of your application that differentiate it. For more information on the simple workflow service, please refer to the below link: <http://docs.aws.amazon.com/amazonswf/latest/developerguide/swf-dg-intro-to-swf.html>

Question 103: Skipped

An instance can have many states that perform part of its lifecycle. Choose 3 options which are correct states of an instance lifecycle

A. rebooting (Correct)

B. pending (Correct)

C. running (Correct)

D. Shutdown

### Explanation

The diagram shows the different Instance states. For more information on Instance states, please visit the url

Question 104: Skipped

Which of the following can be used as an origin server in CloudFront? Choose 3 answers from the options given below.

- A. A webserver running on EC2 (Correct)
- B. A webserver running in your own datacenter (Correct)
- C. A RDS instance
- D. An Amazon S3 bucket (Correct)

### Explanation

Currently Cloudfront supports the following types of distributions S3 buckets - When you use Amazon S3 as an origin for your distribution, you place any objects that you want CloudFront to deliver in an Amazon S3 bucket. Custom Origin - A custom origin is an HTTP server, for example, a web server. The HTTP server can be an Amazon EC2 instance or an HTTP server that you manage privately. When you use a custom origin, you specify the DNS name of the server, along with the HTTP and HTTPS ports and the protocol that you want CloudFront to use when fetching objects from your origin. For more information on Cloudfront Distributions, please visit the url

<http://docs.aws.amazon.com/AmazonCloudFront/latest/DeveloperGuide/DownloadDistS3AndCustomOrigins.html>

Question 105: Skipped

A company has configured and peered two VPCs: VPC-1 and VPC-2. VPC-1 contains only private subnets, and VPC-2 contains only public subnets. The company uses a single AWS Direct Connect connection and private virtual interface to connect their on-premises network with VPC-1. Which two methods increases the fault tolerance of the connection to VPC-1? (Choose two.)

- A. Establish a hardware VPN over the internet between VPC-2 and the on-premises network.
- B. Establish a hardware VPN over the internet between VPC-1 and the on-premises network. (Correct)
- C. Establish a new AWS Direct Connect connection and private virtual interface in the same region as VPC-2.
- D. Establish a new AWS Direct Connect connection and private virtual interface in a different AWS region than VPC-1.
- E. Establish a new AWS Direct Connect connection and private virtual interface in the same AWS region as VPC-1 (Correct)

### Explanation

Having a VPN Connection is considered as a backup to a Direct Connect connection. Please find the below article on configuring a VPN connection as a backup <https://aws.amazon.com/premiumsupport/knowledge-center/configure-vpn-backup-dx/> One can also have another Direct Connect connection , so that if one goes down, the other one would still be active. This needs to be in the same region as VPC-1.

Question 106: Skipped

By default, what happens to data when an EC2 instance terminates ? Select 3 options.

A. For EBS backed AMI, the root EBS volume with operating system preserved by default.

B. For EBS backed AMI, any volume attached apart from the OS volume is preserved

(Correct)

C. All the snapshots of the EBS volume with operating system is preserved

(Correct)

D. For S3 backed AMI, all the data in the local (ephemeral) hard drive is deleted

(Correct)

### Explanation

Option B is correct because when an instance is terminated, the volume will remain, unless you specifically delete the volume. When you create an instance, you have the root volume that does get deleted on deletion of the instance. But when you add a new volume, by default the "Delete on termination flag" is unchecked. So unless you don't check this, the volume will remain. Option C is correct because this is the whole idea of snapshots to remain even if the volume or instance is deleted. Option D is correct because ephemeral storage is temporary storage by default and gets deleted when the system is terminated. For more information on EBS volumes, please visit the link - <http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/EBSVolumes.html>

Question 107: Skipped

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

A. With AWS you do not need to worry about encryption

B. Enable EBS Encryption

(Correct)

C. Encrypt the file system on an EBS volume using Linux tools

(Correct)

D. Enable S3 Encryption

(Correct)

### Explanation

Amazon EBS encryption offers you a simple encryption solution for your EBS volumes without the need for you to build, maintain, and secure your own key management infrastructure. When you create an encrypted EBS volume and attach it to a supported instance type, the following types of data are encrypted: Data at rest inside the volume All data moving between the volume and the instance All snapshots created from the volume For more information on EBS Encryption, please refer to the

Volume and the instance A) All snapshots created from the volume. For more information on EBS Encryption, please refer to the below link <http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/EBSEncryption.html> Data protection refers to protecting data while in-transit (as it travels to and from Amazon S3) and at rest (while it is stored on disks in Amazon S3 data centers). You can protect data in transit by using SSL or by using client-side encryption. For more information on S3 Encryption, please refer to the below link <http://docs.aws.amazon.com/AmazonS3/latest/dev/UsingEncryption.html>

Question 108: Skipped

When using the following AWS services, which should be implemented in multiple Availability Zones for high availability solutions? Choose 2 answers

A. Amazon DynamoDB

B. Amazon Elastic Compute Cloud (EC2)

(Correct)

C. Amazon Elastic Load Balancing

(Correct)

D. Amazon Simple Notification Service (SNS)

E. Amazon Simple Storage Service (S3)

### Explanation

The diagram is an architecture sample using Elastic Load Balancer , EC2 and Autoscaling. Here the web servers are scaled on demand using Autoscaling. They are then placed behind an ELB which is used to distribute the traffic amongst the instances. Also the Web servers are placed between multiple availability zones for fault tolerance. For more information on best practices for web hosting, please refer to the below URL: <https://d0.awsstatic.com/whitepapers/aws-web-hosting-best-practices.pdf>

Question 109: Skipped

What is the default period for EC2 cloudwatch data with detailed monitoring disabled?

A. One second

B. Five seconds

C. One minute

D. Three minutes

E. Five minutes

(Correct)

## Explanation

In Amazon CloudWatch for basic monitoring of EC2 instances, the important metrics are collected at five minute intervals and stored for two weeks. CPU load disk I/O network I/O For more information on Amazon Cloudwatch EC2 basic monitoring, please visit <https://aws.amazon.com/blogs/aws/amazon-cloudwatch-basic-monitoring-for-ec2-at-no-charge/>

Question 110: Skipped

You are a solutions architect working for a large digital media company. Your company is migrating their production estate to AWS and you are in the process of setting up access to the AWS console using Identity Access Management (IAM). You have created 5 users for your system administrators. What further steps do you need to take to enable your system administrators to get access to the AWS console?

- A. Generate an Access Key ID & Secret Access Key, and give these to your system administrators.
- B. Enable multi-factor authentication on their accounts and define a password policy.
- C. Generate a password for each user created and give these passwords to your system administrators. (Correct)
- D. Give the system administrators the secret access key and access key id, and tell them to use these credentials to log in to the AWS console.

## Explanation

In order to allow the users to log into the console, you need to provide a password for the users. For more information on how to allow users to sign into an account, please refer to the below URL: [http://docs.aws.amazon.com/IAM/latest/UserGuide/getting-started\\_how-users-sign-in.html](http://docs.aws.amazon.com/IAM/latest/UserGuide/getting-started_how-users-sign-in.html)

Question 111: Skipped

Which technique can be used to integrate AWS IAM (Identity and Access Management) with an on-premise LDAP (Lightweight Directory Access Protocol) directory service?

- A. Use an IAM policy that references the LDAP account identifiers and the AWS credentials.
- B. Use SAML (Security Assertion Markup Language) to enable single sign-on between AWS and LDAP.
- C. Use AWS Security Token Service from an identity broker to issue short-lived AWS credentials. (Correct)
- D. Use IAM roles to automatically rotate the IAM credentials when LDAP credentials are updated.
- E. Use the LDAP credentials to restrict a group of users from launching specific EC2 instance types.

## Explanation

For more information on AWS and SAML, please refer to the below URL: <https://aws.amazon.com/blogs/aws/aws-identity-and-access-management-now-with-identity-federation/>

Question 112: Skipped

Your fortune 500 company has undertaken a TCO analysis evaluating the use of Amazon S3 versus acquiring more hardware. The outcome was that all employees would be granted access to use Amazon S3 for storage of their personal documents. Which of the following will you need to consider so you can set up a solution that incorporates single sign-on from your corporate AD or LDAP directory and restricts access for each user to a designated user folder in a bucket? Choose three answers from the options given below

- A. Setting up a federation proxy or identity provider (Correct)
- B. Using AWS Security Token Service to generate temporary tokens (Correct)
- C. Tagging each folder in the bucket
- D. Configuring IAM role (Correct)
- E. Setting up a matching IAM user for every user in your corporate directory that needs access to a folder in the bucket

## Explanation

The diagram shows how the setup is done using the Secure token service to achieve integration between AWS and an on-premise Active Directory infrastructure. You need to have an identity provider such as Active Directory Federation services. The Secure Token service is used to generate temporary credentials. These credentials are then mapped to corresponding IAM roles.

For more information please refer to the below link:

[http://docs.aws.amazon.com/IAM/latest/UserGuide/id\\_credentials\\_temp.html](http://docs.aws.amazon.com/IAM/latest/UserGuide/id_credentials_temp.html)

Question 113: Skipped

Which of the following are true regarding encrypted Amazon Elastic Block Store (EBS) volumes? Choose 2 answers

- A. Supported on all Amazon EBS volume types (Correct)
- B. Snapshots are automatically encrypted (Correct)
- C. Available to all instance types
- D. Existing volumes can be encrypted
- E. Shared volumes can be encrypted

## Explanation

Please note the keyword "encrypted" in the question. Option C is wrong because there are some instance types that need IOPS storage and not EBS storage. Option D is wrong because existing volumes cannot be encrypted. Option E is wrong because Shared volumes cannot be encrypted. EBS volumes can be applied to all of the below Volume types: For more information on EBS volume types, please visit the link: <http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/EBSEncryption.html>

Question 114: Skipped

For which of the following use cases are Simple Workflow Service (SWF) and Amazon EC2 an appropriate solution? Choose 2 answers

A. Using as an endpoint to collect thousands of data points per hour from a distributed fleet of sensors

B. Managing a multi-step and multi-decision checkout process of an e-commerce website (Correct)

C. Orchestrating the execution of distributed and auditable business processes (Correct)

D. Using as an SNS (Simple Notification Service) endpoint to trigger execution of video transcoding jobs

E. Using as a distributed session store for your web application

## Explanation

Amazon Simple Workflow Service (SWF) is a web service that makes it easy to coordinate work across distributed application components. Amazon SWF enables applications for a range of use cases, including media processing, web application back-ends, business process workflows, and analytics pipelines, to be designed as a coordination of tasks. For collection of data points, this is normally done via Amazon Kinesis, so Option A is wrong. In SWF, you can create multi-step and decision processes for managing approvals during the workflow process, hence Option B is correct. Since business processes can be orchestrated in AWS, Option C is correct. Video transcoding videos generally don't need SWF and rely more on SQS, hence Option D is wrong. Option E is wrong because you need to use a caching solution for this and not SWF. For more information on AWS SWF - Please visit the URL - <https://aws.amazon.com/swf/faqs/>

Question 115: Skipped

You need to configure an Amazon S3 bucket to serve static assets for your public-facing web application. Which methods ensure that all objects uploaded to the bucket are set to public read? Choose 2 answers

A. Set permissions on the object to public read during upload. (Correct)

B. Configure the bucket ACL to set all objects to public read.

C. Configure the bucket policy to set all objects to public read. (Correct)

D. Use AWS Identity and Access Management roles to set the bucket to public read.

E. Amazon S3 objects default to public read, so no action is needed.

### Explanation

To set permissions on buckets and objects, you can give permissions to the bucket beforehand or you can set the permissions to the bucket when an object is uploaded to S3. Option B is incorrect, you cannot configure ACL for all objects to a public read. Even though you can use AWS to create identities, you cannot use it to give public read to a bucket. Option E is incorrect, because public read is not set by default. To implement public read, just go to bucket and Permissions section. Click on Add more permissions, choose the Grantee as Everyone, ensure all permissions are given and then click on the Save button. For more information on access control, please visit the link: <http://docs.aws.amazon.com/AmazonS3/latest/dev/s3-access-control.html>

Question 116: Skipped

Which of the following are valid statements about Amazon S3? Choose 2 options.

A. S3 provides read-after-write consistency for any type of PUT or DELETE.

B. Consistency is not guaranteed for any type of PUT or DELETE.

C. A successful response to a PUT request only occurs when a complete object is saved. (Correct)

D. Partially saved objects are immediately readable with a GET after an overwrite PUT.

E. S3 provides eventual consistency for overwrite PUTS and Deletes. (Correct)

### Explanation

By default the documentation provides a clear description on the read and write consistency for objects on S3. Based on this information Option C and E are the right options. For more information on S3, please visit the link - <https://aws.amazon.com/s3/faqs/>

Question 117: Skipped

Which of the following are characteristics of a standard reserved instance? Choose 3 answers

A. It can be migrated across Availability Zones

(Correct)

B. It is specific to an Amazon Machine Image (AMI)

C. It can be applied to instances launched by Auto Scaling

(Correct)

D. It is specific to an instance Type

E. It can be used to lower Total Cost of Ownership (TCO) of a system

(Correct)

### Explanation

Option A is correct, because you can migrate instances between AZ's. Please refer to the link for the confirmation on this case - <http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/ri-modifying.html> Option D is incorrect because it is specific to instance family however instance type can be changed. Also when you create a reserved instance, you can see the Instance Type as an option. Option E is correct, because reserved instances can be used to lower costs. Reserved Instances provide you with a discount on usage of EC2 instances, and a capacity reservation when they are applied to a specific Availability Zone, giving you additional confidence that you will be able to launch the instances you have reserved when you need them. For more information on reserved instances, please visit the link - <https://aws.amazon.com/ec2/pricing/reserved-instances/>

Question 118: Skipped

If you're unable to connect via SSH to your EC2 instance, which of the following should you check and possibly correct to restore connectivity?

A. Adjust Security Group to permit egress traffic over TCP port 443 from your IP.

B. Configure the IAM role to permit changes to security group settings.

C. Modify the instance security group to allow ingress of ICMP packets from your IP.

D. Adjust the instance's Security Group to permit ingress traffic over port 22 from your IP.

(Correct)

E. Apply the most recently released Operating System security patches.

### Explanation

A security group acts as a virtual firewall that controls the traffic for one or more instances. When you launch an instance, you associate one or more security groups with the instance. You add rules to each security group that allow traffic to or from its associated instances. For connecting via SSH on EC2, you need to ensure that port 22 is open on the security group for the EC2 instance. Option A is wrong, because port 443 is for HTTPS and not for SSH. Option B is wrong because IAM role is not pertinent to security groups Option C is wrong because this is relevant to SSH and not ICMP Option E is wrong because it does not matter what patches are there on the system So in your EC2 Dashboard, go to Security groups, choose the relevant security group. Then click on Inbound rules and ensure there is a rule for TCP on port 22. For more information on EC2 Security groups, please visit the url - <http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/using-network-security.html>

Question 119: Skipped

An Auto-Scaling group spans 3 AZs and currently has 4 running EC2 instances. When Auto Scaling needs to terminate an EC2 instance by default, Auto Scaling will: Choose 2 answers.

A. Allow at least five minutes for Windows/Linux shutdown scripts to complete, before terminating the instance.

B. Terminate the instance with the least active network connections. If multiple instances meet this criterion, one will be randomly selected.

C. Send a SNS notification, if configured to do so.

(Correct)

D. Terminate an instance in the AZ which currently has 2 running EC2 instances.

(Correct)

E. Randomly select one of the 3 AZs, and then terminate an instance in that AZ.

### Explanation

In the above scenario, you would probably have 2 instances running in one AZ and one each running in the other AZ's. The below diagram shows how the instances will be terminated and the policy used by Auto scaling. So it will select the AZ with the most running instances as per the flow chart and hence Option D is correct and Options A, B and E are wrong. Also Auto scaling allows for notification via SNS, so if that is enabled, it will send out the notification accordingly. For more information on Auto scaling Termination, please visit the link: <http://docs.aws.amazon.com/autoscaling/latest/userguide/as-instance-termination.html>

Question 120: Skipped

In order to optimize performance for a compute cluster that requires low inter-node latency, which of the following feature should you use?

A. Multiple Availability Zones

B. AWS Direct Connect

C. EC2 Dedicated Instances

D. Placement Groups

(Correct)

E. VPC private subnets

### Explanation

Option A is wrong because Multi AZ's are used to distribute your AWS resources and is not connected to clusters for low latency. Option B is wrong because this is used to connect on-premise data centers to AWS. Option C is wrong because dedicated resources does not guarantee low latency. Option E is wrong because VPC private subnets resources does not guarantee low latency. A placement group is a logical grouping of instances within a single Availability Zone. Placement groups are recommended for applications that benefit from low network latency, high network throughput, or both. For more information on placement groups please visit <http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/placement-groups.html>

Question 121: Skipped

A company is preparing to give AWS Management Console access to developers. Company policy mandates identity federation and role-based access control. Roles are currently assigned using groups in the corporate Active Directory. What combination of the following will give developers access to the AWS console? Choose 2 answers

A. AWS Directory Service AD Connector

(Correct)

B. AWS Directory Service Simple AD

C. AWS Identity and Access Management groups

D. AWS Identity and Access Management roles

(Correct)

E. AWS Identity and Access Management users

### Explanation

To enable trust relationship between AWS AD and Directory Service you need to create a New Role. After that, you need to assign Active Directory users or groups to those IAM roles. If roles are existing then you can assign Active Directory users or groups to existing IAM roles. Find details below: <https://aws.amazon.com/blogs/security/how-to-connect-your-on-premises-active-directory-to-aws-using-ad-connector/> AWS Directory Service provides multiple ways to use Microsoft Active Directory with other AWS services. You can choose the directory service with the features you need at a cost that fits your budget. Use Simple AD if you need an inexpensive Active Directory-compatible service with the common directory features. Select AWS Directory Service for Microsoft Active Directory (Enterprise Edition) for a feature-rich managed Microsoft Active Directory hosted on the AWS cloud. The third option, AD Connector, lets you simply connect your existing on-premises Active Directory to AWS. For more information on the Ad Connector, please visit [http://docs.aws.amazon.com/directoryservice/latest/admin-guide/what\\_is.html](http://docs.aws.amazon.com/directoryservice/latest/admin-guide/what_is.html)

Question 122: Skipped

Which of the following are true regarding encrypted Amazon Elastic Block Store (EBS) volumes? Choose two answers from the options given below

A. Supported on all Amazon EBS volume types

(Correct)

B. Snapshots are automatically encrypted

(Correct)

C. Available to all instance types

D. Existing volumes can be encrypted

E. Shared volumes can be encrypted

### Explanation

The AWS Documentation mentions the following on EBS Volumes and is available for all volume types You can create EBS General Purpose SSD (gp2), Provisioned IOPS SSD (io1), Throughput Optimized HDD (st1), and Cold HDD (sc1) volumes up to 16 TiB in size The snapshots of encrypted EBS Volumes are automatically encrypted, this is given in the AWS documentation For more information on EBS Volumes , please refer to the below URL:  
<http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/AmazonEBS.html>

Question 123: Skipped

Which of the following are characteristics of Amazon VPC subnets? Choose 2 answers from the options given below

A. Each subnet spans at least 2 Availability Zones to provide a high-availability environment.

B. Each subnet maps to a single Availability Zone. (Correct)

C. CIDR block mask of/25 is the smallest range supported.

D. By default, all subnets can route between each other, whether they are private or public. (Correct)

E. Instances in a private subnet can communicate with the Internet only if they have an Elastic IP.

### Explanation

Please see the below for further justification. A subnet can only map to one availability zone. So from options A and B, B is correct. When you create a CIDR block, the least allowable is /28, so option C is wrong. Option E is wrong because EC2 instances in a private subnet will not be able to route anything on the internet even if they have an elastic IP.

Question 124: Skipped

Per the AWS Acceptable Use Policy, penetration testing of EC2 instances:

A. May be performed by AWS, and will be performed by AWS upon customer request.

B. May be performed by AWS, and is periodically performed by AWS.

C. Are expressly prohibited under all circumstances.

D. May be performed by the customer on their own instances with prior authorization from AWS. (Correct)

E. May be performed by the customer on their own instances, only if performed from EC2 instances.

### Explanation

You need to take prior authorization from AWS before doing a penetration test on EC2 Instances. Please refer to the below url for more details: <https://aws.amazon.com/security/penetration-testing/>

Question 125: Skipped

How can you secure data at rest on an EBS volume?

- A. Attach the volume to an instance using EC2's SSL interface.
- B. Write the data randomly instead of sequentially.
- C. Encrypt the volume using the S3 server-side encryption service.
- D. Create an IAM policy that restricts read and write access to the volume.
- E. Use an encrypted file system on top of the EBS volume.

(Correct)

### Explanation

In order to secure data at rest on an EBS volume, you either have to encrypt the volume when it is being created or encrypt the data after the volume is created.

Question 126: Skipped

If you want to launch Amazon Elastic Compute Cloud (EC2) instances and assign each instance a private IP address in a predetermined range, you should: (choose one of the correct answer below)

- A. Launch the instance from a private Amazon Machine Image (AMI).
- B. Assign a group of sequential Elastic IP address to the instances.
- C. Launch the instances in the Amazon Virtual Private Cloud (VPC).
- D. Launch the instances in a Placement Group.
- E. Use standard EC2 instances since each instance gets a private Domain Name Service (DNS) already.

(Correct)

### Explanation

This is the default reason for a VPC to host your own subnet and have EC2 instances have a private IP when it is launched in a VPC. Below is an example of an EC2 instance having a Private IP. For more information on private IP addresses, please refer to the below URL: <http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/using-instance-addressing.html>

Question 127: Skipped

Which of the following notification endpoints or clients are supported by Amazon Simple Notification Service? Choose 2 answers from the options below.

A. Email

(Correct)

B. CloudFront distribution

C. File Transfer Protocol

D. Short Message Service

(Correct)

E. Simple Network Management Protocol

#### Explanation

When you create a subscription in SNS , these are the protocols available on your console.

Question 128: Skipped

Which of the following instance types are available as Amazon EBS-backed only? Choose 2 answers from the options below.

A. General purpose T2

(Correct)

B. General purpose M3

C. Compute-optimized C4

(Correct)

D. Compute-optimized C3

E. Storage-optimized I2

#### Explanation

For details for all instance types, please visit the url - <https://aws.amazon.com/ec2/instance-types/>

Question 129: Skipped

There is an urgent requirement to monitor few database metrics for a database hosted on AWS and send notifications. Which AWS services can accomplish this requirements? Choose 2 answers from the options given below.

A. Amazon Simple Email Service

B. Amazon CloudWatch (Correct)

C. Amazon Simple Queue Service (SQS)

D. Amazon Route 53

E. Amazon Simple Notification Service (SNS) (Correct)

### Explanation

Amazon Cloudwatch will be used to monitor the IOP's metrics from the RDS instance and Amazon Simple Notification Service will be used to send the notification if any alarm is triggered. For more information on Cloudwatch and SNS, please visit the below URLs: <https://aws.amazon.com/cloudwatch/> <https://aws.amazon.com/sns/>

Question 130: Skipped

A customer nightly EMR job processes a single 2-TB data file stored on S3. The EMR job runs on 2 on-demand core nodes and 3 on-demand task nodes. Which of the following may help reduce the EMR job completion time? Choose 2 answers from the options below

A. Use 3 spot instances rather than 3 on-demand instances for the task nodes.

B. Change the input split size in the MapReduce job configuration (Correct)

C. Use a bootstrap action to present the S3 bucket as a local filesystem

D. Launch the core nodes and the task nodes with a VPC

E. Adjust the number of simultaneous mapper tasks (Correct)

### Explanation

As per the AWS documentation, if you have too few tasks , then you have nodes sitting idle. You can increase the number of simultaneous mapper tasks and reduce the size of the MapReduce job configuration For more information on EMR tasks please visit the below URL: [http://docs.aws.amazon.com/emr/latest/DeveloperGuide/TaskConfiguration\\_H1.0.3.html](http://docs.aws.amazon.com/emr/latest/DeveloperGuide/TaskConfiguration_H1.0.3.html)

Question 131: Skipped

What combination of the following options will protect S3 objects from both accidental deletion and accidental overwriting?  
Choose 2 answers from the options below

A. Enable S3 versioning on the bucket

(Correct)

B. Access S3 data using only signed URL's

C. Disable S3 delete using an IAM bucket policy

D. Enable S3 RRS

E. Enable MFA protected access

(Correct)

### Explanation

This is clearly given in the AWS documentation: For more information on S3 please visit the below URL:  
<https://aws.amazon.com/s3/faqs/>

Question 132: Skipped

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

A. us-west-2a with 2 instances, us-west-2b with 2 instances, us-west-2c with 2 instances

B. us-west-2a with 3 instances, us-west-2b with 3 instances, us-west-2c with 0 instances

C. us-west-2a with 4 instances, us-west-2b with 2 instances, us-west-2c with 2 instances

D. us-west-2a with 6 instances, us-west-2b with 6 instances, us-west-2c with 0 instances

(Correct)

E. us-west-2a with 3 instances, us-west-2b with 3 instances, us-west-2c with 3 instances

(Correct)

### Explanation

If you read the question carefully, it asks you the scenario when only one AZ goes down at a time. The requirement is to make 6 instances always running even if any one of the AZ is goes down. The questions doesn't ask you if any 2 or 3 AZ goes down at a time. Hence D and E ensures that always 6 instances are running if any one AZ goes down at a time. I hope this clears your doubts. Since we need 6 instances running at all times , only D and E fulfill this option. Option A is invalid , because if any one of Availability zones goes down , then we are left with only 4 running instances. Option B is invalid because if either us-west-2a or us-west-2b goes down then we are left with less than 6 instances. Option C is invalid if us-west-2a goes down then we are left with less than 6 instances For more information on building fault tolerant applications in AWS , please refer to the below link

Question 133: Skipped

You are developing a highly available web application using stateless web servers. Which services are suitable for storing session state data? Choose 3 answers from the options below

A. Amazon RDS

(Correct)

B. Amazon Elastic Cache

(Correct)

C. Amazon Cloudwatch

D. Elastic Load Balancing (ELB)

E. Amazon DynamoDB

(Correct)

### Explanation

Amazon Relational Database Service (Amazon RDS) makes it easy to set up, operate, and scale a relational database in the cloud. It provides cost-efficient and resizable capacity while managing time-consuming database administration tasks, freeing you up to focus on your applications and business. Amazon ElastiCache is a web service that makes it easy to deploy, operate, and scale an in-memory data store or cache in the cloud. The service improves the performance of web applications by allowing you to retrieve information from fast, managed, in-memory data stores, instead of relying entirely on slower disk-based databases. Amazon DynamoDB 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 and reliable performance make it a great fit for mobile, web, gaming, ad tech, IoT, and many other applications. For more information on Amazon RDS please visit the below URL: <https://aws.amazon.com/rds/>  
Amazon Elastic Cache For more information on Amazon Elastic Cache please visit the below URL:  
<https://aws.amazon.com/elasticache/> For more information on Amazon DynamoDB please visit the below URL:  
<https://aws.amazon.com/dynamodb/>

Question 134: Skipped

You are developing a highly available web application using stateless web servers. Which services are suitable for storing session state data? Choose 3 answers

A. Amazon CloudWatch

B. Amazon Relational Database Service (RDS)

(Correct)

C. Elastic Load Balancing

D. Amazon ElastiCache

(Correct)

E. AWS Storage Gateway

F. Amazon DynamoDB

(Correct)

### Explanation

Please find the AWS Documentation references for Elastic Cache and DynamoDB. Relational databases have always been a source for storing session data. Amazon ElastiCache is a web service that makes it easy to deploy, operate, and scale an in-memory data store or cache in the cloud. The service improves the performance of web applications by allowing you to retrieve information from fast, managed, in-memory data stores, instead of relying entirely on slower disk-based databases. For more information on Elastic Cache , please refer to the below link <https://aws.amazon.com/elasticache/> An example of managing session state via DynamoDB is given below <http://docs.aws.amazon.com/sdk-for-net/v2/developer-guide/dynamodb-session-net-sdk.html>

Question 135: Skipped

A customer needs corporate IT governance and cost oversight of all AWS resources consumed by its divisions. The divisions want to maintain administrative control of the discrete AWS resources they consume and keep those resources separate from the resources of other divisions. Which of the following options, when used together will support the autonomy/control of divisions while enabling corporate IT to maintain governance and cost oversight? Choose two answers from the options given below

A. Use AWS Consolidated Billing and disable AWS root account access for the child accounts.

B. Enable IAM cross-account access for all corporate IT administrators in each child account.

(Correct)

C. Create separate VPCs for each division within the corporate IT AWS account.

D. Use AWS Consolidated Billing by creating AWS Organisations to link the divisions' accounts to a parent corporate account.

(Correct)

E. Write all child AWS CloudTrail and Amazon CloudWatch logs to each child account's Amazon S3 'Log' bucket.

### Explanation

Since the resources need to be separated and a separate governance model is required for each section of resources , then it's better to have a separate AWS account for each division. Each division's AWS account can sign up for consolidating billing to the main corporate account by creating AWS Organisations. The IT administrators can then be granted access via cross account role access. For more information on consolidating billing, please visit the below URL:  
<http://docs.aws.amazon.com/awsaccountbilling/latest/aboutv2/consolidated-billing.html>

Question 136: Skipped

Which of the following are use cases for Amazon DynamoDB? Choose 3 answers

A. Storing BLOB data.

B. Managing web sessions.

(Correct)

C. Storing JSON documents.

(Correct)

D. Storing metadata for Amazon S3 objects.

(Correct)

E. Running relational joins and complex updates.

F. Storing large amounts of infrequently accessed data

### Explanation

Amazon DynamoDB stores structured data, indexed by primary key, and allows low latency read and write access to items ranging from 1 byte up to 400KB. Amazon S3 stores unstructured blobs and suited for storing large objects up to 5 TB. DynamoDB IS a good choice to store the metadata for a BLOB, such as name, date created, owner, etc... The Binary Large OObject itself would be stored in S3. For more information on Amazon Dynamo DB, please visit <https://aws.amazon.com/dynamodb/faqs/>

Question 137: Skipped

A company is storing data on Amazon Simple Storage Service (S3). The company's security policy mandates that data is encrypted at rest. Which of the following methods can achieve this? (Choose three.)

A. Use Amazon S3 server-side encryption with AWS Key Management Service managed keys.

(Correct)

B. Use Amazon S3 server-side encryption with customer-provided keys.

(Correct)

C. Use Amazon S3 server-side encryption with EC2 key pair.

D. Use Amazon S3 bucket policies to restrict access to the data at rest.

E. Encrypt the data on the client-side before ingesting to Amazon S3 using their own master key.

(Correct)

F. Use SSL to encrypt the data while in transit to Amazon S3.

### Explanation

One can encrypt data in an S3 bucket using both server side encryption and client side encryption. The following techniques are available - Use Server-Side Encryption with Amazon S3-Managed Keys (SSE-S3) · Use Server-Side Encryption with AWS KMS-Managed Keys (SSE-KMS) · Use Server-Side Encryption with Customer-Provided Keys (SSE-C) · Use Client-Side Encryption with AWS KMS-Managed Customer Master Key (CMK) · Use Client-Side Encryption Using a Client-Side Master Key For more information on using encryption, please refer to the below URL:  
<https://docs.aws.amazon.com/AmazonS3/latest/dev/UsingEncryption.html>

Question 138: Skipped

You are using an m1.small EC2 Instance with one 300 GB EBS volume to host a relational database. You determined that write throughput to the database needs to be increased. Which of the following approaches can help achieve this? Choose 2 answers

A. Use an array of EBS volumes.

(Correct)

B. Enable Multi-AZ mode.

C. Place the instance in an Auto Scaling Groups

D. Add an EBS volume and place into RAID 5.

E. Increase the size of the EC2 Instance.

(Correct)

F. Put the database behind an Elastic Load Balancer.

### Explanation

The AWS Documentation mentions the following With Amazon EBS, you can use any of the standard RAID configurations that you can use with a traditional bare metal server, as long as that particular RAID configuration is supported by the operating system for your instance. This is because all RAID is accomplished at the software level. For greater I/O performance than you can achieve with a single volume, RAID 0 can stripe multiple volumes together; for on-instance redundancy, RAID 1 can mirror two volumes together. For more information on RAID configuration, please refer to the below URL:

<http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/raid-config.html> And then to offset the use of higher compute capacity, it is better to use a better instance type For more information on Instance types, please refer to the below URL:  
<https://aws.amazon.com/ec2/instance-types/>

Question 139: Skipped

You are designing a social media site and are considering how to mitigate distributed denial-of-service (DDoS) attacks. Which of the below are viable mitigation techniques? Choose 3 answers from the options below

A. Add multiple elastic network interfaces (ENIs) to each EC2 instance to increase the network bandwidth.

B. Use dedicated instances to ensure that each instance has the maximum performance possible.

C. Use an Amazon CloudFront distribution for both static and dynamic content.

(Correct)

D. Use an Elastic Load Balancer with auto scaling groups at the web, App. Restricting direct internet traffic to Amazon Relational Database Service (RDS) tiers.

(Correct)

E. Add alert Amazon CloudWatch to look for high Network in and CPU utilization.

(Correct)

F. Create processes and capabilities to quickly add and remove rules to the instance OS firewall.

### Explanation

The snapshot from the aws documentation shows the best architecture practises for avoiding DDoS attacks. For best practises against DDoS attacks , please visit the below link [https://d0.awsstatic.com/whitepapers/DDoS\\_White\\_Paper\\_June2015.pdf](https://d0.awsstatic.com/whitepapers/DDoS_White_Paper_June2015.pdf)

Question 140: Skipped

In AWS, which security aspects are the customer's responsibility? Choose 4 answers

A. Security Group and ACL (Access Control List) settings

(Correct)

B. Decommissioning storage devices

C. Patch management on the EC2 instance's operating system

(Correct)

D. Life-cycle management of IAM credentials

(Correct)

E. Controlling physical access to compute resources

F. Encryption of EBS (Elastic Block Storage) volumes

(Correct)

### Explanation

Please view the shared responsibility model shared by AWS <https://aws.amazon.com/compliance/shared-responsibility-model/>

Question 141: Skipped

If need to upload a file to S3 that is 600MB in size, which of the following is the best option to use? Choose an answer from the options below. Choose the correct answer from the options below

A. Single operation upload

B. Snowball

C. AWS Import/Export

D. Multi-part upload

(Correct)

### Explanation

The Multipart upload API enables you to upload large objects in parts. You can use this API to upload new large objects or make a copy of an existing object (see Operations on Objects). Multipart uploading is a three-step process: You initiate the upload, you upload the object parts, and after you have uploaded all the parts, you complete the multipart upload. Upon receiving the complete multipart upload request, Amazon S3 constructs the object from the uploaded parts, and you can then access the object just as you would any other object in your bucket. For more information on Multi-part file upload, please refer to the following link <http://docs.aws.amazon.com/AmazonS3/latest/dev/mpuoverview.html>

Question 142: Skipped

A company has the requirement to store files in S3. After a period of a month, these files can be archived. The archived files might be required after a period of 3-4 months. Which of the following suits the requirements

A. Use EC2 instances with EBS volumes, one for normal storage and the other for archived storage

B. Use S3 for normal file storage and use lifecycle policies for moving the files to glacier.

(Correct)

C. Use EC2 instances with EBS volumes and use lifecycle policies for moving the files to glacier.

D. Use glacier for normal file storage and use lifecycle policies for moving the files to S3.

### Explanation

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. 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. For more information on Lifecycle policies, please refer to the following link <http://docs.aws.amazon.com/AmazonS3/latest/dev/object-lifecycle-mgmt.html>

Question 143: Skipped

Your team has an application hosted on Docker containers. You want to port that application in the easiest way possible onto AWS for your development community. Which of the following service can be used to fulfil this requirement

A. AWS Elastic Load Balancer

B. AWS SNS

C. AWS SQS

D. AWS Elastic Beanstalk

(Correct)

### Explanation

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

Question 144: Skipped

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

(Correct)

 D. EC2Config

### Explanation

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>

Question 145: Skipped

If you wanted to extend your on-premise infrastructure with AWS, which of the below options would help. Choose 2 answers from the options given below

 A. Virtual Private Network

(Correct)

 B. CloudFront Service C. Direct Connect

(Correct)

 D. Primary Connection

## Explanation

You can either build a VPN or have a direct connect connection For more information on VPC to on-premise networks, please refer to the following link <https://aws.amazon.com/blogs/apn/amazon-vpc-for-on-premises-network-engineers-part-one/>

Question 146: Skipped

Why does stopping and starting an instance help in fixing a System Status Check error? Choose an answer from the options given below

- A. Stopping and starting an instance causes the instance to change the AMI.
- B. Stopping and starting an instance causes the instance to be provisioned on different AWS hardware. (Correct)
- C. Stopping and starting an instance reboots the operating system.
- D. None of the above

## Explanation

Refer steps published by AWS support: <https://aws.amazon.com/premiumsupport/knowledge-center/system-reachability-check/> This is given in the aws documentation For more information on starting and stopping instances, please refer to the following link [http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/Stop\\_Start.html](http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/Stop_Start.html)

Question 147: Skipped

In consolidated billing what are the 2 different types of accounts.

- A. Paying account and Linked account (Correct)
- B. Parent account and Child account
- C. Main account and Sub account.
- D. Primary account and Secondary account.

## Explanation

You can have a combination of Paying accounts and linked accounts. When you have consolidated billing you have the facility to reduce the costs for the paying account. This is one of the main advantages of consolidated billing. Consolidated billing has the following benefits: One Bill - You get one bill for multiple accounts. Easy Tracking - You can easily track each account's charges and download the cost data in CSV format. Combined Usage - If you have multiple accounts today, your charges might decrease because AWS combines usage from all accounts in the organization to qualify you for volume pricing discounts. For information on Consolidated billing, please visit the link: <https://docs.aws.amazon.com/awsaccountbilling/latest/aboutv2/consolidated-billing.html>

Question 148: Skipped

What is the term often used to describe a DR scenario in which a minimal version of an environment is always running in the cloud. Choose an answer from the options given below

A. Backup and Restore

B. Pilot Light

(Correct)

C. Warm standby

D. Multi Site

### Explanation

This is given in a whitepaper published by AWS For more information on disaster recovery, please refer to the below link  
[https://media.amazonaws.com/AWS\\_Disaster\\_Recovery.pdf](https://media.amazonaws.com/AWS_Disaster_Recovery.pdf)

Question 149: Skipped

Which of the following features ensures even distribution of traffic to Amazon EC2 instances in multiple Availability Zones registered with a load balancer?

A. Elastic Load Balancing request routing

B. An Amazon Route 53 weighted routing policy

C. Elastic Load Balancing cross-zone load balancing

(Correct)

D. An Amazon Route 53 latency routing policy

### Explanation

To ensure that traffic is evenly distributed, you need to ensure the "Enable Cross-Zone Load balancing option" is chosen. This option comes up when you are creating a classic load balancer in Step 5 of Add EC2 instances.

Question 150: Skipped

Currently you have a VPC with EC2 Security Group and several running EC2 instances. You change the Security Group rules to allow inbound traffic on a new port and protocol, and launch several new instances in the same Security Group. When will the new instances receive traffic on the new port and protocol?

the Security Group changes be applied to the EC2 instances? Please choose the correct answer.

- A. Immediately to all instances in the security group. (Correct)
- B. Immediately to the new instances only.
- C. Immediately to the new instances, but old instances must be stopped and restarted before the new rules apply.
- D. To all instances, but it may take several minutes for old instances to see the changes.

#### Explanation

By default whatever changes you make to security rules will be applied in all instances which are part of that security group. When you add or remove rules, they are automatically applied to all instances associated with the security group. For more information, please refer the below URL: [http://docs.aws.amazon.com/AmazonVPC/latest/UserGuide/VPC\\_SecurityGroups.html](http://docs.aws.amazon.com/AmazonVPC/latest/UserGuide/VPC_SecurityGroups.html)