



# AWS CLF-C01

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# 115+ AWS Certified Cloud Practitioner CLF-C01

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## **AWS Certified Cloud Practitioner CLF-C01 Practice Tests 2020®**

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# **INTRODUCTION**

The AWS Certified Cloud Practitioner (CLF-C01) examination is intended for individuals who have the knowledge, skills, and abilities to demonstrate basic knowledge of the AWS platform, including: available services and their common use cases, AWS Cloud architectural principles (at the conceptual level), account security, and compliance.

## **About This Book**

AWS Certified Cloud Practitioner (CLF-C01) Practice Tests 2020 by Examsdigest is designed to be a practical practice exam guide that will help you prepare for the AWS CLF-C01 exams. As the book title says, it includes 115 questions, organized by exam so that you can prepare for the final exam.

This book has been designed to help you prepare for the style of questions you will receive on the AWS CLF-C01 exams. It also helps you understand the topics you can expect to be tested on for each exam.

In order to properly prepare for the AWS Certified Cloud Practitioner, I recommend that you:

✓ **Review a reference book:** AWS Certified Cloud Practitioner (CLF-C01) Practice Tests 2020 by Examsdigest is designed to give you sample questions to help you prepare for the style of questions you will receive on the real certification exam. However, it is not a reference book that teaches the concepts in detail. That said, I recommend that you review a reference book before attacking these questions so that the theory is fresh in your mind.

✓ **Get some practical, hands-on experience:** After you review the theory, I highly recommend getting started by creating a free AWS account. The more hands-on experience you have, the easier the exams will be.

✓ **Do practice test questions:** After you review a reference book and perform some hands-on work, attack the questions in this book to get you “exam ready”! Also claim your free 1-month access on our platform to dive into to more questions, flashcards and much much more.

## Beyond The Book

This book gives you plenty of AWS CLF-C01 questions to work on, but maybe you want to track your progress as you tackle the questions, or maybe you’re having trouble with certain

types of questions and wish they were all presented in one place where you could methodically make your way through them. You're in luck. Your book purchase comes with a free one-month subscription to all practice questions online and more. You get on-the-go access any way you want it — from your computer, smartphone, or tablet. Track your progress and view personalized reports that show where you need to study the most. Study what, where, when, and how you want!

## **What you'll find online**

The online practice that comes free with this book offers you the same questions and answers that are available here and more.

The beauty of the online questions is that you can customize your online practice to focus on the topic areas that give you the most trouble.

So if you need help with Domain 1: Cloud Concepts, then select questions related to this topic online and start practicing.

Whether you practice a few hundred problems in one sitting or a couple dozen, and whether you focus on a few types of problems or practice every type, the online program keeps

track of the questions you get right and wrong so that you can monitor your progress and spend time studying exactly what you need.

You can access these online tools by sending an email to the [info@examsdigest.com](mailto:info@examsdigest.com) to claim access on our platform. Once we confirm the purchase you can enjoy your free access.

## **AWS Certified Cloud Practitioner CLF-C01 Exam Details**

The online practice that comes free with this book offers you the same questions and answers that are available here and more.

- ✓ **Format** - Multiple choice, multiple answer
- ✓ **Type** - Foundational
- ✓ **Delivery Method** - Testing center or online proctored exam
- ✓ **Time** - 90 minutes to complete the exam
- ✓ **Cost** - 100 USD
- ✓ **Language** - Available in English, Japanese, Korean, and Simplified Chinese

# Exam Content

## Response Types

There are two types of questions on the examination:

**Multiple choice:** Has one correct response and three incorrect responses (distractors).

**Multiple response:** Has two correct responses out of five response options. Select one or more responses that best complete the statement or answer the question.

Distractors, or incorrect answers, are response options that an examinee with incomplete knowledge or skill would likely choose. However, they are generally plausible responses that fit in the content area defined by the test objective.

Unanswered questions are scored as incorrect; there is no penalty for guessing.

## Unscored Content

Your examination may include unscored items that are placed on the test to gather statistical information. These items are not identified on the form and do not affect your score.

## Exam Results

The AWS Certified Cloud Practitioner CLF-C01 examination is a pass or fail exam. The examination is scored against a minimum

standard established by AWS professionals who are guided by certification industry best practices and guidelines.

Your results for the examination are reported as a score from 100-1,000, with a minimum passing score of 720. Your score shows how you performed on the examination as a whole and whether or not you passed. Scaled scoring models are used to equate scores across multiple exam forms that may have slightly different difficulty levels. Your score report contains a table of classifications of your performance at each section level. This information is designed to provide general feedback concerning your examination performance.

The examination uses a compensatory scoring model, which means that you do not need to “pass” the individual sections, only the overall examination. Each section of the examination has a specific weighting, so some sections have more questions than others.

## **Content Outline**

This exam guide includes weightings, test domains, and objectives only. It is not a comprehensive listing of the content on this examination. The table below lists the main content domains and their weightings.

## **Domain 1: Cloud Concepts**

- 1.1 Define the AWS Cloud and its value proposition
- 1.2 Identify aspects of AWS Cloud economics
- 1.3 List the different cloud architecture design principles

## **Domain 2: Security and Compliance**

- 2.1 Define the AWS shared responsibility model
- 2.2 Define AWS Cloud security and compliance concepts
- 2.3 Identify AWS access management capabilities
- 2.4 Identify resources for security support

## **Domain 3: Technology**

- 3.1 Define methods of deploying and operating in the AWS Cloud
- 3.2 Define the AWS global infrastructure
- 3.3 Identify the core AWS services
- 3.4 Identify resources for technology support

## **Domain 4: Billing and Pricing**

- 4.1 Compare and contrast the various pricing models for AWS
- 4.2 Recognize the various account structures in relation to AWS billing and pricing
- 4.3 Identify resources available for billing support



# **DOMAIN 1: CLOUD CONCEPTS**

# Questions 1-40

**Question 1.** Which of the following statements describes the difference between an Availability Zone and a Local Zone?

- (A) An Availability Zone is an isolated location within an AWS region while a Local Zone is an extension of an AWS Region in geographic proximity to your users
- (B) An Availability Zone is an extension of an AWS Region in geographic proximity to your users while a Local Zone is an isolated location within an AWS region
- (C) An Availability Zone is an extension of an AWS Region in geographic proximity to your users while a Local Zone enables developers to build applications that deliver ultra-low latencies to mobile devices and end-users
- (D) An Availability Zone is a fully managed service that extends AWS infrastructure, services, APIs, and tools to customer premises while a Local Zone is an extension of an AWS Region in geographic proximity to your users

**Question 2.** You are working on a global scale application that recently met underperformance issues. You have been tasked to implement a solution to speeds up the distribution of your static and dynamic web content. Which of the following AWS service will you implement to fix the issue?

- (A) Amazon VPC is incorrect
- (B) Amazon Route 53
- (C) Amazon CloudFront
- (D) Amazon API Gateway

**Question 3.** You need to explore all the available AWS services via an intuitive web-based user interface. Which of the following options will you choose in order to explore all the AWS services and get helpful tips for each one?

- (A) AWS Command Line Interface
- (B) AWS Software Development Kit
- (C) AWS Web-Based Interface
- (D) AWS Management Console

**Question 4.** Which of the following services are defined as global services in AWS? (Choose all that apply)

- (A) AWS STS
- (B) Amazon S3 Glacier
- (C) Amazon CloudFront
- (D) AWS Identity and Access Management (IAM)
- (E) Amazon VPC

**Question 5.** Moving to the cloud lets you respond to market needs and opportunities immediately.

- (A) TRUE
- (B) FALSE

**Question 6.** Which of the following resources can be used specifically to Availability Zone in which they reside? (Choose all that apply)

- (A) Elastic IP addresses
- (B) EBS volumes
- (C) Amazon EC2 resource identifiers
- (D) Instances
- (E) Key pairs

**Question 7.** Which AWS service should you use if you need to set up and operate a highly scalable MongoDB database?

- (A) Amazon DynamoDB
- (B) Amazon Aurora
- (C) Amazon Redshift
- (D) Amazon DocumentDB

**Question 8.** The AWS Cloud infrastructure is built around AWS Regions and Availability Zones.

- (A) TRUE
- (B) FALSE

**Question 9.** Which of the following services enables customers to build and run applications on-premises using the same programming interfaces as in AWS Regions?

- (A) AWS Lambda
- (B) AWS Batch
- (C) AWS Outposts
- (D) Amazon EC2

**Question 10.** Given the following advantages of Cloud Computing, which one solves the following problem?

"When you make a capacity decision prior to deploying an application, you often end up either sitting on expensive idle resources or dealing with limited capacity."

- (A) Increase speed and agility
- (B) Stop guessing capacity
- (C) Stop spending money running and maintaining data centers
- (D) Go global in minutes

**Question 11.** Which of the following design patterns and architectural options takes place through an increase in the specifications of an individual resource, such as upgrading a server with a larger hard drive or a faster CPU?

- (A) Disposable resources
- (B) Automation
- (C) Loose Coupling
- (D) Scalability

**Question 12.** You are thinking to migrate the entire on-premise infrastructure to AWS. Which of the following is a benefit of using AWS over traditional data centers or virtualized data centers?

- (A) The benefit of using AWS is a lower variable cost and lower upfront cost
- (B) The benefit of using AWS is a lower variable cost and higher upfront cost
- (C) The benefit of using AWS is a higher variable cost and lower upfront cost
- (D) The benefit of using AWS is a higher variable cost and higher upfront cost

**Question 13.** Given the following Cloud Architecture Principles, which one is followed if you automate the deployment process and streamline the configuration to ensure that the system can scale without any human intervention?

- (A) Design for failure
- (B) Decouple your components
- (C) Implement elasticity
- (D) Think parallel

**Question 14.** According to Amazon Inc., there are six advantages of cloud computing. Which of the following is not considered an advantage?

- (A) Increase speed and agility
- (B) Stop spending money running and maintaining data centers
- (C) Go global in minutes
- (D) Increase infrastructure capacity needs

**Question 15.** You have been tasked to implement a NoSQL database service that provides fast and predictable performance with seamless scalability for your new APP. Which of the following database services will you implement in order to meet the requirement?

- (A) Amazon Redshift
- (B) Amazon Aurora
- (C) Amazon DynamoDB
- (D) Amazon Neptune

**Question 16.** Amazon \_\_\_\_\_ enables you to launch AWS resources into a virtual network that you've defined.

- (A) CloudFront
- (B) EC2
- (C) VPC
- (D) S3

**Question 17.** Which of the following is considered a benefit of migrating your on-premises infrastructure data centers to AWS Cloud? (Choose all that apply.)

- (A) You spend more money on the AWS Cloud but you have a more scalable infrastructure
- (B) Deploying your application on AWS is not as easy as it is on your infrastructure, but the application on AWS is highly available
- (C) On AWS you can pay only when you consume computing resources
- (D) Eliminate guessing on your infrastructure capacity needs
- (E) AWS lets you focus on your own customers, rather than on the heavy lifting of racking, stacking, and powering servers

**Question 18.** What service provides an extremely low-cost storage service that provides secure, durable, and flexible storage for data backup and archival?

- (A) Amazon S3 Glacier
- (B) Amazon S3
- (C) Amazon DocumentDB
- (D) Amazon Redshift

**Question 19.** Which of the following statements is correct regarding Availability Zones?

- (A) Availability Zones provide you the ability to place resources, such as compute and storage, in multiple locations closer to your end-users
- (B) Availability Zones are multiple, isolated locations within each Region
- (C) Availability Zones brings native AWS services, infrastructure, and operating models to virtually any data center, co-location space, or on-premises facility
- (D) Availability Zones allow developers to build applications that deliver ultra-low latencies to 5G devices and end-users

**Question 20.** Which AWS service should you use if you need to set up and operate a highly scalable MySQL database?

- (A) Amazon DynamoDB
- (B) Amazon Aurora
- (C) Amazon Redshift
- (D) Amazon DocumentDB

**Question 21.** Which of the following statements are true when a company uses AWS and decouple from their on-premises data centers? (Choose all that apply.)

- (A) Eliminate many of the costs related to building and maintaining a data center
- (B) Increase the need to manage infrastructure
- (C) Spend less time conducting security reviews on infrastructure
- (D) Use automation to reduce or eliminate IT management activities
- (E) Design and develop new IT projects slower

**Question 22.** In which of the following cloud best practices you end up thinking about recovery strategies during design time, which helps in designing an overall system better?

- (A) Implement elasticity
- (B) Decouple your components
- (C) Design for failure and nothing will fail
- (D) Think parallel

**Question 23.** Which of the following usage patterns are the most common for Amazon S3? (Choose all that apply.)

- (A) Amazon S3 is used to store and distribute static web content and media
- (B) Amazon S3 can be used as a database or search engine by itself
- (C) Amazon S3 is used to host entire static websites
- (D) Amazon S3 can be used for data that must be updated very frequently
- (E) Amazon S3 is often used as a highly durable, scalable, and secure solution for backup and archiving of critical data

**Question 24.** Scaling just when you are expecting a big surge of traffic requests due to a scheduled business event is an implementation of which AWS cloud best practices?

- (A) Design for failure
- (B) Decouple your components
- (C) Think parallel
- (D) Implement elasticity

**Question 25.** Amazon S3 is ideal for dynamic content websites that depend on database interaction or server-side scripting.

- (A) TRUE
- (B) FALSE

**Question 26.** Your company needs to submit the security and compliance documents such as AWS ISO certifications and Payment Card Industry (PCI). Which of the following AWS service provides on-demand downloads of AWS security and compliance documents?

- (A) AWS Secrets Manager
- (B) AWS WAF
- (C) AWS Artifact
- (D) AWS Identity and Access Management

**Question 27.** Which of the following cloud computing model removes the need for organizations to manage the underlying infrastructure and allows you to focus on the deployment and management of your applications?

- (A) UCaaS
- (B) IaaS
- (C) SaaS
- (D) PaaS

**Question 28.** Which of the following AWS services is an example of Infrastructure as a Service in AWS?

- (A) AWS Elastic Beanstalk
- (B) Heroku
- (C) EC2
- (D) DigitalOcean

**Question 29.** The \_\_\_\_\_ includes the ability to run systems to deliver business value at the lowest price point.

- (A) Performance Efficiency pillar
- (B) Cost Optimization pillar
- (C) Operational Excellence pillar
- (D) Security pillar

**Question 30.** Which AWS service provides resizable computing capacity that you can use to build and host your software systems?

- (A) Amazon EC2
- (B) AWS Lambda
- (C) Amazon S3
- (D) Amazon Redshift

**Question 31.** Go global in minutes is one of the six advantages of Cloud Computing that provides customers with what benefit?

- (A) Focus on projects that differentiate your business, not the infrastructure
- (B) You can achieve a lower variable cost than you can get on your own
- (C) Easily deploy your application in multiple regions around the world with just a few clicks
- (D) Eliminate guessing on your infrastructure capacity needs

**Question 32.** If a subnet doesn't have a route to the internet gateway but has its traffic routed to a virtual private gateway for a Site-to-Site VPN connection, the subnet is known as a \_\_\_\_\_ subnet.

- (A) Public
- (B) Private
- (C) VPN-only
- (D) Secure

**Question 33.** Which of the following pillars of the AWS Well-Architected Framework includes the ability to run workloads effectively, gain insight into their operations, and to continuously improve supporting processes and procedures to deliver business value?

- (A) Operational Excellence
- (B) Security
- (C) Reliability
- (D) Performance Efficiency

**Question 34.** You are developing an APP that needs to store JSON documents in a fully managed, and durable database with built-in security. Which of the following AWS service will you implement in order to meet the requirement?

- (A) Amazon VPC
- (B) Amazon CloudFront
- (C) Amazon EC2
- (D) Amazon DynamoDB

**Question 35.** Which of the following do you need to implement for as many Amazon EC2 workloads as possible so that you horizontally scale up and scale down when needed and automatically reduce your spending when you don't need that capacity anymore?

- (A) Auto Workload
- (B) Auto Scaling
- (C) Auto Capacity
- (D) Auto Spending

**Question 36.** By launching your instances in separate Availability Zones, you can protect your applications from the failure of a single location.

- (A) TRUE
- (B) FALSE

**Question 37.** Which of the following statements are true when a company uses AWS and decouple from their on-premises data centers? (Choose all that apply.)

- (A) AWS is responsible for patching and fixing flaws within the infrastructure
- (B) The customer is responsible for configuring their own guest operating systems
- (C) The customer is responsible for protecting the infrastructure that runs all of the services offered in the AWS Cloud
- (D) AWS is responsible for maintaining the configuration of its infrastructure devices
- (E) AWS is responsible for managing their data including encryption options

**Question 38.** The use of multi-threading in your Amazon S3 for faster data retrieval is an example of which AWS cloud best practices?

- (A) Implement elasticity
- (B) Think parallel
- (C) Decouple your components
- (D) Design for failure

**Question 39.** Which of the following statements are true when a company uses AWS and decouple from their on-premises data centers? (Choose all that apply.)

- (A) Define Auto-scaling groups for different clusters using the Amazon Auto-scaling feature in Amazon EC2
- (B) Use smart open-source configuration management tools like Chef, Puppet, CFEngine or Genome
- (C) Use Amazon SQS to isolate components
- (D) Monitor your system metrics (CPU, Memory, Disk I/O, Network I/O) using Amazon CloudWatch and take appropriate actions
- (E) Use the Elastic Load Balancing service and spread your load across multiple web app servers dynamically

**Question 40.** Which of the following design principles demonstrate the Operational Excellence pillar of AWS Well-Architected Framework? (Choose all that apply.)

- (A) Implement a strong identity foundation
- (B) Make frequent, small, reversible changes
- (C) Scale horizontally to increase aggregate workload availability
- (D) Measure overall efficiency
- (E) Learn from all operational failures

# Answers 1-40

**Question 1.** Which of the following statements describes the difference between an Availability Zone and a Local Zone?

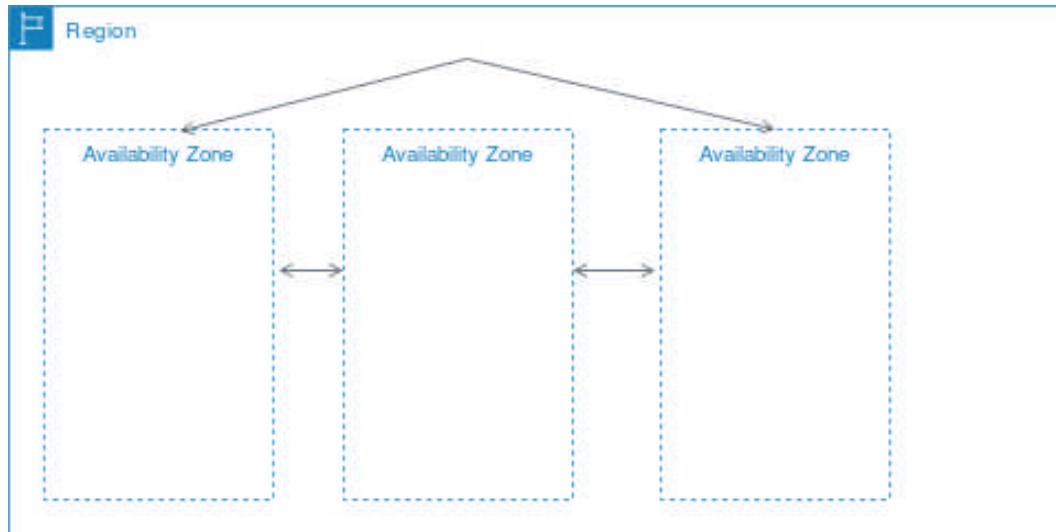
- (A) **An Availability Zone is an isolated location within an AWS region while a Local Zone is an extension of an AWS Region in geographic proximity to your users**
- (B) An Availability Zone is an extension of an AWS Region in geographic proximity to your users while a Local Zone is an isolated location within an AWS region
- (C) An Availability Zone is an extension of an AWS Region in geographic proximity to your users while a Local Zone enables developers to build applications that deliver ultra-low latencies to mobile devices and end-users
- (D) An Availability Zone is a fully managed service that extends AWS infrastructure, services, APIs, and tools to customer premises while a Local Zone is an extension of an AWS Region in geographic proximity to your users

**Explanation 1. Option A is the correct answer.**

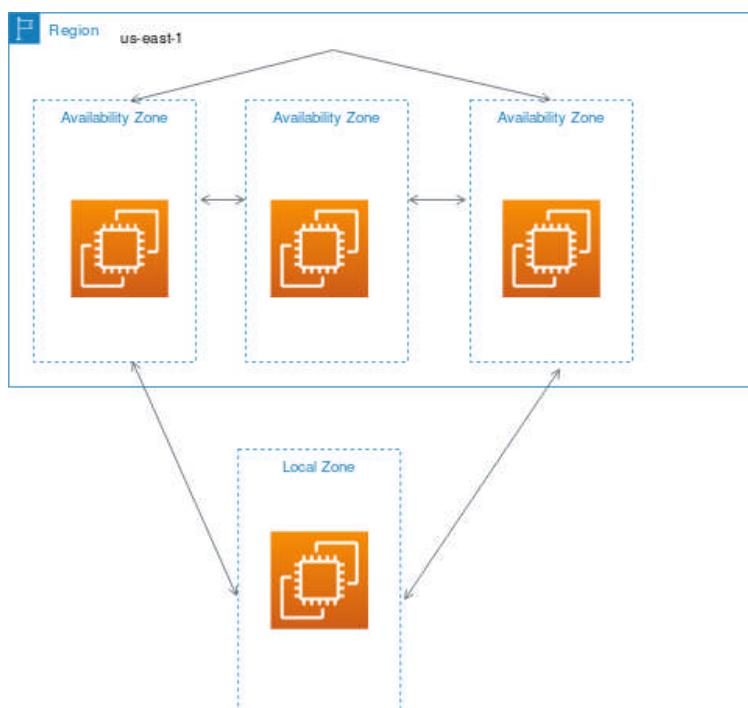
Each **Region** has multiple, isolated locations known as **Availability Zones**. When you launch an instance, you can select an Availability Zone. If you distribute your instances across multiple Availability Zones and one instance fails, you can design your application so that an instance in another

Availability Zone can handle requests.

The following diagram illustrates multiple Availability Zones in an AWS Region.



A **Local Zone** is an extension of an AWS Region in geographic proximity to your users. Local Zones have their own connections to the internet and support AWS Direct Connect, so resources created in a Local Zone can serve local users with low-latency communications.



An Availability Zone is an extension of an AWS Region in geographic proximity to your users while a Local Zone is an isolated location within an AWS region **is incorrect**. The descriptions are **swapped**, which means the Availability Zone is an isolated location within an AWS region while the Local Zone is an extension of an AWS Region in geographic proximity to your users.

An Availability Zone is an extension of an AWS Region in geographic proximity to your users while a Local Zone enables developers to build applications that deliver ultra-low latencies to mobile devices and end-users **is incorrect**. The statement for the Availability Zone is correct but the statement for Local Zone describes the **Wavelength Zones**.

**AWS Wavelength** enables developers to build applications that deliver ultra-low latencies to mobile devices and end-users. Wavelength deploys standard AWS compute and storage services to the edge of telecommunication carriers' 5G networks. Developers can extend a virtual private cloud (VPC) to one or more Wavelength Zones, and then use AWS resources like Amazon EC2 instances to run applications that require ultra-low latency and a connection to AWS services in the Region.

An Availability Zone is a fully managed service that extends AWS infrastructure, services, APIs, and tools to customer premises while a Local Zone is an extension of an AWS Region in geographic proximity to your users **is incorrect**. The statement for the Availability Zone describes the **AWS Outposts** while the statement for Local Zone describes the **Availability Zone**.

**Question 2.** You are working on a global scale application that recently met underperformance issues. You have been tasked to implement a solution to speeds up the distribution of your static and dynamic web content. Which of the following AWS service will you implement to fix the issue?

- (A) Amazon VPC is incorrect
- (B) Amazon Route 53
- (C) Amazon CloudFront**
- (D) Amazon API Gateway

**Explanation 2. Amazon CloudFront is the correct answer.**

Amazon CloudFront speeds up the distribution of your static and dynamic web content, such as .html, .css, .php, image, and media files. When users request your content, CloudFront delivers it through a worldwide network of edge locations that provide low latency and high performance.

**Amazon VPC is incorrect.** Amazon Virtual Private Cloud (Amazon VPC) enables you to launch Amazon Web Services (AWS) resources into a virtual network that you've defined. This virtual network closely resembles a traditional network that you'd operate in your own data center, with the benefits of using the scalable infrastructure of AWS.

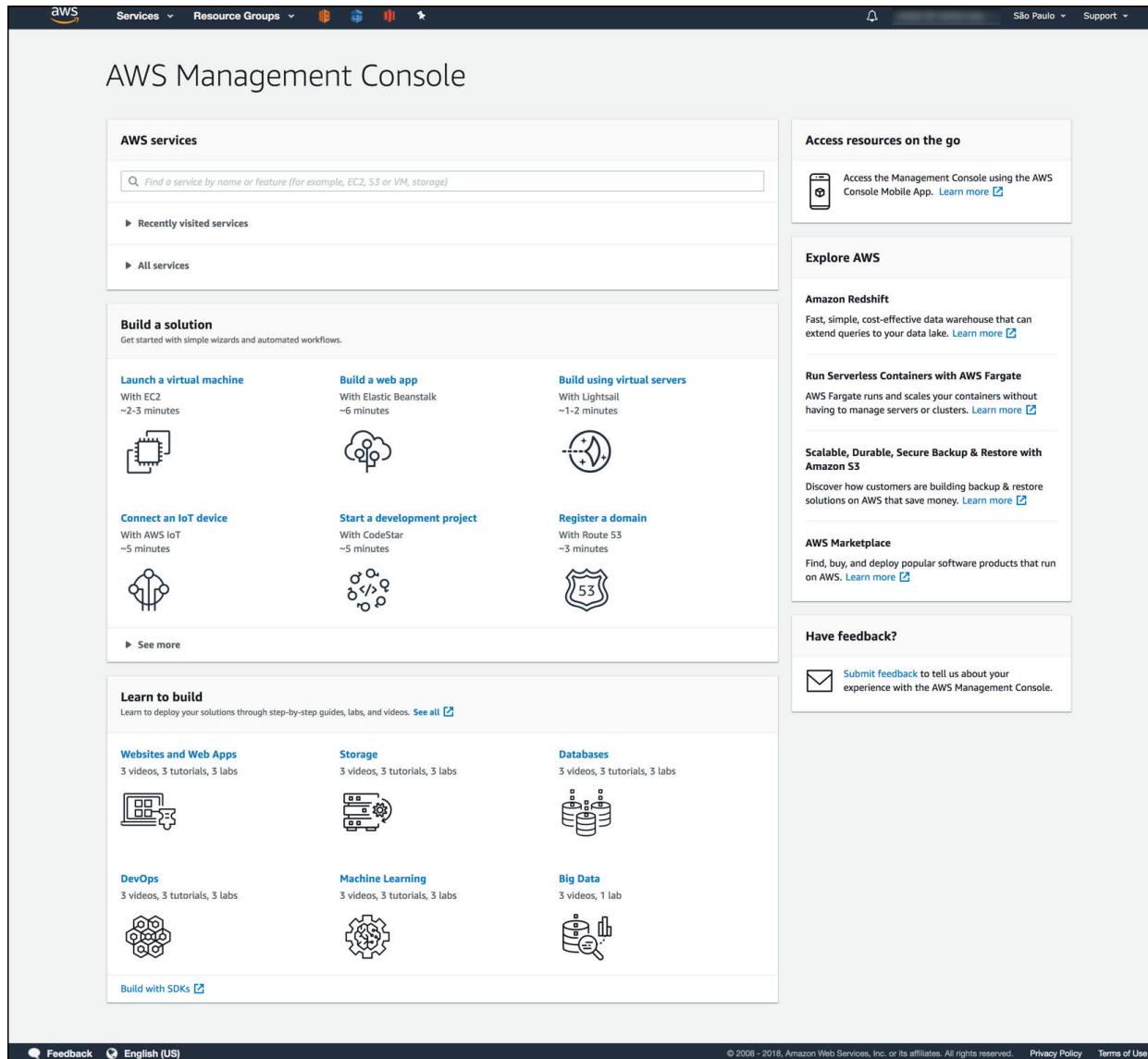
**Amazon Route 53 is incorrect.** Amazon Route 53 is a highly available and scalable Domain Name System (DNS) web service.

**Amazon API Gateway is incorrect.** Amazon API Gateway enables you to create and deploy your own REST and WebSocket APIs at any scale. You can create robust, secure, and scalable APIs that access AWS or other web services, as well as data that's stored in the AWS Cloud.

**Question 3.** You need to explore all the available AWS services via an intuitive web-based user interface. Which of the following options will you choose in order to explore all the AWS services and get helpful tips for each one?

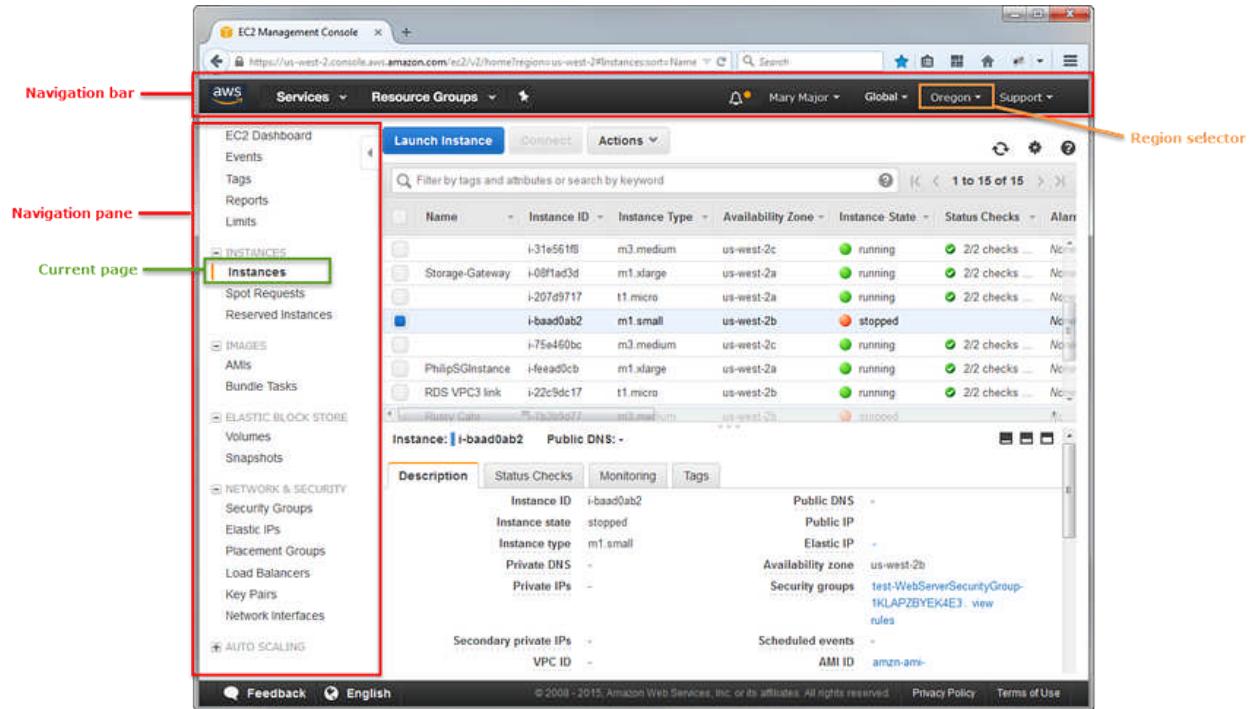
- (A) AWS Command Line Interface
- (B) AWS Software Development Kit
- (C) AWS Web-Based Interface
- (D) AWS Management Console**

**Explanation 3. AWS Management Console is the correct answer.** The **AWS Management Console** is a web application that comprises and refers to a broad collection of service consoles for managing Amazon Web Services. When you first sign in, you see the console home page.



The home page provides access to each service console as well as an intuitive user interface for exploring AWS and getting helpful tips. Among other things, the individual service consoles offer tools for working with Amazon S3 buckets,

launching and connecting to Amazon EC2 instances, setting Amazon CloudWatch alarms, and getting information about your account and about billing.



**AWS Command Line Interface is incorrect.** The AWS Command Line Interface (CLI) is a unified tool to manage your AWS services. With just one tool to download and configure, you can control multiple AWS services from the command line and automate them through scripts.

**AWS Software Development Kit is incorrect.** AWS SDK is primarily used to access and manage AWS services using programming languages such as Javascript, Java, Python etc...

## **AWS Web-Based Interface is incorrect as it is a fictitious term.**

**Question 4.** Which of the following services are defined as global services in AWS? (Choose all that apply)

- (A) **AWS STS**
- (B) Amazon S3 Glacier
- (C) **Amazon CloudFront**
- (D) **AWS Identity and Access Management (IAM)**
- (E) Amazon VPC

**Explanation 4. A, C, and D are the correct answers.** For most services, events are recorded in the region where the action occurred. For global services such as **AWS Identity and Access Management (IAM), AWS STS, and Amazon CloudFront**, events are delivered to any trail that includes global services. For most global services, events are logged as occurring in US East (N. Virginia) Region, but some global services are logged as occurring in other regions, such as US East (Ohio) Region or US West (Oregon) Region.

**To avoid receiving duplicate global service events, remember the following:**

- Global service events are delivered by default to trails that are

created using the CloudTrail console. Events are delivered to the bucket for the trail.

- If you have multiple single region trails, consider configuring your trails so that global service events are delivered in only one of the trails. For more information, see [Enabling and disabling logging global service events](#).
- If you change the configuration of a trail from logging all regions to logging a single region, global service event logging is turned off automatically for that trail. Similarly, if you change the configuration of a trail from logging a single region to logging all regions, global service event logging is turned on automatically for that trail.

**Example:**

1. You create a trail in the CloudTrail console. By default, this trail logs global service events.
2. You have multiple single region trails.
3. You do not need to include global services for the single region trails. Global service events are delivered for the first trail.  
For more information, see [Creating, Updating, and Managing Trails with the AWS Command Line Interface](#).

**Question 5.** Moving to the cloud lets you respond to market needs and opportunities immediately.

(A) **TRUE**

(B) FALSE

**Explanation 5.** **TRUE is the correct answer.** Moving to the cloud lets you respond to market needs and opportunities immediately—without a lengthy procurement process, licensing issues, or increasing data center staff to accommodate a sudden surge.

The barriers to entry are significantly reduced, too. Many companies find that the costs of cloud computing are so low, they can move as much or as little of their environment to the cloud without having to make a business case to pursue an idea. Your organization can fail fast, without significant investments in either hardware or staff time.

You can also budget according to your business needs. If your requirements or strategic priorities change or if demand varies, you can expand or contract your cloud footprint as often as you need to.

Moving to the cloud doesn't have to be a binary proposition. You can move as much or as little of your infrastructure to the

cloud as suits your business. For example, many AWS customers start with a small pilot project and develop their cloud use as business needs dictate.

**Question 6.** Which of the following resources can be used specifically to Availability Zone in which they reside? (Choose all that apply)

- (A) Elastic IP addresses
- (B) EBS volumes**
- (C) Amazon EC2 resource identifiers
- (D) Instances**
- (E) Key pairs

**Explanation 6. EBS volumes and Instances are the correct answers.** Some resources can be used in all regions (global), and some resources are specific to the region or Availability Zone in which they reside.

Resource	Type	Description
AWS account	Global	You can use the same AWS account in all regions.

Key pairs	Global or Regional	The key pairs that you create using Amazon EC2 are tied to the Region where you created them. You can create your own RSA key pair and upload it to the region in which you want to use it; therefore, you can make your key pair globally available by uploading it to each Region.
Amazon EC2 resource identifiers	Regional	Each resource identifier, such as an AMI ID, instance ID, EBS volume ID, or EBS snapshot ID, is tied to its Region and can be used only in the Region where you created the resource.

User-supplied resource names	Regional	<p>Each resource name, such as a security group name or key pair name, is tied to its region and can be used only in the Region where you created the resource.</p> <p>Although you can create resources with the same name in multiple regions, they aren't related to each other.</p>
AMIs	Regional	<p>An AMI is tied to the Region where its files are located within Amazon S3. You can copy an AMI from one Region to another.</p>
Elastic IP addresses	Regional	<p>An Elastic IP address is tied to a Region and can be associated only with an instance in the same Region.</p>

Security groups	Regional	A security group is tied to a Region and can be assigned only to instances in the same Region. You can't enable an instance to communicate with an instance outside its Region using security group rules. Traffic from an instance in another Region is seen as WAN bandwidth.
EBS snapshots	Regional	An EBS snapshot is tied to its Region and can only be used to create volumes in the same Region. You can copy a snapshot from one Region to another.
EBS volumes	Availability Zone	An Amazon EBS volume is tied to its Availability Zone and can be attached only to instances in the same Availability Zone.
Instances	Availability Zone	An instance is tied to the Availability Zones in which you launched it. However, its instance ID is tied to the Region.

- Question 7.** Which AWS service should you use if you need to set up and operate a highly scalable MongoDB database?
- (A) Amazon DynamoDB
  - (B) Amazon Aurora
  - (C) Amazon Redshift
  - (D) Amazon DocumentDB**

**Explanation 7. Amazon DocumentDB is the correct answer.**

**Amazon DocumentDB is the correct answer.** Amazon DocumentDB (with MongoDB compatibility) is a fast, reliable, and fully-managed database service. Amazon DocumentDB makes it easy to set up, operate, and scale MongoDB-compatible databases in the cloud. With Amazon DocumentDB, you can run the same application code and use the same drivers and tools that you use with MongoDB.

**Amazon DynamoDB is incorrect** as it is a fully managed NoSQL database service that provides fast and predictable performance with seamless scalability.

**Amazon Aurora is incorrect** as it is a fully managed relational database engine that's compatible with MySQL and PostgreSQL.

**Amazon Redshift is incorrect** as it is a fast, fully managed,

petabyte-scale data warehouse service that makes it simple and cost-effective to efficiently analyze all your data using your existing business intelligence tools.

**Question 8.** The AWS Cloud infrastructure is built around AWS Regions and Availability Zones.

(A) **TRUE**

(B) FALSE

**Explanation 8.** **TRUE is the correct answer.** The AWS Cloud infrastructure is built around AWS Regions and Availability Zones. An AWS Region is a physical location in the world where we have multiple Availability Zones. Availability Zones consist of one or more discrete data centers, each with redundant power, networking, and connectivity, housed in separate facilities.

These Availability Zones offer you the ability to operate production applications and databases that are more highly available, fault-tolerant, and scalable than would be possible from a single data center. The AWS Cloud operates in over 60 Availability Zones within over 20 geographic Regions around the world, with announced plans for more Availability Zones and Regions. For more information on the AWS Cloud Availability Zones and AWS Regions.

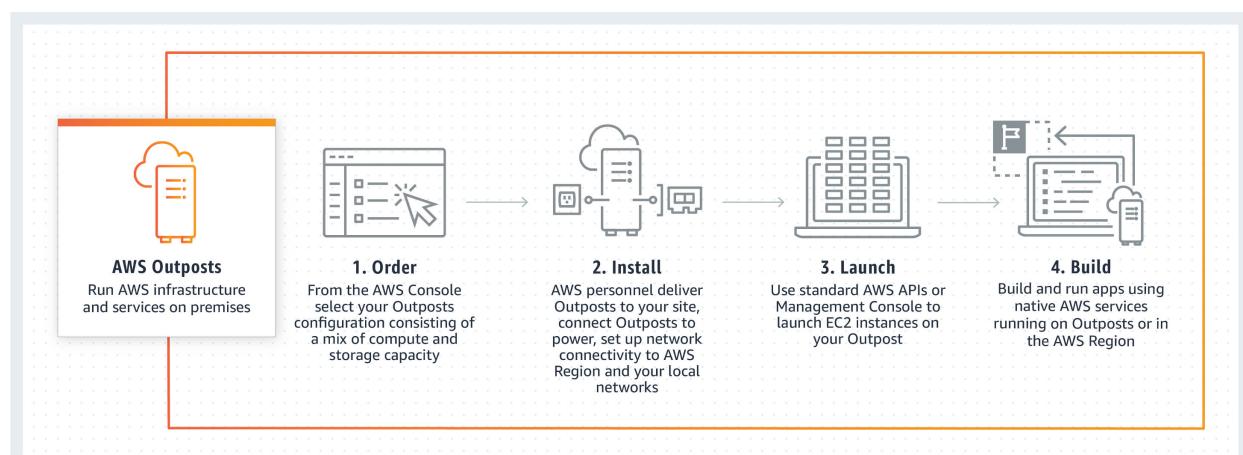
**Question 9.** Which of the following services enables customers to build and run applications on-premises using the same programming interfaces as in AWS Regions?

- (A) AWS Lambda
- (B) AWS Batch
- (C) AWS Outposts**
- (D) Amazon EC2

**Explanation 9. AWS Outposts is the correct answer.**

**AWS Outposts is the correct answer.** AWS Outposts is a fully managed service that extends AWS infrastructure, services, APIs, and tools to customer premises. By providing local access to AWS managed infrastructure, AWS Outposts enables customers to build and run applications on-premises using the same programming interfaces as in AWS Regions, while using local compute and storage resources for lower latency and local data processing needs.

## How it works.



**AWS Lambda is incorrect.** AWS Lambda is a compute service that lets you run code without provisioning or managing servers. AWS Lambda executes your code only when needed and scales automatically, from a few requests per day to thousands per second.

**AWS Batch is incorrect.** AWS Batch enables you to run batch computing workloads on the AWS Cloud. Batch computing is a common way for developers, scientists, and engineers to access large amounts of compute resources, and AWS Batch removes the undifferentiated heavy lifting of configuring and managing the required infrastructure, similar to traditional batch computing software.

**Amazon EC2 is incorrect.** Amazon Elastic Compute Cloud (Amazon EC2) provides scalable computing capacity in the Amazon Web Services (AWS) cloud. Using Amazon EC2 eliminates your need to invest in hardware up front, so you can develop and deploy applications faster.

**Question 10.** Given the following advantages of Cloud Computing, which one solves the following problem?  
“When you make a capacity decision prior to deploying an application, you often end up either sitting on expensive idle resources or dealing with limited capacity.”

- (A) Increase speed and agility
- (B) Stop guessing capacity**
- (C) Stop spending money running and maintaining data centers
- (D) Go global in minutes

**Explanation 10. Stop guessing capacity is the correct answer.**

**Stop guessing capacity** – Eliminate guessing on your infrastructure capacity needs. When you make a capacity decision prior to deploying an application, you often end up either sitting on expensive idle resources or dealing with limited capacity. With cloud computing, these problems go away. You can access as much or as little capacity as you need, and scale up and down as required with only a few minutes' notice.

**Increase speed and agility is incorrect.**

**Increase speed and agility** – In a cloud computing environment, new IT resources are only a click away, which means that you reduce the time to make those resources available to your developers from weeks to just minutes. This results in a dramatic increase in agility for the organization since the cost and time it takes to experiment and develop is significantly lower.

**Stop spending money running and maintaining data centers is incorrect.**

**Stop spending money running and maintaining data centers** – In a cloud computing environment, new IT resources are only a click away, which means that you reduce the time to make those resources available to your developers from weeks to just minutes. This results in a dramatic increase in agility for the organization since the cost and time it takes to experiment and develop is significantly lower.

**Go global in minutes is incorrect.**

**Go global in minutes** – Easily deploy your application in multiple regions around the world with just a few clicks. This means you can provide lower latency and a better experience for your customers at a minimal cost.

**Question 11.** Which of the following design patterns and architectural options takes place through an increase in the specifications of an individual resource, such as upgrading a server with a larger hard drive or a faster CPU?

- (A) Disposable resources
- (B) Automation
- (C) Loose Coupling
- (D) Scalability**

## **Explanation 11. Scalability is the correct answer.**

Systems that are expected to grow over time need to be built on top of a scalable architecture. Such an architecture can support growth in users, traffic, or data size with no drop-in performance.

There are generally two ways to scale an IT architecture: **vertically and horizontally.**

### **Scaling Vertically**

Scaling vertically takes place through an increase in the specifications of an individual resource, such as upgrading a server with a larger hard drive or a faster CPU. With Amazon EC2, you can stop an instance and resize it to an instance type that has more RAM, CPU, I/O, or networking capabilities.

This way of scaling can eventually reach a limit, and it is not always a cost-efficient or highly available approach. However, it is very easy to implement and can be sufficient for many use cases especially in the short term.

### **Scaling Horizontally**

Scaling horizontally takes place through an increase in the number of resources, such as adding more hard drives to a storage array or adding more servers to support an application.

This is a great way to build internet-scale applications that leverage the elasticity of cloud computing.

**Disposable resources is incorrect.** In a traditional infrastructure environment, you have to work with fixed resources because of the upfront cost and lead time of introducing new hardware. This drives practices such as manually logging in to servers to configure software or fix issues, hardcoding IP addresses, and running tests or processing jobs sequentially.

When designing for AWS, you can take advantage of the dynamically provisioned nature of cloud computing. You can think of servers and other components as temporary resources. You can launch as many as you need, and use them only for as long as you need them.

**Automation is incorrect.** In a traditional IT infrastructure, you often have to manually react to a variety of events. When deploying on AWS, there is an opportunity for automation, so that you improve both your system's stability and the efficiency of your organization.

**Loose coupling is incorrect.** As application complexity increases, a desirable attribute of an IT system is that it can be

broken into smaller, loosely coupled components. This means that IT systems should be designed in a way that reduces interdependencies—a change or a failure in one component should not cascade to other components.

**Question 12.** You are thinking to migrate the entire on-premise infrastructure to AWS. Which of the following is a benefit of using AWS over traditional data centers or virtualized data centers?

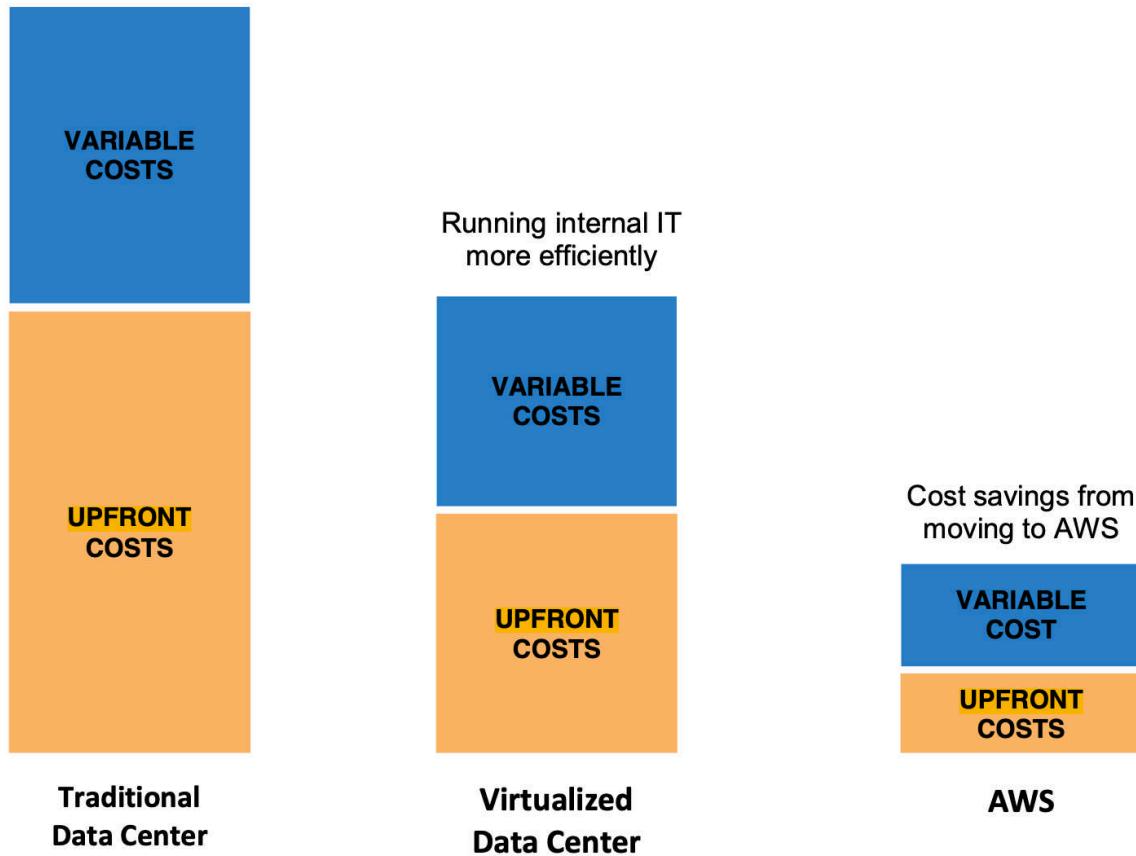
- (A) **The benefit of using AWS is a lower variable cost and lower upfront cost**
- (B) The benefit of using AWS is a lower variable cost and higher upfront cost
- (C) The benefit of using AWS is a higher variable cost and lower upfront cost
- (D) The benefit of using AWS is a higher variable cost and higher upfront cost

**Explanation 12. The benefit of using AWS is a lower variable cost and lower upfront cost is the correct answer.**

The benefit of using AWS over traditional data centers or virtualized data centers is that AWS offers lower variable cost and lower upfront cost.

The following figure shows a comparison of costs across

traditional data centers, virtualized data centers, and AWS.



One of the key benefits of cloud computing is the opportunity to replace upfront capital infrastructure expenses with low variable costs that scale with your business. With the cloud, businesses no longer need to plan for and procure servers and other IT infrastructure weeks or months in advance. Instead, they can instantly spin up hundreds or thousands of servers in minutes and deliver results faster.

**Question 13.** Given the following Cloud Architecture Principles, which one is followed if you automate the deployment process and streamline the configuration to ensure that the system can scale without any human intervention?

- (A) Design for failure
- (B) Decouple your components
- (C) Implement elasticity**
- (D) Think parallel

**Explanation 13. Implement elasticity is the correct answer.**

**Elasticity can be implemented in three ways:**

1. Proactive Cyclic Scaling: Periodic scaling that occurs at fixed interval (daily, weekly, monthly, quarterly)
2. Proactive Event-based Scaling: Scaling just when you are expecting a big surge of traffic requests due to a scheduled business event (new product launch, marketing campaigns)
3. Auto-scaling based on demand. By using a monitoring service, your system can send triggers to take appropriate actions so that it scales up or down based on metrics (utilization of the servers or network i/o, for instance)

To implement “Elasticity”, one has to first automate the deployment process and streamline the configuration and build

process. This will ensure that the system can scale without any human intervention.

This will result in immediate cost benefits as the overall utilization is increased by ensuring your resources are closely aligned with demand rather than potentially running servers that are under-utilized.

### **Design for failure is incorrect.**

**Rule of thumb:** Be a pessimist when designing architectures in the cloud; assume things will fail. In other words, always design, implement, and deploy for automated recovery from failure.

In particular, assume that your hardware will fail. Assume that outages will occur. Assume that some disaster will strike your application. Assume that you will be slammed with more than the expected number of requests per second some day. Assume that with time your application software will fail too. By being a pessimist, you end up thinking about recovery strategies during design time, which helps in designing an overall system better.

If you realize that things fail over time and incorporate that thinking into your architecture, build mechanisms to handle that

failure before disaster strikes to deal with a scalable infrastructure, you will end up creating a fault-tolerant architecture that is optimized for the cloud.

### **Decouple your components is incorrect.**

The cloud reinforces the Service-oriented architecture (SOA) design principle that the more loosely coupled the components of the system, the bigger and better it scales.

The key is to build components that do not have tight dependencies on each other so that if one component were to die (fail), sleep (not respond) or remain busy (slow to respond) for some reason, the other components in the system are built so as to continue to work as if no failure is happening.

### **Think parallel is incorrect.**

The cloud makes parallelization effortless. Whether it is requesting data from the cloud, storing data to the cloud, processing data (or executing jobs) in the cloud, as a cloud architect, you need to internalize the concept of parallelization when designing architectures in the cloud. It is advisable to not only implement parallelization wherever possible but also automate it because the cloud allows you to create a repeatable process every easily.

**Question 14.** According to Amazon Inc., there are six advantages of cloud computing. Which of the following is not considered an advantage?

- (A) Increase speed and agility
- (B) Stop spending money running and maintaining data centers
- (C) Go global in minutes
- (D) Increase infrastructure capacity needs**

**Explanation 14. Increase infrastructure capacity needs is the correct answer.** Increase infrastructure capacity needs is the correct answer as it's not considered an advantage.

### **Six advantages of Cloud Computing:**

**1. Trade capital expense for variable expense** – Instead of having to invest heavily in data centers and servers before you know how you're going to use them, you can pay only when you consume computing resources, and pay only for how much you consume.

**2. Benefit from massive economies of scale** – By using cloud computing, you can achieve a lower variable cost than you can get on your own. Because usage from hundreds of thousands of customers is aggregated in the cloud, providers such as AWS can achieve higher economies of scale, which translates

into lower pay-as-you-go prices.

**3. Stop guessing capacity** – Eliminate guessing on your infrastructure capacity needs. When you make a capacity decision prior to deploying an application, you often end up either sitting on expensive idle resources or dealing with limited capacity. With cloud computing, these problems go away. You can access as much or as little capacity as you need, and scale up and down as required with only a few minutes' notice.

**4. Increase speed and agility** – In a cloud computing environment, new IT resources are only a click away, which means that you reduce the time to make those resources available to your developers from weeks to just minutes. This results in a dramatic increase in agility for the organization, since the cost and time it takes to experiment and develop is significantly lower.

**5. Stop spending money running and maintaining data centers** – Focus on projects that differentiate your business, not the infrastructure. Cloud computing lets you focus on your own customers, rather than on the heavy lifting of racking, stacking, and powering servers.

**6. Go global in minutes** – Easily deploy your application in

multiple regions around the world with just a few clicks. This means you can provide lower latency and a better experience for your customers at minimal cost.

**Question 15.** You have been tasked to implement a NoSQL database service that provides fast and predictable performance with seamless scalability for your new APP. Which of the following database services will you implement in order to meet the requirement?

- (A) Amazon Redshift
- (B) Amazon Aurora
- (C) Amazon DynamoDB**
- (D) Amazon Neptune

**Explanation 15. Amazon DynamoDB is the correct answer.**

Amazon DynamoDB is a fully managed NoSQL database service that provides fast and predictable performance with seamless scalability. DynamoDB lets you offload the administrative burdens of operating and scaling a distributed database so that you don't have to worry about hardware provisioning, setup and configuration, replication, software patching, or cluster scaling. DynamoDB also offers encryption at rest, which eliminates the operational burden and complexity involved in protecting sensitive data.

**Amazon Redshift is incorrect.** Amazon Redshift is a fast, fully managed, petabyte-scale **data warehouse service** that makes it simple and cost-effective to efficiently analyze all your data.

**Amazon Aurora is incorrect.** Amazon Aurora (Aurora) is a fully managed **relational database engine** that's compatible with MySQL and PostgreSQL.

**Amazon Neptune is incorrect.** Amazon Neptune is a fast, reliable, fully-managed **graph database service** that makes it easy to build and run applications that work with highly connected datasets.

**Question 16.** Amazon \_\_\_\_\_ enables you to launch AWS resources into a virtual network that you've defined.

- (A) CloudFront
- (B) EC2
- (C) VPC**
- (D) S3

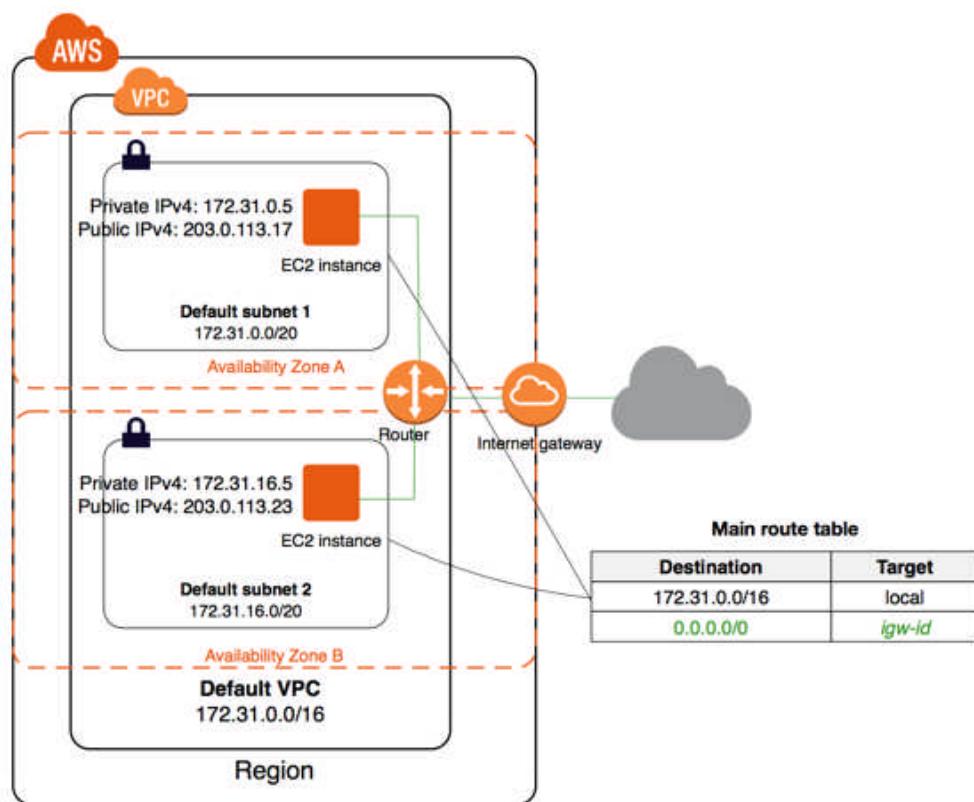
**Explanation 16. VPC is the correct answer.**

Amazon VPC enables you to launch AWS resources into a virtual network that you've defined. This virtual network closely resembles a traditional network that you'd operate in your own

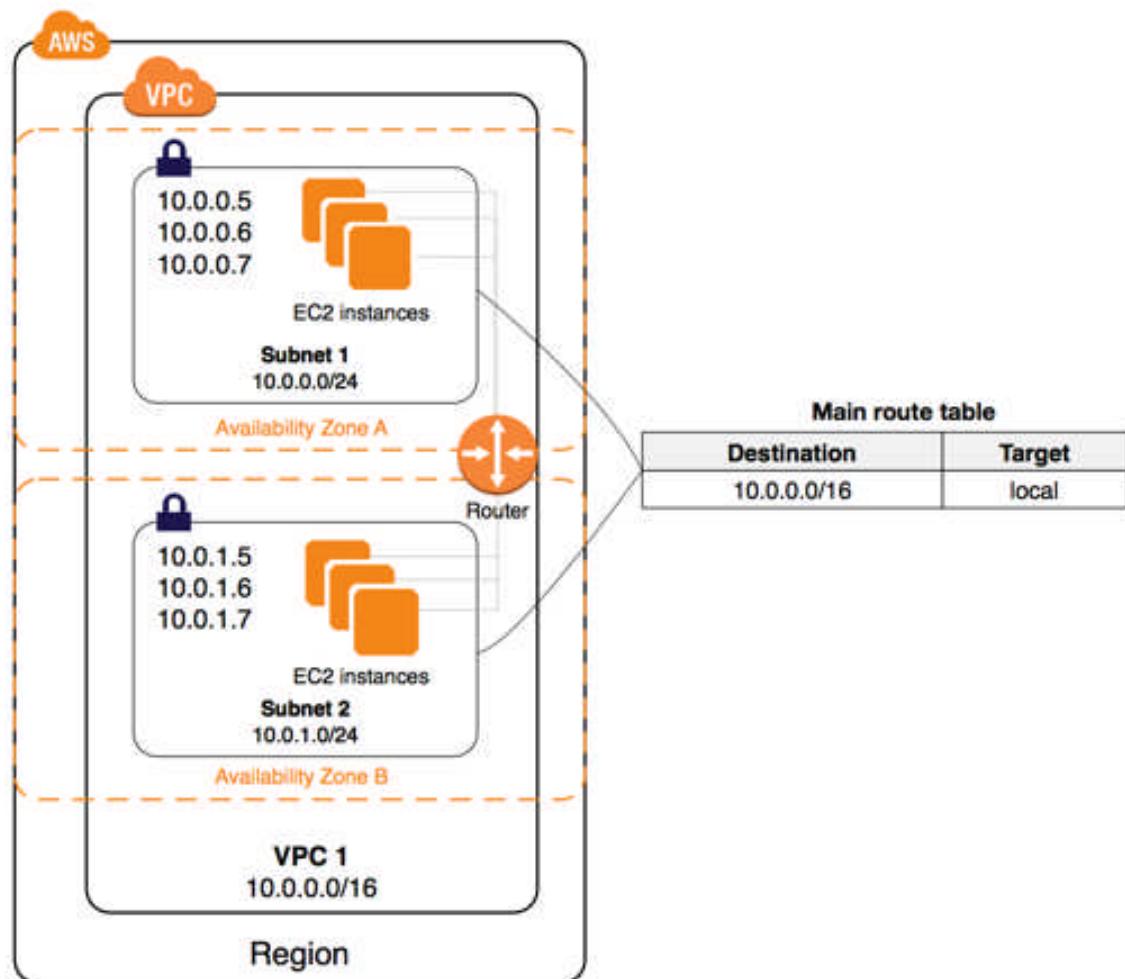
data center, with the benefits of using the scalable infrastructure of AWS.

You control how the instances that you launch into a VPC access resources outside the VPC.

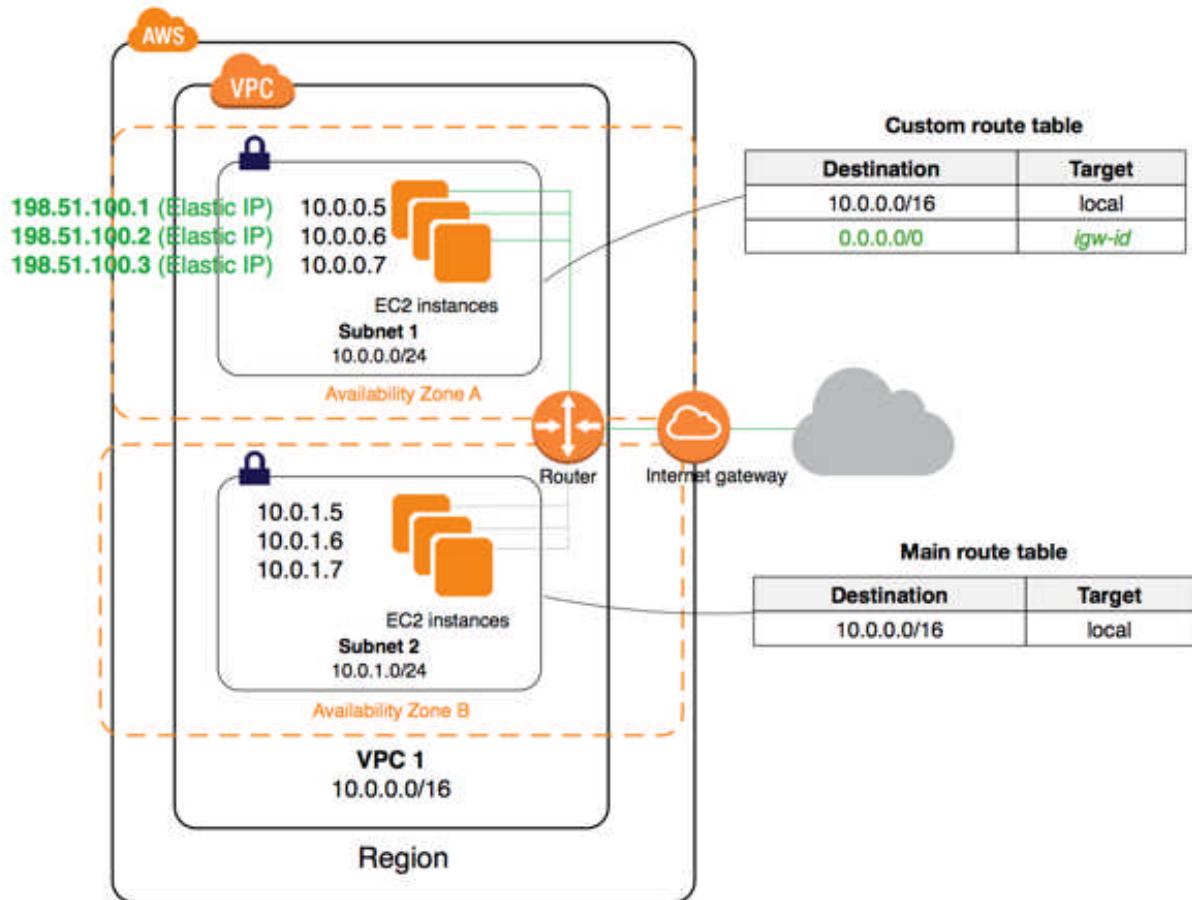
Your default VPC includes an internet gateway, and each default subnet is a public subnet. Each instance that you launch into a default subnet has a private IPv4 address and a public IPv4 address. These instances can communicate with the internet through the internet gateway. An internet gateway enables your instances to connect to the internet through the Amazon EC2 network edge.



By default, each instance that you launch into a nondefault subnet has a private IPv4 address, but no public IPv4 address, unless you specifically assign one at launch, or you modify the subnet's public IP address attribute. These instances can communicate with each other, but can't access the internet.



You can enable internet access for an instance launched into a nondefault subnet by attaching an internet gateway to its VPC (if its VPC is not a default VPC) and associating an Elastic IP address with the instance.



Alternatively, to allow an instance in your VPC to initiate outbound connections to the internet but prevent unsolicited inbound connections from the internet, you can use a network address translation (NAT) device for IPv4 traffic. NAT maps multiple private IPv4 addresses to a single public IPv4 address.

**CloudFront is incorrect.** Amazon CloudFront speeds up the distribution of your static and dynamic web content, such as .html, .css, .php, image, and media files. When users request your content, CloudFront delivers it through a worldwide network of edge locations that provide low latency and high performance.

**EC2 is incorrect.** Amazon Elastic Compute Cloud (Amazon EC2) is a web service that provides resizable computing capacity—literally, servers in Amazon’s data centers—that you use to build and host your software systems.

**S3 is incorrect.** Amazon Simple Storage Service (Amazon S3) is storage for the internet. You can use Amazon S3 to store and retrieve any amount of data at any time, from anywhere on the web. You can accomplish these tasks using the AWS Management Console, which is a simple and intuitive web interface.

Amazon S3 stores data as objects within buckets. An object is a file and any optional metadata that describes the file. To store a file in Amazon S3, you upload it to a bucket.

**Question 17.** Which of the following is considered a benefit of migrating your on-premises infrastructure data centers to AWS Cloud? (Choose all that apply.)

- (A) You spend more money on the AWS Cloud but you have a more scalable infrastructure
- (B) Deploying your application on AWS is not as easy as it is on your infrastructure, but the application on AWS is highly available
- (C) On AWS you can pay only when you consume**

**computing resources**

**(D) Eliminate guessing on your infrastructure capacity needs**

**(E) AWS lets you focus on your own customers, rather than on the heavy lifting of racking, stacking, and powering servers**

**Explanation 17. C, D, and E are the correct answers.**

**Six Advantages of using AWS:**

**1.** Trade capital expense for variable expense – Instead of having to invest heavily in data centers and servers before you know how you're going to use them, you can pay only when you consume computing resources, and pay only for how much you consume.

**2.** Benefit from massive economies of scale – By using cloud computing, you can achieve a lower variable cost than you can get on your own. Because usage from hundreds of thousands of customers is aggregated in the cloud, providers such as AWS can achieve higher economies of scale, which translates into lower pay-as-you-go prices.

**3.** Stop guessing capacity – Eliminate guessing on your infrastructure capacity needs. When you make a capacity decision prior to deploying an application, you often end up

either sitting on expensive idle resources or dealing with limited capacity. With cloud computing, these problems go away. You can access as much or as little capacity as you need, and scale up and down as required with only a few minutes' notice.

**4. Increase speed and agility** – In a cloud computing environment, new IT resources are only a click away, which means that you reduce the time to make those resources available to your developers from weeks to just minutes. This results in a dramatic increase in agility for the organization, since the cost and time it takes to experiment and develop is significantly lower.

**5. Stop spending money running and maintaining data centers** – Focus on projects that differentiate your business, not the infrastructure. Cloud computing lets you focus on your own customers, rather than on the heavy lifting of racking, stacking, and powering servers.

**6. Go global in minutes** – Easily deploy your application in multiple regions around the world with just a few clicks. This means you can provide lower latency and a better experience for your customers at minimal cost.

**Question 18.** What service provides an extremely low-cost storage service that provides secure, durable, and flexible storage for data backup and archival?

- (A) **Amazon S3 Glacier**
- (B) Amazon S3
- (C) Amazon DocumentDB
- (D) Amazon Redshift

**Explanation 18. Amazon S3 Glacier is the correct answer.**

Amazon S3 Glacier is a secure, durable, and extremely low-cost Amazon S3 storage class for data archiving and long-term backup. Amazon S3 Glacier is an extremely low-cost storage service that provides secure, durable, and flexible storage for data backup and archival.

With S3 Glacier, customers can store their data cost-effectively for months, years, or even decades. S3 Glacier enables customers to offload the administrative burdens of operating and scaling storage to AWS, so they don't have to worry about capacity planning, hardware provisioning, data replication, hardware failure detection, and recovery, or time-consuming hardware migrations.

**Amazon S3 is incorrect** as you can use Amazon S3 to store and retrieve any amount of data at any time, from anywhere on the web.

**Amazon DocumentDB is incorrect** as it is a fast, reliable, and fully-managed database service that makes it easy for you to set up, operate, and scale MongoDB-compatible databases.

**Amazon Redshift is incorrect** as it is a fast, fully managed, petabyte-scale data warehouse service.

**Question 19.** Which of the following statements is correct regarding Availability Zones?

- (A) Availability Zones provide you the ability to place resources, such as compute and storage, in multiple locations closer to your end-users
- (B) Availability Zones are multiple, isolated locations within each Region**
- (C) Availability Zones brings native AWS services, infrastructure, and operating models to virtually any data center, co-location space, or on-premises facility
- (D) Availability Zones allow developers to build applications that deliver ultra-low latencies to 5G devices and end-users

## **Explanation 19. Availability Zones are multiple, isolated locations within each Region is the correct answer.**

Each Region has multiple, isolated locations known as Availability Zones. When you launch an instance, you can select an Availability Zone or let us choose one for you. If you distribute your instances across multiple Availability Zones and one instance fails, you can design your application so that an instance in another Availability Zone can handle requests.

Availability Zones provide you the ability to place resources, such as compute and storage, in multiple locations closer to your end-users **is incorrect** as this describes the **Local Zones**.

Availability Zones brings native AWS services, infrastructure, and operating models to virtually any data center, co-location space, or on-premises facility **is incorrect** as this describes the **AWS Outposts**.

Availability Zones allow developers to build applications that deliver ultra-low latencies to 5G devices and end-users **is incorrect** as this describes the **Wavelength Zones**.

**Question 20.** Which AWS service should you use if you need to set up and operate a highly scalable MySQL database?

- (A) Amazon DynamoDB
- (B) Amazon Aurora**
- (C) Amazon Redshift
- (D) Amazon DocumentDB

**Explanation 20.** **Amazon Aurora is the correct answer.**

**Amazon Aurora** is a fully managed relational database engine that's compatible with MySQL and PostgreSQL. Aurora includes a high-performance storage subsystem. Its MySQL- and PostgreSQL-compatible database engines are customized to take advantage of that fast distributed storage.

The underlying storage grows automatically as needed, up to 64 tebibytes (TiB). Aurora also automates and standardizes database clustering and replication, which are typically among the most challenging aspects of database configuration and administration.

Aurora is part of the managed database service Amazon Relational Database Service (Amazon RDS). Amazon RDS is a web service that makes it easier to set up, operate, and scale a relational database in the cloud.

**Amazon DynamoDB is incorrect** as it is a fully managed NoSQL database service that provides fast and predictable performance with seamless scalability.

**Amazon DocumentDB is incorrect.** Amazon DocumentDB (with MongoDB compatibility) is a fast, reliable, and fully-managed database service. Amazon DocumentDB makes it easy to set up, operate, and scale MongoDB-compatible databases in the cloud. With Amazon DocumentDB, you can run the same application code and use the same drivers and tools that you use with MongoDB.

**Amazon Redshift is incorrect** as it is a fast, fully managed, petabyte-scale data warehouse service that makes it simple and cost-effective to efficiently analyze all your data using your existing business intelligence tools.

**Question 21.** Which of the following statements are true when a company uses AWS and decouple from their on-premises data centers? (Choose all that apply.)

- (A) **Eliminate many of the costs related to building and maintaining a data center**
- (B) Increase the need to manage infrastructure
- (C) **Spend less time conducting security reviews on infrastructure**

**(D) Use automation to reduce or eliminate IT management activities**

**(E) Design and develop new IT projects slower**

**Explanation 21. A, C, and D are the correct answers.**

The cloud provides scalable and powerful compute solutions, low-cost, reliable storage, and database technologies that meet the most demanding workload requirements. In addition, cloud technologies can be used to deploy solutions quickly and cost-effectively around the world and on any device.

**When you decouple from the data center, you'll be able to:**

**1. Decrease your TCO:** Eliminate many of the costs related to building and maintaining a data center or colocation deployment. Pay for only the resources you consume.

**2. Reduce complexity:** Reduce the need to manage infrastructure, investigate licensing issues, or divert resources.

**3. Adjust capacity on the fly:** Add or reduce resources, depending on seasonal business needs, using infrastructure that is secure, reliable, and broadly accessible.

**4. Reduce time to market:** Design and develop new IT

projects faster.

**5. Deploy quickly, even worldwide:** Deploy applications across multiple geographic areas.

**6. Increase efficiencies:** Use automation to reduce or eliminate IT management activities that waste time and resources.

**7. Innovate more:** Spin up a new server and try out an idea. Each project moves through the funnel more quickly because the cloud makes it faster (and cheaper) to deploy, test, and launch new products and services.

**8. Spend your resources strategically:** Switch to a DevOps model to free your IT staff from operations and maintenance that can be handled by the cloud services provider.

**9. Enhance security:** Spend less time conducting security reviews on infrastructure. Mature cloud providers have teams of people who focus on security, offering best practices to ensure you're compliant, no matter what your industry.

**Question 22.** In which of the following cloud best practices you end up thinking about recovery strategies during design time, which helps in designing an overall system better?

- (A) Implement elasticity
- (B) Decouple your components
- (C) Design for failure and nothing will fail**
- (D) Think parallel

**Explanation 22. Design for failure and nothing will fail is the correct answer.**

**Rule of thumb:** Be a pessimist when designing architectures in the cloud; assume things will fail. In other words, always design, implement and deploy for automated recovery from failure.

In particular, assume that your hardware will fail. Assume that outages will occur. Assume that some disaster will strike your application. Assume that you will be slammed with more than the expected number of requests per second some day. Assume that with time your application software will fail too. **By being a pessimist, you end up thinking about recovery strategies during design time, which helps in designing an overall system better.**

If you realize that things fail over time and incorporate that thinking into your architecture, build mechanisms to handle that failure before disaster strikes to deal with a scalable infrastructure, you will end up creating a fault-tolerant architecture that is optimized for the cloud.

### **Implement elasticity is incorrect.**

To implement “Elasticity”, one has to first automate the deployment process and streamline the configuration and build process. This will ensure that the system can scale without any human intervention.

This will result in immediate cost benefits as the overall utilization is increased by ensuring your resources are closely aligned with demand rather than potentially running servers that are under-utilized.

### **Decouple your components is incorrect.**

The cloud reinforces the SOA design principle that the more loosely coupled the components of the system, the bigger and better it scales.

The key is to build components that do not have tight dependencies on each other, so that if one component were to die (fail), sleep (not respond) or remain busy (slow to respond)

for some reason, the other components in the system are built so as to continue to work as if no failure is happening.

### **Think parallel is incorrect.**

The cloud makes parallelization effortless. Whether it is requesting data from the cloud, storing data to the cloud, processing data (or executing jobs) in the cloud, as a cloud architect, you need to internalize the concept of parallelization when designing architectures in the cloud. It is advisable to not only implement parallelization wherever possible but also automate it because the cloud allows you to create a repeatable process every easily.

**Question 23.** Which of the following usage patterns are the most common for Amazon S3? (Choose all that apply.)

- (A) Amazon S3 is used to store and distribute static web content and media**
- (B) Amazon S3 can be used as a database or search engine by itself
- (C) Amazon S3 is used to host entire static websites**
- (D) Amazon S3 can be used for data that must be updated very frequently
- (E) Amazon S3 is often used as a highly durable, scalable, and secure solution for backup and archiving of critical data**

**Explanation 23. A, C, and E are the correct answers.**

**There are four common usage patterns for Amazon S3.**

**First**, Amazon S3 is used to store and distribute static web content and media. This content can be delivered directly from Amazon S3 because each object in Amazon S3 has a unique HTTP URL. Alternatively, Amazon S3 can serve as an origin store for a content delivery network (CDN), such as Amazon CloudFront. The elasticity of Amazon S3 makes it particularly well suited for hosting web content that requires bandwidth for addressing extreme demand spikes. Also, because no storage provisioning is required, Amazon S3 works well for fast-growing websites hosting data-intensive, user-generated content, such as video- and photo-sharing sites.

**Second**, Amazon S3 is used to host entire static websites. Amazon S3 provides a low-cost, highly available, and highly scalable solution, including storage for static HTML files, images, videos, and client-side scripts in formats such as JavaScript.

**Third**, Amazon S3 is used as a data store for computation and large-scale analytics, such as financial transaction analysis, clickstream analytics, and media transcoding. Because of the horizontal scalability of Amazon S3, you can access your data

from multiple computing nodes concurrently without being constrained by a single connection.

**Finally**, Amazon S3 is often used as a highly durable, scalable, and secure solution for backup and archiving of critical data.

You can easily move cold data to Amazon Glacier using lifecycle management rules on data stored in Amazon S3.

**Amazon S3 can be used as a database or search engine by itself is incorrect** as Amazon S3 doesn't offer query capabilities to retrieve specific objects. When you use Amazon S3 you need to know the exact bucket name and key for the files you want to retrieve from the service. Instead, you can pair Amazon S3 with Amazon DynamoDB, Amazon CloudSearch, or Amazon Relational Database Service (Amazon RDS) to index and query metadata about Amazon S3 buckets and objects.

**Amazon S3 can be used for data that must be updated very frequently is incorrect** as data that must be updated very frequently might be better served by storage solutions that take into account read and write latencies, such as Amazon EBS volumes, Amazon RDS, Amazon DynamoDB, Amazon EFS, or relational databases running on Amazon EC2

**Question 24.** Scaling just when you are expecting a big surge of traffic requests due to a scheduled business event is an implementation of which AWS cloud best practices?

- (A) Design for failure
- (B) Decouple your components
- (C) Think parallel
- (D) Implement elasticity**

**Explanation 24. Implement elasticity is the correct answer.**

**Elasticity can be implemented in three ways:**

**1.** Proactive Cyclic Scaling: Periodic scaling that occurs at a fixed interval (daily, weekly, monthly, quarterly)

**2.** Proactive Event-based Scaling: Scaling just when you are expecting a big surge of traffic requests due to a scheduled business event (new product launch, marketing campaigns)

**3.** Auto-scaling based on demand. By using a monitoring service, your system can send triggers to take appropriate actions so that it scales up or down based on metrics (utilization of the servers or network i/o, for instance)

**Design for failure is incorrect** as this explains the importance of designing, implementing, and deploying architectures in the cloud for automated recovery from failures.

**Decouple your components is incorrect** as this reinforces the Service-oriented architecture (SOA) design principle that the more loosely coupled the components of the system, the bigger and better it scales.

**Think parallel is incorrect** as this explains the concept of parallelization when designing architectures in the cloud. It is advisable to not only implement parallelization wherever possible but also automate it because the cloud allows you to create a repeatable process every easily.

**Question 25.** Amazon S3 is ideal for dynamic content websites that depend on database interaction or server-side scripting.

- (A) TRUE
- (B) FALSE**

**Explanation 25. FALSE is the correct answer.**

Amazon S3 doesn't suit all storage situations. The following table presents some storage needs for which you should consider other AWS storage options.

Storage Need	Solution	AWS Services
<b>File system</b>	Amazon S3 uses a flat namespace and isn't meant to serve as a standalone, POSIX-compliant file system. Instead, consider using Amazon EFS as a file system.	<a href="#">Amazon EFS</a>
<b>Structured data with query</b>	Amazon S3 doesn't offer query capabilities to retrieve specific objects. When you use Amazon S3 you need to know the exact bucket name and key for the files you want to retrieve from the service. Amazon S3 can't be used as a database or search engine by itself. Instead, you can pair Amazon S3 with Amazon DynamoDB, Amazon CloudSearch, or Amazon Relational Database Service (Amazon RDS) to index and query metadata about Amazon S3 buckets and objects.	<a href="#">Amazon DynamoDB</a> <a href="#">Amazon RDS</a> <a href="#">Amazon CloudSearch</a>
<b>Rapidly changing data</b>	Data that must be updated very frequently might be better served by storage solutions that take into account read and write latencies, such as Amazon EBS volumes, Amazon RDS, Amazon DynamoDB, Amazon EFS, or relational databases running on Amazon EC2.	<a href="#">Amazon EBS</a> <a href="#">Amazon EFS</a> <a href="#">Amazon DynamoDB</a> <a href="#">Amazon RDS</a>
<b>Archival data</b>	Data that requires encrypted archival storage with infrequent read access with a long recovery time objective (RTO) can be stored in Amazon Glacier more cost-effectively.	<a href="#">Amazon Glacier</a>
<b>Dynamic website hosting</b>	Although Amazon S3 is ideal for static content websites, dynamic websites that depend on database interaction or use server-side scripting should be hosted on Amazon EC2 or Amazon EFS.	<a href="#">Amazon EC2</a> <a href="#">Amazon EFS</a>

**Question 26.** Your company needs to submit the security and compliance documents such as AWS ISO certifications and Payment Card Industry (PCI). Which of the following AWS service provides on-demand downloads of AWS security and compliance documents?

- (A) AWS Secrets Manager
- (B) AWS WAF
- (C) AWS Artifact**
- (D) AWS Identity and Access Management

## **Explanation 26. AWS Artifact is the correct answer.**

AWS Artifact provides on-demand downloads of AWS security and compliance documents, such as AWS ISO certifications, Payment Card Industry (PCI), and Service Organization Control (SOC) reports. You can submit the security and compliance documents (also known as audit artifacts) to your auditors or regulators to demonstrate the security and compliance of the AWS infrastructure and services that you use.

You can also use these documents as guidelines to evaluate your own cloud architecture and assess the effectiveness of your company's internal controls. AWS Artifact provides documents about AWS only. AWS customers are responsible for developing or obtaining documents that demonstrate the security and compliance of their companies.

**AWS Secrets Manager is incorrect.** AWS Secrets Manager helps you to securely encrypt, store, and retrieve credentials for your databases and other services. Instead of hardcoding credentials in your apps, you can make calls to Secrets Manager to retrieve your credentials whenever needed.

**AWS WAF is incorrect.** AWS WAF is a web application firewall that lets you monitor web requests that are forwarded to Amazon CloudFront distributions or an Application Load

Balancer.

**AWS Identity and Access Management is incorrect.** AWS Identity and Access Management (IAM) is a web service for securely controlling access to AWS services. With IAM, you can centrally manage users, security credentials such as access keys, and permissions that control which AWS resources users and applications can access.

**Question 27.** Which of the following cloud computing model removes the need for organizations to manage the underlying infrastructure and allows you to focus on the deployment and management of your applications?

- (A) UCaaS
- (B) IaaS
- (C) SaaS
- (D) PaaS**

**Explanation 27. PaaS is the correct answer.**

Platforms as a Service (PaaS) remove the need for organizations to manage the underlying infrastructure (usually hardware and operating systems) and allow you to focus on the deployment and management of your applications. This helps you be more efficient as you don't need to worry about resource procurement, capacity planning, software

maintenance, patching, or any of the other undifferentiated heavy lifting involved in running your application.

**IaaS is incorrect.** Infrastructure as a Service (IaaS) contains the basic building blocks for cloud IT and typically provide access to networking features, computers (virtual or on dedicated hardware), and data storage space. Infrastructure as a Service provides you with the highest level of flexibility and management control over your IT resources and is most similar to existing IT resources that many IT departments and developers are familiar with today.

**SaaS is incorrect.** Software as a Service (SaaS) provides you with a completed product that is run and managed by the service provider. In most cases, people referring to Software as a Service are referring to end-user applications. With a SaaS offering, you do not have to think about how the service is maintained or how the underlying infrastructure is managed; you only need to think about how you will use that particular piece of software.

**UCaaS is incorrect.** Unified Communications as a Service (UCaaS) is a service model that presents communications continuity and remote collaboration services to users, worldwide, via the cloud network. Moreover, this service model

provides advanced security and reliability, enabling the remote workforce to work seamlessly in a secure, virtualized cloud environment.

**Question 28.** Which of the following AWS services is an example of Infrastructure as a Service in AWS?

- (A) AWS Elastic Beanstalk
- (B) Heroku
- (C) EC2**
- (D) DigitalOcean

**Explanation 28.** **EC2 is the correct answer.**

Infrastructure as a Service (IaaS) contains the basic building blocks for cloud IT and typically provide access to networking features, computers (virtual or on dedicated hardware), and data storage space. Infrastructure as a Service provides you with the highest level of flexibility and management control over your IT resources and is most similar to existing IT resources that many IT departments and developers are familiar with today. Amazon EC2 is one of the IaaS solutions offered by AWS.

**AWS Elastic Beanstalk is incorrect** as it is a Platform as a Service (PaaS) solution in AWS. With AWS Elastic Beanstalk, you can quickly deploy and manage applications in the AWS Cloud without worrying about the infrastructure that runs those

applications. AWS Elastic Beanstalk reduces management complexity without restricting choice or control.

**Heroku is incorrect** as it is not an AWS service and it is a Platform as a Service solution.

**Digital Ocean is incorrect as it is not an AWS service** even if it is an Infrastructure as a Service solution.

**Question 29.** The \_\_\_\_\_ includes the ability to run systems to deliver business value at the lowest price point.

- (A) Performance Efficiency pillar
- (B) Cost Optimization pillar**
- (C) Operational Excellence pillar
- (D) Security pillar

**Explanation 29. Cost Optimization pillar is the correct answer.** The **Cost Optimization pillar** includes the ability to run systems to deliver business value at the lowest price point.

**There are five design principles for cost optimization in the cloud:**

**1. Implement Cloud Financial Management:** To achieve financial success and accelerate business value realization in

the cloud, you need to invest in Cloud Financial Management / Cost Optimization.

**2. Adopt a consumption model:** Pay only for the computing resources that you require and increase or decrease usage depending on business requirements, not by using elaborate forecasting.

**3. Measure overall efficiency:** Measure the business output of the workload and the costs associated with delivering it.

**4. Stop spending money on undifferentiated heavy lifting:** AWS does the heavy lifting of data center operations like racking, stacking, and powering servers.

**5. Analyze and attribute expenditure:** The cloud makes it easier to accurately identify the usage and cost of systems, which then allows transparent attribution of IT costs to individual workload owners.

**Question 30.** Which AWS service provides resizable computing capacity that you can use to build and host your software systems?

- (A) **Amazon EC2**
- (B) AWS Lambda

- (C) Amazon S3
- (D) Amazon Redshift

**Explanation 30. Amazon EC2 is the correct answer.** Amazon Elastic Compute Cloud (Amazon EC2) is a web service that provides resizable computing capacity—literally, servers in Amazon’s data centres—that you use to build and host your software systems.

Using Amazon EC2 eliminates your need to invest in hardware upfront, so you can develop and deploy applications faster. You can use Amazon EC2 to launch as many or as few virtual servers as you need, configure security and networking, and manage storage. Amazon EC2 enables you to scale up or down to handle changes in requirements or spikes in popularity, reducing your need to forecast traffic.

**AWS Lambda is incorrect.** With AWS Lambda, you can run code without provisioning or managing servers. You pay only for the compute time that you consume—there’s no charge when your code isn’t running. You can run code for virtually any type of application or backend service—all with zero administration.

**Amazon S3 is incorrect.** Amazon Simple Storage Service

(Amazon S3) is storage for the internet. You can use Amazon S3 to store and retrieve any amount of data at any time, from anywhere on the web. You can accomplish these tasks using the simple and intuitive web interface of the AWS Management Console.

**Amazon Redshift is incorrect.** Amazon Redshift is a fast, fully managed, petabyte-scale data warehouse service that makes it simple and cost-effective to efficiently analyze all your data using your existing business intelligence tools. It is optimized for datasets ranging from a few hundred gigabytes to a petabyte or more and costs less than \$1,000 per terabyte per year, a tenth the cost of most traditional data warehousing solutions.

**Question 31.** Go global in minutes is one of the six advantages of Cloud Computing that provides customers with what benefit?

- (A) Focus on projects that differentiate your business, not the infrastructure
- (B) You can achieve a lower variable cost than you can get on your own
- (C) Easily deploy your application in multiple regions around the world with just a few clicks**
- (D) Eliminate guessing on your infrastructure capacity needs

**Explanation 31. Easily deploy your application in multiple regions around the world with just a few clicks is the correct answer.** Amazon Elastic

Easily deploy your application in multiple regions around the world with just a few clicks is the correct answer.

**Focus on projects that differentiate your business, not the infrastructure is incorrect** as this belongs to Stop spending money running and maintaining data centers advantage.

**You can achieve a lower variable cost than you can get on your own is incorrect** as this belongs to Benefit from massive economies of scale advantage.

**Eliminate guessing on your infrastructure capacity needs is incorrect** as this belongs to Stop guessing capacity advantage.

**The six advantages of using AWS are:**

1. Trade capital expense for variable expense – Instead of having to invest heavily in data centers and servers before you know how you're going to use them, you can pay only when you consume computing resources, and pay only for how much you consume.

**2. Benefit from massive economies of scale** – By using cloud computing, you can achieve a lower variable cost than you can get on your own. Because usage from hundreds of thousands of customers is aggregated in the cloud, providers such as AWS can achieve higher economies of scale, which translates into lower pay-as-you-go prices.

**3. Stop guessing capacity** – Eliminate guessing on your infrastructure capacity needs. When you make a capacity decision prior to deploying an application, you often end up either sitting on expensive idle resources or dealing with limited capacity. With cloud computing, these problems go away. You can access as much or as little capacity as you need, and scale up and down as required with only a few minutes' notice.

**4. Increase speed and agility** – In a cloud computing environment, new IT resources are only a click away, which means that you reduce the time to make those resources available to your developers from weeks to just minutes. This results in a dramatic increase in agility for the organization since the cost and time it takes to experiment and develop is significantly lower.

**5. Stop spending money running and maintaining data centers** – Focus on projects that differentiate your business, not the

infrastructure. Cloud computing lets you focus on your own customers, rather than on the heavy lifting of racking, stacking, and powering servers.

**6.** Go global in minutes – Easily deploy your application in multiple regions around the world with just a few clicks. This means you can provide lower latency and a better experience for your customers at minimal cost.

**Question 32.** If a subnet doesn't have a route to the internet gateway but has its traffic routed to a virtual private gateway for a Site-to-Site VPN connection, the subnet is known as a \_\_\_\_\_ subnet.

- (A) Public
- (B) Private
- (C) VPN-only**
- (D) Secure

**Explanation 32.** **VPN-only is the correct answer.**

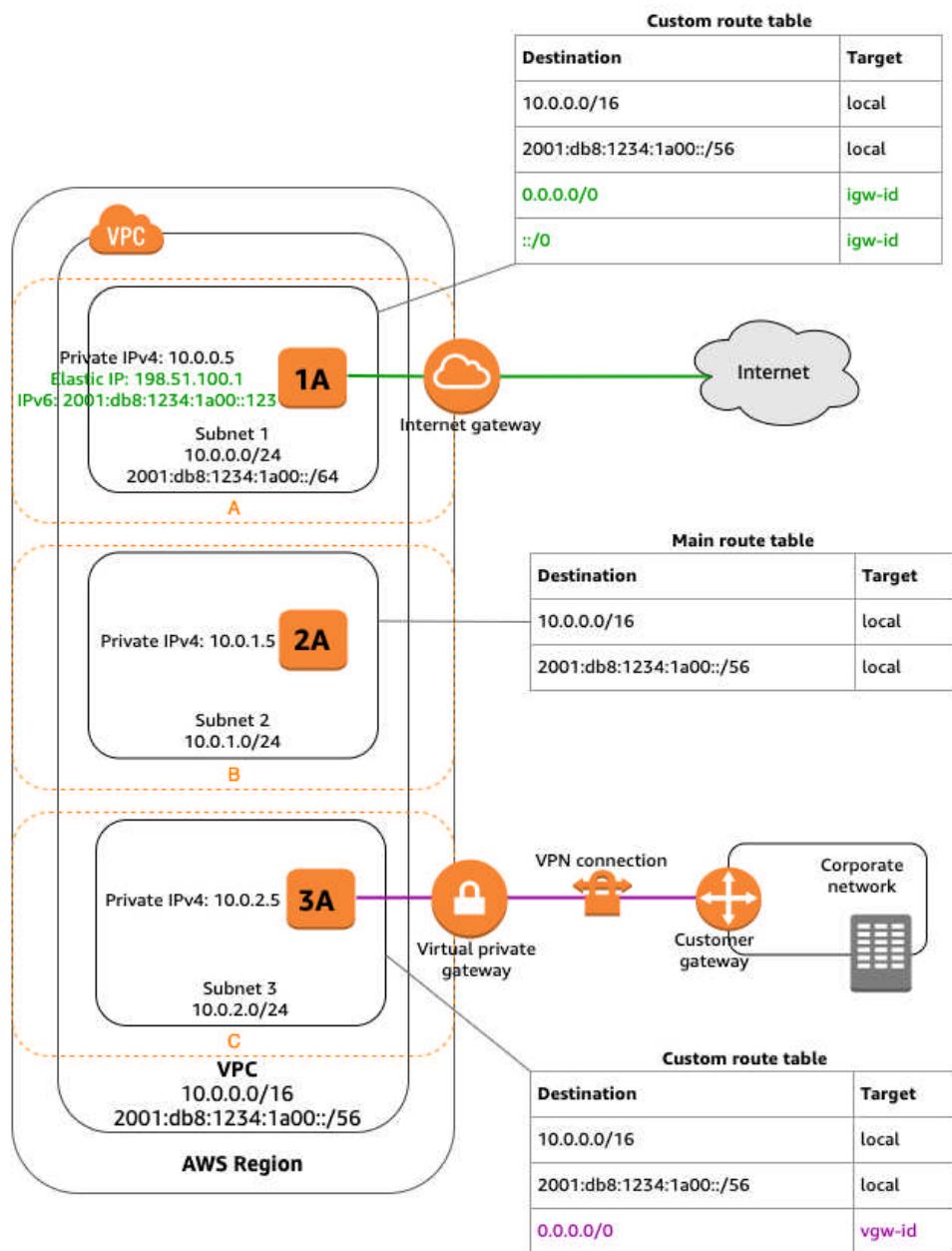
If a subnet doesn't have a route to the internet gateway but has its traffic routed to a virtual private gateway for a Site-to-Site VPN connection, the subnet is known as a VPN-only subnet. In this diagram, subnet 3 is a VPN-only subnet.

**Public is incorrect.** If a subnet's traffic is routed to an internet

gateway, the subnet is known as a public subnet. In this diagram, subnet 1 is a public subnet.

**Private is incorrect.** If a subnet doesn't have a route to the internet gateway, the subnet is known as a private subnet. In this diagram, subnet 2 is a private subnet.

**Secure is incorrect as it is a fictitious subnet term.**



**Question 33.** Which of the following pillars of the AWS Well-Architected Framework includes the ability to run workloads effectively, gain insight into their operations, and to continuously improve supporting processes and procedures to deliver business value?

- (A) **Operational Excellence**
- (B) Security
- (C) Reliability
- (D) Performance Efficiency

**Explanation 33. Operational Excellence is the correct answer.** The Operational Excellence pillar includes the ability to support development and run workloads effectively, gain insight into their operations, and to continuously improve supporting processes and procedures to deliver business value.

**Security is incorrect.** The Security pillar includes the security pillar encompasses the ability to protect data, systems, and assets to take advantage of cloud technologies to improve your security.

**Reliability is incorrect.** The Reliability pillar includes the reliability pillar encompasses the ability of a workload to perform its intended function correctly and consistently when it's expected to. This includes the ability to operate and test the

workload through its total lifecycle.

**Performance Efficiency is incorrect.** The Performance Efficiency pillar includes the ability to use computing resources efficiently to meet system requirements and to maintain that efficiency as demand changes and technologies evolve.

**Question 34.** You are developing an APP that needs to store JSON documents in a fully managed, and durable database with built-in security. Which of the following AWS service will you implement in order to meet the requirement?

- (A) Amazon VPC
- (B) Amazon CloudFront
- (C) Amazon EC2
- (D) Amazon DynamoDB**

**Explanation 34. Amazon DynamoDB is the correct answer.**

Amazon DynamoDB is a key-value and document database **that stores JSON documents** and delivers single-digit millisecond performance at any scale. It's a fully managed, multiregion, multimaster, durable database with built-in security, backup and restores, and in-memory caching for internet-scale applications. DynamoDB can handle more than 10 trillion requests per day and can support peaks of more than 20 million requests per second.

Many of the world's fastest-growing businesses such as Lyft, Airbnb, and Redfin as well as enterprises such as Samsung, Toyota, and Capital One depend on the scale and performance of DynamoDB to support their mission-critical workloads.

**Amazon VPC is incorrect.** Amazon VPC enables you to launch AWS resources into a virtual network that you've defined. This virtual network closely resembles a traditional network that you'd operate in your own data center, with the benefits of using the scalable infrastructure of AWS.

**Amazon CloudFront is incorrect.** Amazon CloudFront speeds up the distribution of your static and dynamic web content, such as .html, .css, .php, image, and media files. When users request your content, CloudFront delivers it through a worldwide network of edge locations that provide low latency and high performance.

**Amazon EC2 is incorrect.** Amazon Elastic Compute Cloud (Amazon EC2) is a web service that provides resizable computing capacity—literally, servers in Amazon's data centers—that you use to build and host your software systems.

**Question 35.** Which of the following do you need to implement for as many Amazon EC2 workloads as possible so that you horizontally scale up and scale down when needed and automatically reduce your spending when you don't need that capacity anymore?

- (A) Auto Workload
- (B) Auto Scaling**
- (C) Auto Capacity
- (D) Auto Spending

**Explanation 35. Auto Scaling is the correct answer.** Auto Scaling is the correct answer. When you move your existing architectures into the cloud, you can reduce capital expenses and drive savings as a result of the AWS economies of scale. By iterating and using more AWS capabilities, you can realize further opportunity to create cost-optimized cloud architectures.

You can save money with AWS by taking advantage of the platform's **elasticity**. Plan to implement Auto Scaling for as many Amazon EC2 workloads as possible, so that you horizontally scale up when needed and scale down and automatically reduce your spending when you don't need that capacity anymore.

**The rest options are fictitious terms.**

**Question 36.** By launching your instances in separate Availability Zones, you can protect your applications from the failure of a single location.

(A) **TRUE**

(B) FALSE

**Explanation 36. TRUE is the correct answer.** When you launch an instance, select a Region that puts your instances closer to specific customers, or meets the legal or other requirements that you have. **By launching your instances in separate Availability Zones, you can protect your applications from the failure of a single location.**

When you launch an instance, you can optionally specify an Availability Zone in the Region that you are using. If you do not specify an Availability Zone, Amazon selects an Availability Zone for you.

When you launch your initial instances, Amazon recommends that you accept the default Availability Zone, because this allows them to select the best Availability Zone for you based on system health and available capacity. If you launch

additional instances, specify a Zone only if your new instances must be close to, or separated from, your running instances.

**Question 37.** Which of the following statements are true when a company uses AWS and decouple from their on-premises data centers? (Choose all that apply.)

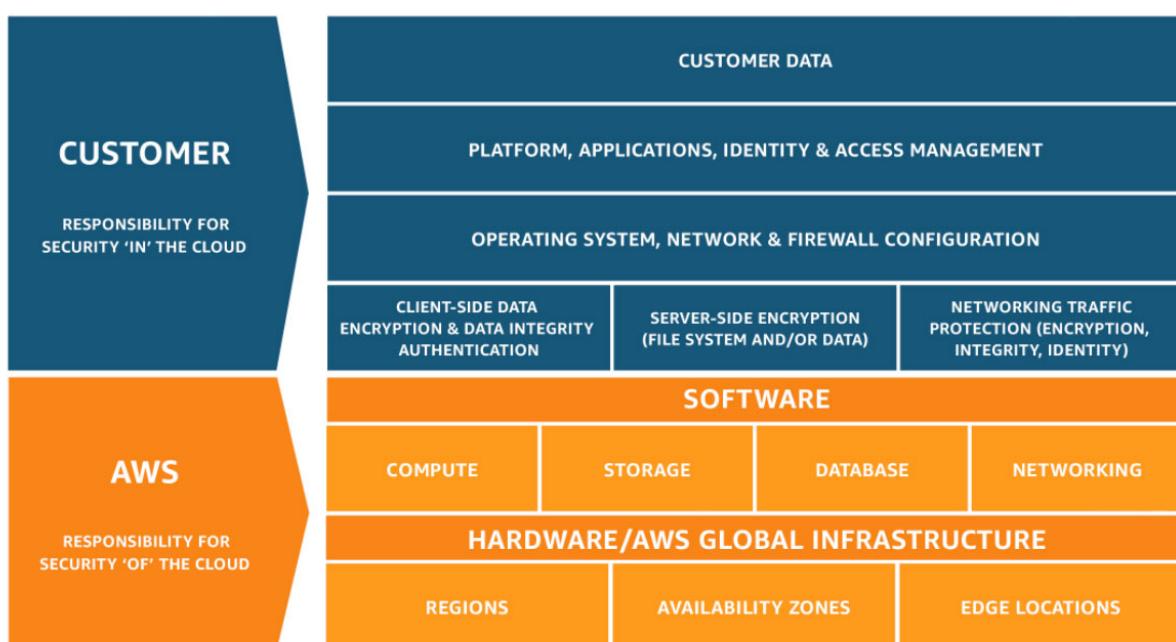
- (A) **AWS is responsible for patching and fixing flaws within the infrastructure**
- (B) **The customer is responsible for configuring their own guest operating systems**
- (C) The customer is responsible for protecting the infrastructure that runs all of the services offered in the AWS Cloud
- (D) **AWS is responsible for maintaining the configuration of its infrastructure devices**
- (E) AWS is responsible for managing their data including encryption options

**Explanation 37. A, B, and D are the correct answers.**

Security and Compliance is a shared responsibility between **AWS** and the **customer**. This shared model can help relieve the customer's operational burden as AWS operates, manages and controls the components from the host operating system and virtualization layer down to the physical security of the facilities in which the service operates.

The **customer assumes responsibility and management** of the guest operating system (including updates and security patches), other associated application software, as well as the configuration of the AWS, provided security group firewall.

Customers should carefully consider the services they choose as their responsibilities vary depending on the services used, the integration of those services into their IT environment, and applicable laws and regulations. The nature of this shared responsibility also provides the flexibility and customer control that permits the deployment.



**The customer is responsible for protecting the infrastructure that runs all of the services offered in the**

**AWS Cloud is incorrect** as AWS is responsible for protecting the infrastructure that runs all of the services offered in the AWS Cloud, not the customer.

**AWS is responsible for managing their data including encryption options is incorrect** as the customer is responsible for managing their data including encryption options, not the AWS.

**Question 38.** The use of multi-threading in your Amazon S3 for faster data retrieval is an example of which AWS cloud best practices?

- (A) Implement elasticity
- (B) Think parallel**
- (C) Decouple your components
- (D) Design for failure

**Explanation 38. Think parallel is the correct answer.**

The cloud makes parallelization effortless. Whether it is requesting data from the cloud, storing data to the cloud, processing data (or executing jobs) in the cloud, as a cloud architect, you need to internalize the concept of parallelization when designing architectures in the cloud. It is advisable to not only implement parallelization wherever possible but also automate it because the cloud allows you to create a

repeatable process every easily.

When it comes to accessing (retrieving and storing) data, the cloud is designed to handle massively parallel operations. In order to achieve maximum performance and throughput, you should leverage request parallelization.

**Multi-threading your requests by using multiple concurrent threads will store or fetch the data faster than requesting it sequentially.** Hence, wherever possible, the processes of a cloud application should be made thread-safe through a share-nothing philosophy and leverage multi-threading.

**Implement elasticity is incorrect** as this brings a new concept of elasticity in your applications that can be implemented in three ways:

**1. Proactive Cyclic Scaling:** Periodic scaling that occurs at a fixed interval (daily, weekly, monthly, quarterly)

**2. Proactive Event-based Scaling:** Scaling just when you are expecting a big surge of traffic requests due to a scheduled business event (new product launch, marketing campaigns)

**3. Auto-scaling based on demand.** By using a monitoring

service, your system can send triggers to take appropriate actions so that it scales up or down based on metrics (utilization of the servers or network i/o, for instance)

**Decouple your components is incorrect** as this reinforces the Service-oriented architecture (SOA) design principle that the more loosely coupled the components of the system, the bigger and better it scales.

The key is to build components that do not have tight dependencies on each other so that if one component were to die (fail), sleep (not respond) or remain busy (slow to respond) for some reason, the other components in the system are built so as to continue to work as if no failure is happening.

**Design for failure is incorrect** as this explains the importance of designing, implementing, and deploying architectures in the cloud for automated recovery from failures.

**Question 39.** Which of the following statements are true when a company uses AWS and decouple from their on-premises data centers? (Choose all that apply.)

- (A) Define Auto-scaling groups for different clusters using the Amazon Auto-scaling feature in Amazon EC2
- (B) Use smart open-source configuration management

**tools like Chef, Puppet, CFEngine or Genome**

- (C) Use Amazon SQS to isolate components
- (D) Monitor your system metrics (CPU, Memory, Disk I/O, Network I/O) using Amazon CloudWatch and take appropriate actions**
- (E) Use the Elastic Load Balancing service and spread your load across multiple web app servers dynamically

**Explanation 39. A, B, and D are the correct answers.**

### **Implement elasticity**

The cloud brings a new concept of elasticity in your applications. Elasticity can be implemented in three ways:

1. Proactive Cyclic Scaling: Periodic scaling that occurs at fixed interval (daily, weekly, monthly, quarterly)
2. Proactive Event-based Scaling: Scaling just when you are expecting a big surge of traffic requests due to a scheduled business event (new product launch, marketing campaigns)
3. Auto-scaling based on demand. By using a monitoring service, your system can send triggers to take appropriate actions so that it scales up or down based on metrics (utilization of the servers or network i/o, for instance)

### **AWS specific tactics to automate your infrastructure**

1. Define Auto-scaling groups for different clusters using the Amazon Auto-scaling feature in Amazon EC2.
2. Monitor your system metrics (CPU, Memory, Disk I/O, Network I/O) using Amazon CloudWatch and take appropriate actions (launching new AMIs dynamically using the Auto-scaling service) or send notifications.
3. Store and retrieve machine configuration information dynamically: Utilize Amazon SimpleDB to fetch config data during boot-time of an instance (eg. database connection strings). SimpleDB may also be used to store information about an instance such as its IP address, machine name, and role.
4. Design a build process such that it dumps the latest builds to a bucket in Amazon S3.
5. Invest in building resource management tools (Automated scripts, pre-configured images) or use smart open-source configuration management tools like Chef , Puppet , CFEngine or Genome .
6. Bundle Just Enough Operating System (JeOS22) and your software dependencies into an Amazon Machine Image so that it is easier to manage and maintain. Pass configuration files or parameters at launch time and retrieve user data23 and

instance metadata after launch.

**7.** Reduce bundling and launch time by booting from Amazon EBS volumes<sup>24</sup> and attaching multiple Amazon EBS volumes to an instance. Create snapshots of common volumes and share snapshots<sup>25</sup> among accounts wherever appropriate.

**8.** Application components should not assume health or location of hardware it is running on. For example, dynamically attach the IP address of a new node to the cluster. Automatically failover and start a new clone in case of a failure.

**Use Amazon SQS to isolate components is incorrect** as this is an AWS tactic for decoupling components.

**Use the Elastic Load Balancing service and spread your load across multiple web app servers dynamically is incorrect** as this is an AWS tactic for implementing parallelization.

**Question 40.** Which of the following design principles demonstrate the Operational Excellence pillar of AWS Well-Architected Framework? (Choose all that apply.)

- (A) Implement a strong identity foundation
- (B) Make frequent, small, reversible changes**
- (C) Scale horizontally to increase aggregate workload availability
- (D) Measure overall efficiency
- (E) Learn from all operational failures**

**Explanation 40. B, and E are the correct answers.**

The Operational Excellence pillar includes the ability to support development and run workloads effectively, gain insight into their operations, and to continuously improve supporting processes and procedures to deliver business value.

**There are five design principles for operational excellence in the cloud:**

1. Perform operations as code: In the cloud, you can apply the same engineering discipline that you use for application code to your entire environment. You can define your entire workload (applications, infrastructure) as code and update it with code. You can implement your operations procedures as code and automate their execution by triggering them in response to events. By performing operations as code, you limit human

error and enable consistent responses to events.

**2. Make frequent, small, reversible changes:** Design workloads to allow components to be updated regularly. Make changes in small increments that can be reversed if they fail (without affecting customers when possible).

**3. Refine operations procedures frequently:** As you use operations procedures, look for opportunities to improve them. As you evolve your workload, evolve your procedures appropriately. Set up regular game days to review and validate that all procedures are effective and that teams are familiar with them.

**4. Anticipate failure:** Perform “pre-mortem” exercises to identify potential sources of failure so that they can be removed or mitigated. Test your failure scenarios and validate your understanding of their impact.

**Implement a strong identity foundation is incorrect** as this design principle demonstrates the Security Pillar of AWS Well-Architected Framework.

**Scale horizontally to increase aggregate workload availability is incorrect** as this design principle demonstrates

the Reliability of AWS Well-Architected Framework.

**Measure overall efficiency is incorrect** as this design principle demonstrates the Cost Optimization of AWS Well-Architected Framework.

## **DOMAIN 2: SECURITY AND COMPLIANCE**

# Questions 41-60

**Question 41.** Your company needs to deny any permission to any user to perform any Amazon S3 operations on objects in an S3 bucket unless the request originates from the range of 83.122.40.0/24 IP addresses. Which of the following should you use to meet the requirement?

- (A) Network Access Control List
- (B) Bucket Policy
- (C) AWS Resource Groups
- (D) AWS Firewall Manager

**Question 42.** Which of the following options below is a control which a customer fully inherits from AWS in accordance with the AWS shared responsibility model?

- (A) Patch Management
- (B) Physical and Environmental controls
- (C) Configuration Management
- (D) Zone Security

**Question 43.** You have been tasked to implement a solution to attach policies to multiple users at one time. Which AWS service will help you meet the requirement?

- (A) AWS Identity and Access Management
- (B) AWS Resource Access Manager
- (C) AWS Resource Groups
- (D) AWS Secrets Manager

**Question 44.** Which of the following AWS services is a fully managed data security service that uses machine learning and pattern matching to discover, classify, and help you protect your sensitive data in Amazon S3?

- (A) Amazon Inspector
- (B) Amazon GuardDuty
- (C) Amazon Macie
- (D) Amazon Detective

**Question 45.** Which of the following are considered prohibited activities when you conduct security assessments and penetration testing against AWS infrastructure (Choose all that apply.)

- (A) DNS zone walking via Amazon Route 53 Hosted Zones
- (B) Conduct pen testing on Amazon CloudFront
- (C) Port flooding
- (D) Protocol flooding
- (E) Conduct pen testing on Amazon EC2 instances

**Question 46.** Which of the following actions you can follow to improve the security of your Identity and Access Management (IAM) users? (Select all that apply.)

- (A) Configure a strong password policy for your users
- (B) Disable MFA
- (C) Share access keys
- (D) Keep unnecessary credentials
- (E) Monitor activity in your AWS account
- (F) Create individual IAM users

**Question 47.** Which of the following policies are available for granting permission to your Amazon S3 resources and use JSON-based access policy language? (Choose all that apply.)

- (A) Session policies
- (B) Bucket policies
- (C) Service policies
- (D) User policies
- (E) Service control policies

**Question 48.** In compliance with PCI DSS, an EU-based company is required to provide compliance documents, such as Payment Card Industry (PCI). Where are these AWS compliance documents located?

- (A) AWS Certificate Manager
- (B) AWS Security Hub
- (C) AWS Secrets Manager
- (D) AWS Artifact

**Question 49.** Which of the following should you use if you need to provide temporary AWS credentials for users who have been authenticated via their social media logins as well as for guest users who do not require any authentication?

- (A) Amazon Cognito identity pool
- (B) Amazon Detective
- (C) Amazon GuardDuty
- (D) Amazon Inspector

**Question 50.** Which of the following tasks fall under the sole responsibility of customer based on the shared responsibility model?

- (A) Patch Management
- (B) Service and Communications Protection
- (C) Configuration Management
- (D) Physical and Environmental controls

**Question 51.** Which of the following AWS services support Access Control Lists (ACLs)? (Choose all that apply.)

- (A) Amazon S3
- (B) AWS WAF
- (C) Amazon Redshift
- (D) Amazon VPC
- (E) Amazon Elastic Container

**Question 52.** Which of the following are valid important characteristics of an IAM Group? (Choose all that apply.)

- (A) A group can contain many users
- (B) A user can't belong to multiple groups
- (C) Groups can't be nested
- (D) There's a default group that automatically includes all users in the AWS account
- (E) The number and size of IAM resources in an AWS account are limited

**Question 53.** Assuming you are in the Identity and Access Management (IAM) dashboard of your AWS Management Console, which of the following services below can you manage? (Select all that apply)

- (A) Groups
- (B) Instances
- (C) Identity providers
- (D) Policies
- (E) Dedicated hosts

**Question 54.** You have been tasked to increase the security of your VPC to control traffic in and out of your company's subnets. Which of the following services will you use to complete the task?

- (A) Network ACL
- (B) AWS Shield
- (C) AWS WAF
- (D) AWS Resource Group

**Question 55.** What can you use to delegate access to users, applications, or services that don't normally have access to your AWS resources?

- (A) Policies
- (B) Access Control List
- (C) Roles
- (D) Groups

**Question 56.** AWS customers are welcome to carry out security assessments or penetration tests against AWS infrastructure without prior approval for 8 services. Which of the following services are included? (Choose all that apply.)

- (A) Elastic Load Balancers
- (B) Amazon Route 53
- (C) Amazon CloudFront
- (D) Amazon API Gateways
- (E) Amazon Redshift

**Question 57.** Which of the following AWS service is a security management service which allows you to centrally configure and manage firewall rules across your accounts and applications in AWS Organization?

- (A) AWS Secrets Manager
- (B) AWS Firewall Manager
- (C) AWS Shield
- (D) AWS WAF

**Question 58.** Recently your company migrated to AWS and now you are responsible to implement a solution to identify unexpected and potentially unauthorized or malicious activity in your AWS environment. Which of the following AWS services will you implement to meet the requirement?

- (A) Amazon GuardDuty
- (B) Amazon Inspector
- (C) AWS Shield
- (D) AWS WAF

**Question 59.** Which of the following are some common things you can do with the policy simulator? (Choose all that apply.)

- (A) Test policies that are attached to AWS resources, such as Amazon Inspector
- (B) Test policies that are attached to IAM users, groups, or roles in your AWS account
- (C) You can only simulate multiple permissions boundaries at a time
- (D) Test new policies that are not yet attached to a user, group, or role by typing or copying them into the simulator
- (E) Identify which specific statement in a policy results in allowing or denying access to a particular resource or action

**Question 60.** Which of the following guidelines is not considered as a best practice for Amazon S3?

- (A) Ensure that your Amazon S3 buckets use the correct policies and are publicly accessible
- (B) Implement least privilege access
- (C) Use IAM roles for applications and AWS services that require Amazon S3 access
- (D) Enable multi-factor authentication (MFA) Delete

# Answers 41-60

**Question 41.** Your company needs to deny any permission to any user to perform any Amazon S3 operations on objects in an S3 bucket unless the request originates from the range of 83.122.40.0/24 IP addresses. Which of the following should you use to meet the requirement?

- (A) Network Access Control List
- (B) Bucket Policy**
- (C) AWS Resource Groups
- (D) AWS Firewall Manager

**Explanation 41. Bucket Policy is the correct answer.**

Bucket policies is an access policy option available for granting permission to your Amazon S3 resources that uses JSON-based access policy language.

The policies use bucket and examplebucket strings in the resource value. To test these policies, replace these strings with your bucket name. You can use the AWS Policy Generator to create a bucket policy for your Amazon S3 bucket.

The following example denies permissions to any user to perform any Amazon S3 operations on objects in the specified S3 bucket unless the request originates from the range of IP

addresses specified in the condition.

This statement identifies the 83.122.40.0/24 as the range of allowed Internet Protocol version 4 (IPv4) IP addresses.

```
{  
  "Version": "2020-1-17",  
  "Id": "S3PolicyId1",  
  "Statement": [  
    {  
      "Sid": "IPAllow",  
      "Effect": "Deny",  
      "Principal": "*",  
      "Action": "s3:*",  
      "Resource": [  
        "arn:aws:s3:::awsexamplebucket1",  
        "arn:aws:s3:::awsexamplebucket1/*"  
      ],  
      "Condition": {  
        "NotIpAddress": {"aws:SourceIp": "83.122.40.0/24"}  
      }  
    }  
  ]  
}
```

**Network Access Control List is incorrect.** A network access control list (ACL) is an optional layer of security for your VPC that acts as a firewall for controlling traffic in and out of one or more subnets.

**AWS Resource Group is incorrect.** You can use resource

groups to organize your AWS resources. Resource groups make it easier to manage and automate tasks on large numbers of resources at one time.

**AWS Firewall Manager is incorrect.** AWS Firewall Manager simplifies your AWS WAF administration and maintenance tasks across multiple accounts and resources. With AWS Firewall Manager, you set up your firewall rules just once. The service automatically applies your rules across your accounts and resources, even as you add new resources.

**Question 42.** Which of the following options below is a control which a customer fully inherits from AWS in accordance with the AWS shared responsibility model?

- (A) Patch Management
- (B) Physical and Environmental controls**
- (C) Configuration Management
- (D) Zone Security

**Explanation 42. Physical and Environmental controls is the correct answer.** Security and Compliance is a shared responsibility between AWS and the customer. This shared model can help relieve the customer's operational burden as AWS operates, manages and controls the components from the host operating system and virtualization layer down to the

physical security of the facilities in which the service operates.

**Below are examples of controls that are managed by AWS, AWS Customers and/or both.**

**Inherited Controls** – Controls which a customer fully inherits from AWS.

### 1. Physical and Environmental controls

**Shared Controls** – Controls which apply to both the infrastructure layer and customer layers, but in completely separate contexts or perspectives. In a shared control, AWS provides the requirements for the infrastructure and the customer must provide their own control implementation within their use of AWS services.

**Examples include:**

**1. Patch Management** – AWS is responsible for patching and fixing flaws within the infrastructure, but customers are responsible for patching their guest OS and applications.

**2. Configuration Management** – AWS maintains the configuration of its infrastructure devices, but a customer is responsible for configuring their own guest operating systems, databases, and applications.

**3. Awareness & Training** – AWS trains AWS employees, but a customer must train their own employees.

**Customer Specific** – Controls which are solely the responsibility of the customer based on the application they are deploying within AWS services. **Examples include:**

**1.** Service and Communications Protection or Zone Security which may require a customer to route or zone data within specific security environments.

**Question 43.** You have been tasked to implement a solution to attach policies to multiple users at one time. Which AWS service will help you meet the requirement?

- (A) **AWS Identity and Access Management**
- (B) AWS Resource Access Manager
- (C) AWS Resource Groups
- (D) AWS Secrets Manager

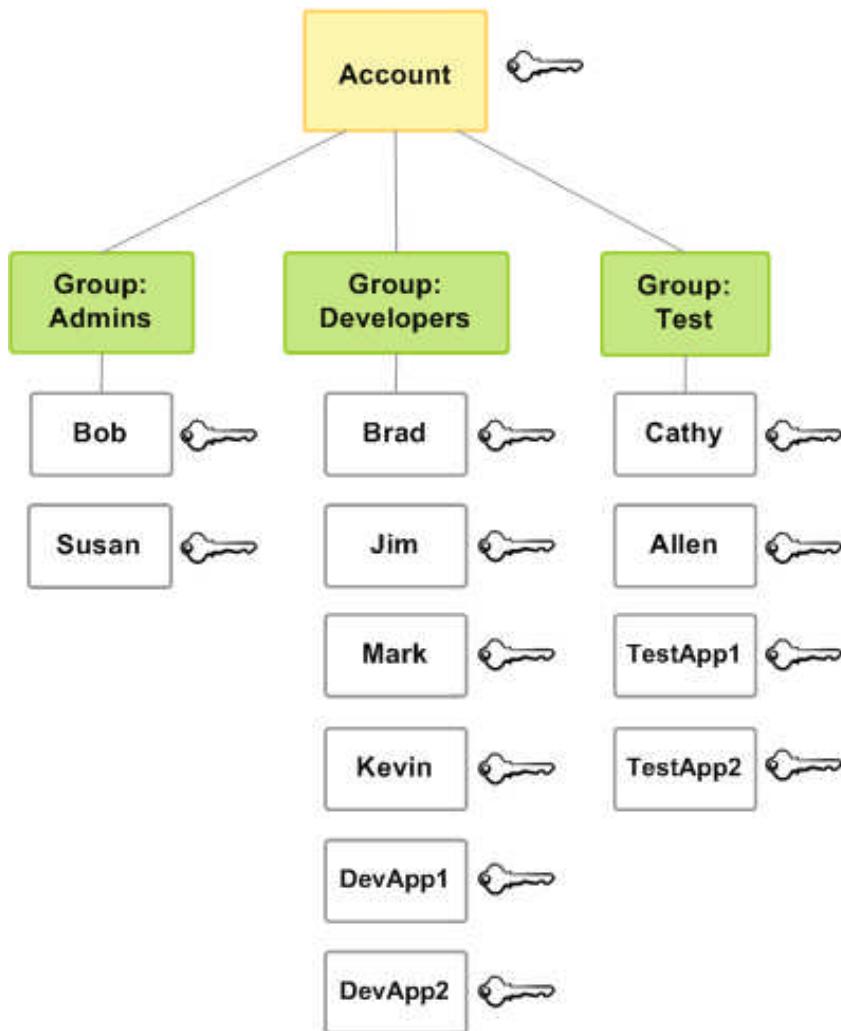
**Explanation 43.** **AWS Identity and Access Management is the correct answer.** AWS Identity and Access Management (IAM) is a web service that helps you securely control access to AWS resources. You use IAM to control who is authenticated (signed in) and authorized (has permissions) to use resources.

An IAM group is a collection of IAM users. Groups let you specify permissions for multiple users, which can make it easier to manage the permissions for those users. For example, you could have a group called Admins and give that group the

types of permissions that administrators typically need.

**Note** that a group is not truly an “identity” in IAM because it cannot be identified as a Principal in a permission policy. **It is simply a way to attach policies to multiple users at one time.**

The following diagram shows a simple example of a small company. The company owner creates an Admins group for users to create and manage other users as the company grows. The Admins group creates a Developers group and a Test group. Each of these groups consists of users (humans and applications) that interact with AWS (Jim, Brad, DevApp1, and so on). Each user has an individual set of security credentials. In this example, each user belongs to a single group. However, users can belong to multiple groups.



**AWS Resource Access Manager is incorrect.** AWS Resource Access Manager (AWS RAM) enables you to share your resources with any AWS account or organization in AWS Organizations. Customers who operate multiple accounts can create resources centrally and use AWS RAM to share them with all of their accounts to reduce operational overhead.

**AWS Resource Groups is incorrect.** AWS Resource Groups lets you organize AWS resources into groups, tag resources using virtually any criteria, and manage, monitor, and automate

tasks on grouped resources.

**AWS Secrets Manager is incorrect.** AWS Secrets Manager helps you to securely encrypt, store, and retrieve credentials for your databases and other services. Instead of hardcoding credentials in your apps, you can make calls to Secrets Manager to retrieve your credentials whenever needed.

**Question 44.** Which of the following AWS services is a fully managed data security service that uses machine learning and pattern matching to discover, classify, and help you protect your sensitive data in Amazon S3?

- (A) Amazon Inspector
- (B) Amazon GuardDuty
- (C) Amazon Macie**
- (D) Amazon Detective

**Explanation 44. Amazon Macie is the correct answer.**

Amazon Macie is a fully managed data security and data privacy service that uses machine learning and pattern matching to discover, monitor, and help you protect your sensitive data in Amazon Simple Storage Service (Amazon S3).

Macie automates the discovery of sensitive data, such as personally identifiable information (PII) and intellectual property,

to provide you with a better understanding of the data that your organization stores in Amazon S3. Within minutes, Macie can identify overly permissive or unencrypted buckets across your AWS accounts.

And it automatically and continuously monitors that data and generates detailed findings for you. Macie also enables you to define custom detection rules that reflect your organization's intellectual property, proprietary data, and particular scenarios.

**Amazon inspector is incorrect.** Amazon Inspector is a security vulnerability assessment service that helps improve the security and compliance of your AWS resources. Amazon Inspector automatically assesses resources for vulnerabilities or deviations from best practices, and then produces a detailed list of security findings prioritized by level of severity.

**Amazon GuardDuty is incorrect.** Amazon GuardDuty is a continuous security monitoring service. Amazon GuardDuty can help to identify unexpected and potentially unauthorized or malicious activity in your AWS environment.

**Amazon Detective is incorrect.** Amazon Detective makes it easy to analyze, investigate, and quickly identify the root cause of security findings or suspicious activities. Detective

automatically collects log data from your AWS resources and uses machine learning, statistical analysis, and graph theory to help you visualize and conduct faster and more efficient security investigations.

**Question 45.** Which of the following are considered prohibited activities when you conduct security assessments and penetration testing against AWS infrastructure (Choose all that apply.)

- (A) **DNS zone walking via Amazon Route 53 Hosted Zones**
- (B) Conduct pen testing on Amazon CloudFront
- (C) **Port flooding**
- (D) **Protocol flooding**
- (E) Conduct pen testing on Amazon EC2 instances

**Explanation 45. A, C, and D are the correct answers.**

### **Prohibited Activities**

1. DNS zone walking via Amazon Route 53 Hosted Zones
2. Denial of Service (DoS), Distributed Denial of Service (DDoS), Simulated DoS, Simulated DDoS
3. Port flooding
4. Protocol flooding
5. Request flooding (login request flooding, API request flooding)

AWS customers are welcome to carry out security assessments or penetration tests against their AWS infrastructure without prior approval for 8 services.

## Permitted Services

1. Amazon EC2 instances, NAT Gateways, and Elastic Load Balancers
2. Amazon RDS
3. Amazon CloudFront
4. Amazon Aurora
5. Amazon API Gateways
6. AWS Lambda and Lambda Edge functions
7. Amazon Lightsail resources
8. Amazon Elastic Beanstalk environments

**Question 46.** Which of the following actions you can follow to improve the security of your Identity and Access Management (IAM) users? (Select all that apply.)

- (A) **Configure a strong password policy for your users**
- (B) Disable MFA
- (C) Share access keys
- (D) Keep unnecessary credentials
- (E) **Monitor activity in your AWS account**
- (F) **Create individual IAM users**

**Explanation 46. A, E, and F are the correct answers.**

### **1. Configure a strong password policy for your users**

If you allow users to change their own passwords, require that they create strong passwords and that they rotate their passwords periodically. On the Account Settings page of the IAM console, you can create a password policy for your account. You can use the password policy to define password requirements, such as minimum length, whether it requires nonalphanumeric characters, how frequently it must be rotated, and so on.

### **2. Monitor activity in your AWS account**

You can use logging features in AWS to determine the actions users have taken in your account and the resources that were used. The log files show the time and date of actions, the source IP for an action, which actions failed due to inadequate permissions, and more.

### **3. Create individual IAM users**

Don't use your AWS account root user credentials to access AWS, and don't give your credentials to anyone else. Instead, create individual users for anyone who needs access to your AWS account. Create an IAM user for yourself as well, give that user administrative permissions, and use that IAM user for all your work.

**Disable MFA is incorrect.** One of the actions that improve the security of your Identity and Access Management (IAM) users is to **enable multi-factor authentication (MFA)**.

**Share access keys is incorrect.** One of the actions that improve the security of your Identity and Access Management (IAM) users is to **not share access keys**.

**Keep unnecessary credentials is incorrect.** One of the actions that improve the security of your Identity and Access Management (IAM) users is to **remove unnecessary credentials**.

**Question 47.** Which of the following policies are available for granting permission to your Amazon S3 resources and use JSON-based access policy language? (Choose all that apply.)

- (A) Session policies
- (B) Bucket policies**
- (C) Service policies
- (D) User policies**
- (E) Service control policies

**Explanation 47. B and D are the correct answers.**

Bucket policies and user policies are two access policy options available for granting permission to your Amazon S3 resources.

Both use JSON-based access policy language.

**Session policies is incorrect.** Session policies are advanced policies that you pass in a parameter when you programmatically create a temporary session for a role or federated user.

**Service policies is incorrect.** Access control lists (ACLs) are service policies that allow you to control which principals in another account can access a resource. ACLs cannot be used to control access for a principal within the same account. ACLs are similar to resource-based policies, although they are the only policy type that does not use the JSON policy document format.

**Service control policies (SCPs) is incorrect.** AWS Organizations is a service for grouping and centrally managing the AWS accounts that your business owns. If you enable all features in an organization, then you can apply service control policies (SCPs) to any or all of your accounts. SCPs are JSON policies that specify the maximum permissions for an organization or organizational unit (OU).

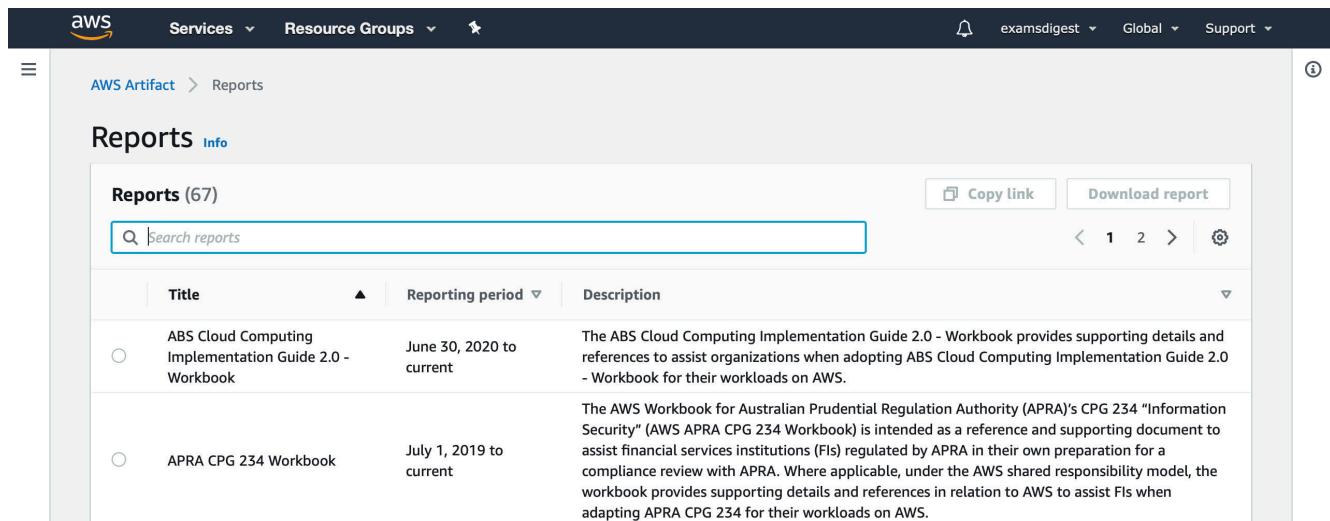
**Question 48.** In compliance with PCI DSS, an EU-based company is required to provide compliance documents, such

as Payment Card Industry (PCI). Where are these AWS compliance documents located?

- (A) AWS Certificate Manager
- (B) AWS Security Hub
- (C) AWS Secrets Manager
- (D) AWS Artifact**

### **Explanation 48. AWS Artifact is the correct answer.**

AWS Artifact provides on-demand downloads of AWS security and compliance documents, such as AWS ISO certifications, Payment Card Industry (PCI), and Service Organization Control (SOC) reports.



The screenshot shows the AWS Artifact service interface. At the top, there's a navigation bar with the AWS logo, 'Services' dropdown, 'Resource Groups' dropdown, and user information ('examsdigest', 'Global', 'Support'). Below the navigation is a breadcrumb trail: 'AWS Artifact > Reports'. The main area is titled 'Reports' with an 'Info' link. A search bar labeled 'Search reports' is present. A table lists two reports:

Title	Reporting period	Description
ABS Cloud Computing Implementation Guide 2.0 - Workbook	June 30, 2020 to current	The ABS Cloud Computing Implementation Guide 2.0 - Workbook provides supporting details and references to assist organizations when adopting ABS Cloud Computing Implementation Guide 2.0 - Workbook for their workloads on AWS.
APRA CPG 234 Workbook	July 1, 2019 to current	The AWS Workbook for Australian Prudential Regulation Authority (APRA)'s CPG 234 "Information Security" (AWS APRA CPG 234 Workbook) is intended as a reference and supporting document to assist financial services institutions (FIs) regulated by APRA in their own preparation for a compliance review with APRA. Where applicable, under the AWS shared responsibility model, the workbook provides supporting details and references in relation to AWS to assist FIs when adapting APRA CPG 234 for their workloads on AWS.

Buttons for 'Copy link' and 'Download report' are located at the top right of the report list.

You can submit the security and compliance documents (also known as audit artifacts) to your auditors or regulators to demonstrate the security and compliance of the AWS infrastructure and services that you use. You can also use these documents as guidelines to evaluate your own cloud

architecture and assess the effectiveness of your company's internal controls. AWS Artifact provides documents about AWS only.

**AWS Certificate Manager is incorrect.** AWS Certificate Manager (ACM) makes it easy to provision, manage, and deploy SSL/TLS certificates on AWS managed resources.

**AWS Security Hub is incorrect.** AWS Security Hub provides you with a comprehensive view of the security state of your AWS resources. Security Hub collects security data from across AWS accounts and services and helps you analyze your security trends to identify and prioritize the security issues across your AWS environment.

**AWS Secrets Manager is incorrect.** AWS Secrets Manager helps you to securely encrypt, store, and retrieve credentials for your databases and other services. Instead of hardcoding credentials in your apps, you can make calls to Secrets Manager to retrieve your credentials whenever needed. Secrets Manager helps you protect access to your IT resources and data by enabling you to rotate and manage access to your secrets.

**Question 49.** Which of the following should you use if you need to provide temporary AWS credentials for users who have been authenticated via their social media logins as well as for guest users who do not require any authentication?

- (A) **Amazon Cognito identity pool**
- (B) Amazon Detective
- (C) Amazon GuardDuty
- (D) Amazon Inspector

**Explanation 49. Amazon Cognito identity pool is the correct answer.** Amazon Cognito identity pools (federated identities) enable you to create unique identities for your users and federate them with identity providers. With an identity pool, you can obtain temporary, limited-privilege AWS credentials to access other AWS services. Amazon Cognito identity pools support the following identity providers:

1. Public providers: Login with Amazon (Identity Pools), Facebook (Identity Pools), Google (Identity Pools), Sign in with Apple (Identity Pools)
2. Amazon Cognito User Pools
3. Open ID Connect Providers (Identity Pools)
4. SAML Identity Providers (Identity Pools)
5. Developer Authenticated Identities (Identity Pools)

The screenshot shows the 'Create new identity pool' wizard. On the left, there's a sidebar with 'Step 1: Create identity pool' (highlighted in orange) and 'Step 2: Set permissions'. The main area is titled 'Create new identity pool' and contains instructions: 'Identity pools are used to store end user identities. To declare a new identity pool, enter a unique name.' Below this is a field labeled 'Identity pool name\*' with the value 'Examsdigest\_identity\_pool' and a green checkmark icon. A note says 'Example: My App Name'. Under the heading 'Unauthenticated identities', it says 'Amazon Cognito can support unauthenticated identities by providing a unique identifier and AWS credentials for users who do not authenticate with an identity provider. If your application allows customers to use the application without logging in, you can enable access for unauthenticated identities. [Learn more about unauthenticated identities.](#)' A red box highlights the checkbox 'Enable access to unauthenticated identities' which is checked. A note below it says 'Enabling this option means that anyone with internet access can be granted AWS credentials. Unauthenticated identities are typically users who do not log in to your application. Typically, the permissions that you assign for unauthenticated identities should be more restrictive than those for authenticated identities.' At the bottom, there's a section for 'Authentication flow settings' with a note about multi-step processes.

**Amazon Detective is incorrect.** Amazon Detective makes it easy to analyze, investigate, and quickly identify the root cause of security findings or suspicious activities. Detective automatically collects log data from your AWS resources and uses machine learning, statistical analysis, and graph theory to help you visualize and conduct faster and more efficient security investigations.

**Amazon GuardDuty is incorrect.** Amazon GuardDuty is a continuous security monitoring service. Amazon GuardDuty can help to identify unexpected and potentially unauthorized or malicious activity in your AWS environment.

**Amazon Inspector is incorrect.** Amazon Inspector is a security vulnerability assessment service that helps improve the security and compliance of your AWS resources. Amazon

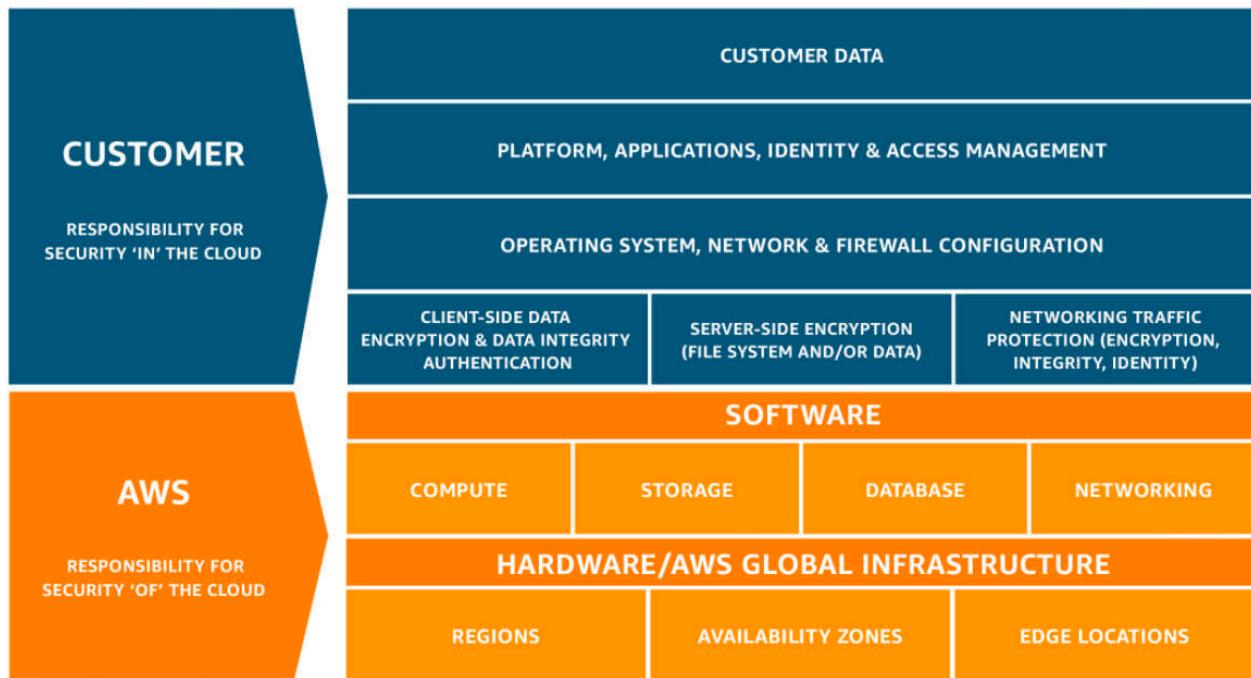
Inspector automatically assesses resources for vulnerabilities or deviations from best practices, and then produces a detailed list of security findings prioritized by level of severity.

**Question 50.** Which of the following tasks fall under the sole responsibility of customer based on the shared responsibility model?

- (A) Patch Management
- (B) Service and Communications Protection**
- (C) Configuration Management
- (D) Physical and Environmental controls

**Explanation 50. Service and Communications Protection is the correct answer.** Security and Compliance is a shared responsibility between AWS and the customer. This shared model can help relieve the customer's operational burden as AWS operates, manages and controls the components from the host operating system and virtualization layer down to the physical security of the facilities in which the service operates.

As every customer is deployed differently in AWS, customers can take advantage of shifting management of certain IT controls to AWS which results in a (new) distributed control environment. Customers can then use the AWS control and compliance documentation available to them to perform their



control evaluation and verification procedures as required.

Below are examples of controls that are managed by AWS, AWS Customers and/or both.

**Inherited Controls** – Controls which a customer fully inherits from AWS.

### 1. Physical and Environmental controls

**Shared Controls** – Controls which apply to both the infrastructure layer and customer layers, but in completely separate contexts or perspectives. In a shared control, AWS provides the requirements for the infrastructure and the customer must provide their own control implementation within their use of AWS services. **Examples include:**

### 1. Patch Management – AWS is responsible for patching and

fixing flaws within the infrastructure, but customers are responsible for patching their guest OS and applications.

**2. Configuration Management** – AWS maintains the configuration of its infrastructure devices, but a customer is responsible for configuring their own guest operating systems, databases, and applications.

**3. Awareness & Training** – AWS trains AWS employees, but a customer must train their own employees.

**Customer Specific** – Controls which are solely the responsibility of the customer based on the application they are deploying within AWS services. **Examples include:**

**1. Service and Communications Protection or Zone Security** which may require a customer to route or zone data within specific security environments.

**Question 51.** Which of the following AWS services support Access Control Lists (ACLs)? (Choose all that apply.)

- (A) **Amazon S3**
- (B) **AWS WAF**
- (C) Amazon Redshift
- (D) **Amazon VPC**
- (E) Amazon Elastic Container

**Explanation 51. A, B, and D are the correct answers.** Access control lists (ACLs) are service policies that allow you to control which principals in another account can access a resource. ACLs cannot be used to control access for a principal within the same account. ACLs are similar to resource-based policies, although they are the only policy type that does not use the JSON policy document format. **Amazon S3, AWS WAF, and Amazon VPC are examples of services that support ACLs.**

**Amazon Redshift is incorrect** as it is not an AWS service that supports ACL. Amazon Redshift is a fast, fully managed, petabyte-scale data warehouse service that makes it simple and cost-effective to efficiently analyze all your data using your existing business intelligence tools.

**Amazon Elastic Container is incorrect** as it is not an AWS service that supports ACL. Amazon Elastic Container Registry (Amazon ECR) is a fully-managed Docker container registry that makes it easy for developers to store, manage, and deploy Docker container images.

**Question 52.** Which of the following are valid important characteristics of an IAM Group? (Choose all that apply.)

- (A) **A group can contain many users**
- (B) A user can't belong to multiple groups
- (C) **Groups can't be nested**
- (D) There's a default group that automatically includes all users in the AWS account
- (E) **The number and size of IAM resources in an AWS account are limited**

**Explanation 52. A, C, and E are the correct answers.** An IAM group is a collection of IAM users. Groups let you specify permissions for multiple users, which can make it easier to manage the permissions for those users. For example, you could have a group called Admins and give that group the types of permissions that administrators typically need.

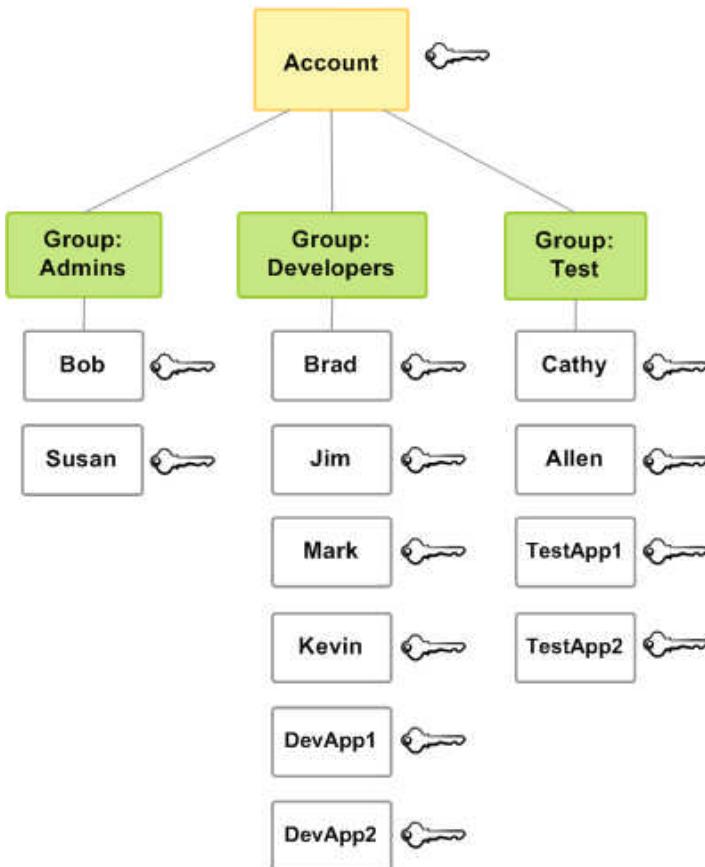
Any user in that group automatically has the permissions that are assigned to the group. If a new user joins your organization and needs administrator privileges, you can assign the appropriate permissions by adding the user to that group. Similarly, if a person changes jobs in your organization, instead of editing that user's permissions, you can remove him or her from the old groups and add him or her to the appropriate new groups.

Note that a group is not truly an “identity” in IAM because it cannot be identified as a **Principal** in a permission policy. It is simply a way to attach policies to multiple users at one time.

### **Following are some important characteristics of groups:**

- 1.** A group can contain many users, and a user can belong to multiple groups.
- 2.** Groups can't be nested; they can contain only users, not other groups.
- 3.** There's no default group that automatically includes all users in the AWS account. If you want to have a group like that, you need to create it and assign each new user to it.
- 4.** The number and size of IAM resources in an AWS account are limited.

The following diagram shows a simple example of a small company. The company owner creates an **Admins** group for users to create and manage other users as the company grows. The **Admins** group creates a Developers group and a Test group. Each of these groups consists of users (humans and applications) that interact with AWS (Jim, Brad, DevApp1, and so on). Each user has an individual set of security credentials. In this example, each user belongs to a single group. However, users can belong to multiple groups.



**Question 53.** Assuming you are in the Identity and Access Management (IAM) dashboard of your AWS Management Console, which of the following services below can you manage? (Select all that apply)

- (A) Groups
- (B) Instances
- (C) Identity providers
- (D) Policies
- (E) Dedicated hosts

**Explanation 53.** Groups, Identity providers and Policies are the correct answers.

The screenshot shows the AWS Identity and Access Management (IAM) service dashboard. The left sidebar has a red box around the 'Dashboard' item under 'Access management'. Other items in the sidebar include 'Groups', 'Users', 'Roles', 'Policies', 'Identity providers', and 'Account settings'. The main content area displays 'Welcome to Identity and Access Management' with a sign-in link. Below it is a summary of IAM resources: 'Users: 10', 'Groups: 3', 'Roles: 2', 'Identity Providers: 0', and 'Customer Managed Policies: 0'. The right sidebar contains links for 'Additional Information' such as 'IAM best practices', 'IAM documentation', 'Web Identity Federation Playground', 'Policy Simulator', and 'Videos, IAM release history and additional resources'.

**The rest options are incorrect** as Instances and Dedicated hosts can be configured under the EC2 service.

**Question 54.** You have been tasked to increase the security of your VPC to control traffic in and out of your company's subnets. Which of the following services will you use to complete the task?

- (A) Network ACL
- (B) AWS Shield
- (C) AWS WAF
- (D) AWS Resource Group

**Explanation 54. Network ACL is the correct answer.**

**Network ACL is the correct answer.** A network access control list (ACL) is an optional layer of security for your VPC that acts as a firewall for controlling traffic in and out of one or more subnets. You might set up network ACLs with rules similar to your security groups in order to add an additional layer of

security to your VPC.

**The following are the basic things that you need to know about network ACLs:**

- 1.** Your VPC automatically comes with a modifiable default network ACL. By default, it allows all inbound and outbound IPv4 traffic and, if applicable, IPv6 traffic.
- 2.** You can create a custom network ACL and associate it with a subnet. By default, each custom network ACL denies all inbound and outbound traffic until you add rules.
- 3.** Each subnet in your VPC must be associated with a network ACL. If you don't explicitly associate a subnet with a network ACL, the subnet is automatically associated with the default network ACL.
- 4.** You can associate a network ACL with multiple subnets. However, a subnet can be associated with only one network ACL at a time. When you associate a network ACL with a subnet, the previous association is removed.
- 5.** A network ACL contains a numbered list of rules. We evaluate the rules in order, starting with the lowest numbered rule, to determine whether traffic is allowed in or out of any

subnet associated with the network ACL. The highest number that you can use for a rule is 32766. We recommend that you start by creating rules in increments (for example, increments of 10 or 100) so that you can insert new rules where you need to later on.

**6.** A network ACL has separate inbound and outbound rules, and each rule can either allow or deny traffic.

**7.** Network ACLs are stateless, which means that responses to allowed inbound traffic are subject to the rules for outbound traffic (and vice versa).

**AWS Shield is incorrect.** AWS provides two levels of protection against DDoS attacks: AWS Shield Standard and AWS Shield Advanced. AWS Shield Standard is automatically included at no extra cost beyond what you already pay for AWS WAF and your other AWS services. For added protection against DDoS attacks, AWS offers AWS Shield Advanced.

**AWS WAF is incorrect.** AWS WAF is a web application firewall that lets you monitor web requests that are forwarded to Amazon CloudFront distributions or an Application Load Balancer.

**AWS Resource Group is incorrect.** You can use resource groups to organize your AWS resources. Resource groups make it easier to manage and automate tasks on large numbers of resources at one time.

**Question 55.** What you can use to delegate access to users, applications, or services that don't normally have access to your AWS resources?

- (A) Policies
- (B) Access Control List
- (C) Roles**
- (D) Groups

**Explanation 55. Roles is the correct answer.**

An IAM role is an IAM identity that you can create in your account that has specific permissions. An IAM role is similar to an IAM 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 standard long-term credentials such as a password or access keys associated with it. Instead, when you assume a role, it provides you with

temporary security credentials for your role session.

**You can use roles to delegate access to users, applications, or services that don't normally have access to your AWS resources.**

For example, you might want to grant users in your AWS account access to resources they don't usually have, or grant users in one AWS account access to resources in another account. Or you might want to allow a mobile app to use AWS resources, but not want to embed AWS keys within the app (where they can be difficult to rotate and where users can potentially extract them).

Sometimes you want to give AWS access to users who already have identities defined outside of AWS, such as in your corporate directory. Or, you might want to grant access to your account to third parties so that they can perform an audit on your resources.

**Policy is incorrect.** A policy is an entity that, when attached to an identity or resource, defines their permissions. You can use the AWS Management Console, AWS CLI, or AWS API to create customer managed policies in IAM.

Customer managed policies are standalone policies that you administer in your own AWS account. You can then attach the policies to identities (users, groups, and roles) in your AWS account.

**Access Control Lists is incorrect.** Amazon S3 access control lists (ACLs) enable you to manage access to buckets and objects. Each bucket and object has an ACL attached to it as a subresource.

It defines which AWS accounts or groups are granted access and the type of access. When a request is received against a resource, Amazon S3 checks the corresponding ACL to verify that the requester has the necessary access permissions.

**Groups is incorrect.** Groups let you specify permissions for multiple users, which can make it easier to manage the permissions for those users.

For example, you could have a group called Admins and give that group the types of permissions that administrators typically need. Any user in that group automatically has the permissions that are assigned to the group. If a new user joins your organization and needs administrator privileges, you can assign the appropriate permissions by adding the user to that group.

**Question 56.** AWS customers are welcome to carry out security assessments or penetration tests against AWS infrastructure without prior approval for 8 services. Which of the following services are included? (Choose all that apply.)

- (A) **Elastic Load Balancers**
- (B) Amazon Route 53
- (C) **Amazon CloudFront**
- (D) **Amazon API Gateways**
- (E) Amazon Redshift

**Explanation 56.** **A, C, and D are the correct answer.**

AWS customers are welcome to carry out security assessments or penetration tests against their AWS infrastructure without prior approval for 8 services.

Customers are not permitted to conduct any security assessments of AWS infrastructure, or the AWS services themselves. If you discover a security issue within any AWS services in the course of your security assessment, then you have to contact AWS Security immediately.

## **Permitted Services**

Amazon EC2 instances, NAT Gateways, and Elastic Load Balancers

Amazon RDS

Amazon CloudFront

Amazon Aurora

Amazon API Gateways

AWS Lambda and Lambda Edge functions

Amazon Lightsail resources

Amazon Elastic Beanstalk environments

## **Prohibited Activities**

DNS zone walking via Amazon Route 53 Hosted Zones

Denial of Service (DoS), Distributed Denial of Service (DDoS),

Simulated DoS, Simulated DDoS

Port flooding

Protocol flooding

Request flooding (login request flooding, API request flooding)

**Question 57.** Which of the following AWS service is a security management service which allows you to centrally configure and manage firewall rules across your accounts and applications in AWS Organization?

- (A) AWS Secrets Manager
- (B) AWS Firewall Manager**
- (C) AWS Shield
- (D) AWS WAF

**Explanation 57. AWS Firewall Manager is the correct answer.** AWS Firewall Manager is a security management service that allows you to centrally configure and manage firewall rules across your accounts and applications in AWS Organization.

As new applications are created, Firewall Manager makes it easy to bring new applications and resources into compliance by enforcing a common set of security rules. Now you have a single service to build firewall rules, create security policies, and enforce them in a consistent, hierarchical manner across your entire infrastructure.

Using AWS Firewall Manager, you can easily roll out AWS WAF rules for your Application Load Balancers, API Gateways, and Amazon CloudFront distributions. Similarly, you can create AWS Shield Advanced protections for your Application Load Balancers, ELB Classic Load Balancers, Elastic IP Addresses and CloudFront distributions. Finally, with AWS Firewall Manager, you can enable security groups for your Amazon EC2 and ENI resource types in Amazon VPCs.

## Benefits

1. Simplify management of firewall rules across your accounts
2. Ensure compliance of existing and new applications

3. Easily deploy managed rules across accounts
4. Enable rapid response to internet attacks

**AWS Secrets Manager is incorrect.** AWS Secrets Manager helps you to securely encrypt, store, and retrieve credentials for your databases and other services. Instead of hardcoding credentials in your apps, you can make calls to Secrets Manager to retrieve your credentials whenever needed. Secrets Manager helps you protect access to your IT resources and data by enabling you to rotate and manage access to your secrets.

**AWS Shield is incorrect.** AWS provides two levels of protection against DDoS attacks: AWS Shield Standard and AWS Shield Advanced. AWS Shield Standard is automatically included at no extra cost beyond what you already pay for AWS WAF and your other AWS services. For added protection against DDoS attacks, AWS offers AWS Shield Advanced.

**AWS WAF is incorrect.** AWS WAF is a web application firewall that lets you monitor web requests that are forwarded to Amazon CloudFront distributions or an Application Load Balancer. You can also use AWS WAF to block or allow requests based on conditions that you specify, such as the IP addresses that requests originate from or values in the requests.

**Question 58.** Recently your company migrated to AWS and now you are responsible to implement a solution to identify unexpected and potentially unauthorized or malicious activity in your AWS environment. Which of the following AWS services will you implement to meet the requirement?

- (A) **Amazon GuardDuty**
- (B) Amazon Inspector
- (C) AWS Shield
- (D) AWS WAF

**Explanation 58. Amazon GuardDuty is the correct answer.**

Amazon GuardDuty is a continuous security monitoring service that analyzes and processes the following Data sources: VPC Flow Logs, AWS CloudTrail management event logs, Cloudtrail S3 data event logs, and DNS logs. It uses threat intelligence feeds, such as lists of malicious IP addresses and domains, and machine learning to identify unexpected and potentially unauthorized and malicious activity within your AWS environment.

Amazon GuardDuty can help to identify unexpected and potentially unauthorized or malicious activity in your AWS environment.

**Amazon Inspector is incorrect.** Amazon Inspector is a security vulnerability assessment service that helps improve the security and compliance of your AWS resources. Amazon Inspector automatically assesses resources for vulnerabilities or deviations from best practices and then produces a detailed list of security findings prioritized by level of severity.

**AWS Shield is incorrect.** AWS provides two levels of protection against DDoS attacks: AWS Shield Standard and AWS Shield Advanced. AWS Shield Standard is automatically included at no extra cost beyond what you already pay for AWS WAF and your other AWS services.

For added protection against DDoS attacks, AWS offers AWS Shield Advanced. AWS Shield Advanced provides expanded DDoS attack protection for your Amazon EC2 instances, Elastic Load Balancing load balancers, Amazon CloudFront distributions, and Amazon Route 53 hosted zones.

**AWS WAF is incorrect.** AWS WAF is a web application firewall that lets you monitor web requests that are forwarded to Amazon CloudFront distributions or an Application Load Balancer. You can also use AWS WAF to block or allow requests based on conditions that you specify, such as the IP addresses that requests originate from or values in the requests.

**Question 59.** Which of the following are some common things you can do with the policy simulator? (Choose all that apply.)

- (A) Test policies that are attached to AWS resources, such as Amazon Inspector
- (B) Test policies that are attached to IAM users, groups, or roles in your AWS account**
- (C) You can only simulate multiple permissions boundaries at a time
- (D) Test new policies that are not yet attached to a user, group, or role by typing or copying them into the simulator**
- (E) Identify which specific statement in a policy results in allowing or denying access to a particular resource or action**

**Explanation 59. B, D and E are the correct answers.** With the IAM policy simulator, you can test and troubleshoot identity-based policies, IAM permissions boundaries, Organizations service control policies, and resource-based policies.

**Here are some common things you can do with the policy simulator:**

1. Test policies that are attached to IAM users, groups, or roles in your AWS account. If more than one policy is attached to the

user, group, or role, you can test all the policies, or select individual policies to test. You can test which actions are allowed or denied by the selected policies for specific resources.

**2.** Test and troubleshoot the effect of permissions boundaries on IAM entities. Note: you can only simulate one permissions boundary at a time.

**3.** Test policies that are attached to AWS resources, such as Amazon S3 buckets, Amazon SQS queues, Amazon SNS topics, or Amazon S3 Glacier vaults.

**4.** If your AWS account is a member of an organization in AWS Organizations, then you can test the impact of service control policies (SCPs) on your IAM policies and resource policies.

**5.** Test new policies that are not yet attached to a user, group, or role by typing or copying them into the simulator. These are used only in the simulation and are not saved. Note: you cannot type or copy a resource-based policy into the simulator. To use a resource-based policy in the simulator, you must include the resource in the simulation. You must also select the checkbox to include that resource's policy in the simulation.

**6.** Test the policies with selected services, actions, and resources. For example, you can test to ensure that your policy allows an entity to perform the **ListAllMyBuckets**, **CreateBucket**, and **DeleteBucket** actions in the Amazon S3 service on a specific bucket.

**7.** Simulate real-world scenarios by providing context keys, such as an IP address or date, that are included in **Condition** elements in the policies being tested.

**8.** Identify which specific statement in a policy results in allowing or denying access to a particular resource or action.

**Question 60.** Which of the following guidelines is not considered as a best practice for Amazon S3?

- (A) Ensure that your Amazon S3 buckets use the correct policies and are publicly accessible
- (B) Implement least privilege access
- (C) Use IAM roles for applications and AWS services that require Amazon S3 access
- (D) Enable multi-factor authentication (MFA) Delete

**Explanation 60.** Ensure that your Amazon S3 buckets use the correct policies and are publicly accessible is the

**correct answer.** Amazon S3 provides a number of security features to consider as you develop and implement your own security policies. The following best practices are general guidelines and don't represent a complete security solution. Because these best practices might not be appropriate or sufficient for your environment, treat them as helpful considerations rather than prescriptions.

**The following best practices for Amazon S3 can help prevent security incidents.**

- 1.** Ensure that your Amazon S3 buckets use the correct policies and are not publicly accessible
- 2.** Implement least privilege access
- 3.** Use IAM roles for applications and AWS services that require Amazon S3 access
- 4.** Enable multi-factor authentication (MFA) Delete
- 5.** Consider encryption of data at rest
- 6.** Enforce encryption of data in transit
- 7.** Consider S3 Object Lock
- 8.** Enable versioning
- 9.** Consider Amazon S3 cross-region replication
- 10.** Consider VPC endpoints for Amazon S3 access



# **DOMAIN 3: TECHNOLOGY**

# Questions 61-100

**Question 61.** The instances that you launch into an Amazon VPC can't communicate with your own (remote) network. Which of the following services do you need to create and configure in order to enable access to your remote network from your VPC?

- (A) AWS Direct Connect
- (B) Amazon API Gateway
- (C) AWS Global Accelerator
- (D) AWS Site-to-Site VPN

**Question 62.** Which state does the instance enter when you launch it for the first time?

- (A) running
- (B) stopping
- (C) terminated
- (D) pending

**Question 63.** Resource \_\_\_\_\_ make it easier to manage and automate tasks on large numbers of resources at one time.

- (A) Handler
- (B) Groups
- (C) Management
- (D) Automation

**Question 64.** You have been tasked to implement a solution to store, and access your log files from Amazon Elastic Compute Cloud (Amazon EC2) instances and Route 53 and get access to them as a single and consistent flow of events. Which AWS service will you use to meet the requirement?

- (A) AWS CloudFormation
- (B) Amazon CloudWatch Logs
- (C) AWS CloudTrail
- (D) Amazon CloudFront

**Question 65.** You have been tasked to create a highly available architecture for your Application Load Balancer, as cost-effective as possible. What's the minimum number of Availability Zones required to set up to complete the task?

- (A) Four
- (B) Three
- (C) Five
- (D) Two

**Question 66.** Which statements are true regarding how to configure CloudFront to deliver your content? (Choose all that apply.)

- (A) You upload your files to your origin servers
- (B) You assign a domain name to your new distribution that you can see in the CloudFront console
- (C) CloudFront sends your distribution's configuration and your content to all of its edge locations
- (D) You create a CloudFront distribution, which tells CloudFront which origin servers to get your files from when users request the files
- (E) You specify origin servers, like an Amazon S3 bucket, from which CloudFront gets your files which will then be distributed

**Question 67.** Which of the following is not a benefit of using an Application Load Balancer instead of a Classic Load Balancer?

- (A) Support for returning a custom HTTP response
- (B) Enables you to route requests to multiple domains using multiple load balancers
- (C) You can register each instance or IP address with the same target group using multiple ports
- (D) Support for path-based routing

**Question 68.** Which of the following is true regarding Elastic Load Balancing?

- (A) Elastic Load Balancing enables you to launch Amazon Web Services (AWS) resources into a virtual network that you've defined
- (B) Elastic Load Balancing speeds up the distribution of your static and dynamic web content
- (C) Elastic Load Balancing automatically distributes incoming application traffic across multiple targets, such as Amazon EC2
- (D) Elastic Load Balancing is a highly available and scalable Domain Name System (DNS) web service

**Question 69.** Which of the following cases is the most common use for Amazon S3?

- (A) Use as the primary storage for a database or file system
- (B) Use for any applications that require access to raw block-level storage
- (C) Storage and distribution of static web content and media
- (D) Ideal for temporary storage of information that is continually changing

**Question 70.** Amazon CloudFront is a highly-secure CDN that provides both network and application-level protection.

- (A) TRUE
- (B) FALSE

**Question 71.** You are working on a video sharing web app that recently encounters a huge amount of traffic from users all over the world. As a result, the application faced availability and slow performance issues. Which of the following service will you implement to fix these issues?

- (A) AWS Global Accelerator
- (B) Amazon Virtual Private Cloud
- (C) Amazon API Gateway
- (D) Amazon Route 53

**Question 72.** Which of the following storage types is a recommended storage option when you run a database on an instance?

- (A) Amazon EBS
- (B) Amazon EFS file system
- (C) Amazon EC2 instance store
- (D) Amazon S3

**Question 73.** Given the following characteristics which of those describes the AWS Lambda? (Choose all that apply.)

- (A) Speed up the distribution of your static and dynamic web content
- (B) Run code without provisioning or managing servers
- (C) Build data processing triggers for AWS services like Amazon S3
- (D) Store and retrieve any amount of data at any time
- (E) Distribute your incoming application traffic across multiple targets

**Question 74.** Which of the following is true regarding CloudFront?

- (A) Amazon CloudFront speeds up the distribution of your static and dynamic web content
- (B) Amazon CloudFront automatically distributes incoming application traffic across multiple targets, such as Amazon EC2
- (C) Amazon CloudFront enables you to launch Amazon Web Services (AWS) resources into a virtual network that you've defined
- (D) Amazon CloudFront is a highly available and scalable Domain Name System (DNS) web service

**Question 75.** Which of the following services takes care of provisioning and configuring the resources (like Amazon EC2 instances or Amazon RDS DB instances) for you, so you can spend less time managing those resources?

- (A) AWS CloudFormation
- (B) AWS CloudTrail
- (C) Amazon CloudWatch
- (D) Amazon EC2 Auto Scaling

**Question 76.** Which of the following cloud computing deployment models connects infrastructure and applications between cloud-based resources and existing resources that are not located in the cloud?

- (A) Cloud
- (B) Hybrid
- (C) On-premises
- (D) Mixed

**Question 77.** Which of the following services makes it easy to move massive volumes of data to the cloud, including video libraries, image repositories, or even a complete data center migration with a secure, fast, and cost-effective way?

- (A) AWS Snow Family
- (B) AWS Transfer Family
- (C) AWS DataSync
- (D) AWS Snowmobile

**Question 78.** What do you have to ensure before creating an application load balancer?

- (A) Ensure that you have a virtual private cloud (VPC) with at least one public subnet in each of the Availability Zones used by your targets
- (B) Ensure that you have a virtual private cloud (VPC) with at least two public subnets in each of the Availability Zones used by your targets
- (C) Ensure that you have a virtual private cloud (VPC) with at least three public subnets in each of the Availability Zones used by your targets
- (D) Ensure that you have a virtual private cloud (VPC) with at least four public subnets in each of the Availability Zones used by your targets

**Question 79.** Amazon S3 is optimal for storing numerous classes of information that are relatively static and benefit from its durability, availability, and elasticity features. However, in a number of situations, Amazon S3 is not the optimal solution. Which of the following options is considered an anti-pattern for Amazon S3? (Choose all that apply.)

- (A) Dynamic website hosting
- (B) Static website hosting
- (C) Rapidly changing data
- (D) Software delivery
- (E) Media hosting

**Question 80.** Which of the following AWS services will you use in order to scale your relational database in the cloud and automate time-consuming administration tasks such as hardware provisioning patching and backups?

- (A) Amazon Redshift
- (B) Amazon RDS
- (C) Amazon ElastiCache
- (D) Amazon DynamoDB

**Question 81.** Your database-driven application transfers gigabytes to terabytes of data on a regular basis across continents. Which of the following services will you use to enable fast, easy, and secure transfers of your files over long distances between your client and an S3 bucket?

- (A) Amazon S3 Requester Pays buckets
- (B) Amazon S3 Access Points
- (C) Amazon S3 Object Tagging
- (D) Amazon S3 Transfer Acceleration

**Question 82.** You are using AWS Trusted Advisor as it provides you real-time guidance to help you provision your resources following AWS best practices. Which of the following categories is not included in the AWS Trusted Advisor's best practice recommendations?

- (A) Cost optimization
- (B) Performance
- (C) Security
- (D) Sales

**Question 83.** Which of the following can a developer use to interact with your AWS services? (Choose all that apply.)

- (A) AWS CLI
- (B) AWS Config
- (C) AWS SDK
- (D) AWS OpsWorks
- (E) AWS Systems Manager

**Question 84.** CloudFront speeds up the distribution of your content by routing each user request through the AWS backbone network to the edge location that can best serve your content.

- (A) TRUE
- (B) FALSE

**Question 85.** In order to speed up your dynamic database-driven website, your company decides to implement Memcache as a distributed memory object caching system. Now, your company wants to migrate the app to the cloud for all the benefits cloud computing has to offer. Which AWS service your company will use to set up, manage, and scale a distributed in-memory data store or cache environment in the cloud?

- (A) Amazon Redshift
- (B) Amazon DynamoDB
- (C) Amazon ElastiCache
- (D) Amazon DocumentDB

**Question 86.** Which of the following recommendations is not considered a best practice for using AWS CloudFormation more effectively and securely throughout its entire workflow?

- (A) Embed credentials in your templates
- (B) Use nested stacks to reuse common template patterns
- (C) Reuse templates to replicate stacks in multiple environments
- (D) Use IAM to control access

**Question 87.** You have been tasked to implement a solution to automate security vulnerability assessments throughout your development and deployment pipelines. Which of the following services will you enable to meet the requirement?

- (A) Amazon Macie
- (B) GuardDuty
- (C) Amazon Inspector
- (D) AWS Shield

**Question 88.** You have been tasked to deploy a MariaDB for a new project. Which AWS service will you use to complete the task?

- (A) Amazon Redshift
- (B) Amazon Neptune
- (C) Amazon RDS
- (D) Amazon DynamoDB

**Question 89.** Why do you need to use Amazon Relational Database Service (Amazon RDS) over traditional database management?

- (A) Manual software patching
- (B) Easy storage scaling
- (C) Manual backups
- (D) Pay monthly fixed cost

**Question 90.** Given the below AWS services, which one is a highly available and scalable cloud Domain Name System (DNS) web service?

- (A) Amazon S3
- (B) Amazon Route 53
- (C) AWS Lambda
- (D) AWS Elastic Beanstalk

**Question 91.** Amazon \_\_\_\_\_ is a web service that provides secure, resizable compute capacity in the cloud.

- (A) CloudFront
- (B) EC2
- (C) Route 53
- (D) Lightsail

**Question 92.** Which of the following are typical scenarios for using Kinesis Data Streams? (Choose all that apply.)

- (A) Real-time metrics and reporting
- (B) Complex stream processing
- (C) Feed real-time dashboards
- (D) Create real-time metrics
- (E) Real-time data analytics

**Question 93.** Given the following types of Elastic Load Balancing, which one will you choose for load balancing of HTTP and HTTPS traffic?

- (A) Application Load Balancer
- (B) Network Load Balancer
- (C) Classic Load Balancer
- (D) HTTP and HTTPS Load Balancer

**Question 94.** Which of the following options is not considered a benefit of using Kinesis Video Streams?

- (A) Kinesis Video Streams offers you a fixed cost pricing model
- (B) Kinesis Video Streams enables you to connect and stream video, audio, and other data from millions of devices
- (C) Kinesis Video Streams is serverless, so there is no infrastructure to set up or manage
- (D) Kinesis Video Streams encrypts all data as it flows through the service and when it persists the data

**Question 95.** You have been tasked to implement a solution for your application so automatically scaling your application's resources based on the demand. Which AWS service will you enable to meet the requirement?

- (A) Amazon CloudWatch
- (B) AWS Auto Scaling
- (C) AWS Health
- (D) AWS Systems Manager

**Question 96.** Which AWS service will you use to configure alarm actions to stop, start, or terminate Amazon EC2 instances when certain criteria are met?

- (A) Amazon Cognito
- (B) Amazon Inspector
- (C) Amazon CloudWatch
- (D) AWS CloudFormation

**Question 97.** Which of the following options is not a consolidated billing benefit?

- (A) You get one bill for multiple accounts
- (B) You can track the charges across multiple accounts and download the combined cost and usage data
- (C) You can combine the usage across all accounts in the organization to share the volume pricing discounts
- (D) Consolidated billing is offered for a small extra charge

**Question 98.** Which of the following VPC networking components allows communication between your VPC and the internet?

- (A) Internet gateways
- (B) VPC peering
- (C) Elastic IP address
- (D) ClassicLink

**Question 99.** Amazon Simple Queue Service (Amazon SQS) offers a secure, durable, and available hosted queue that lets you integrate and decouple distributed software systems and components. Which of the following are the main benefits of using SQS? (Choose all that apply.)

- (A) Reliability
- (B) Scalability
- (C) Availability
- (D) Cost
- (E) Security

**Question 100.** Which of the following AWS service will you configure if you upload periodic logs to a bucket, that your application might need them for a week or a month, and you want to store those logs as cost-effective as possible throughout their lifecycle?

- (A) Amazon S3 Versioning
- (B) Amazon S3 Lifecycle
- (C) Amazon S3 Subresources
- (D) Amazon S3 Batch Operations

# Answers 61-100

**Question 61.** The instances that you launch into an Amazon VPC can't communicate with your own (remote) network. Which of the following services do you need to create and configure in order to enable access to your remote network from your VPC?

- (A) AWS Direct Connect
- (B) Amazon API Gateway
- (C) AWS Global Accelerator
- (D) AWS Site-to-Site VPN**

**Explanation 61. AWS Site-to-Site VPN is the correct answer.** By default, instances that you launch into an Amazon VPC can't communicate with your own (remote) network. You can enable access to your remote network from your VPC by creating an AWS Site-to-Site VPN (Site-to-Site VPN) connection, and configuring routing to pass traffic through the connection.

A VPN connection refers to the connection between your VPC and your own on-premises network. Site-to-Site VPN supports Internet Protocol security (IPsec) VPN connections.

Your Site-to-Site VPN connection is either an AWS Classic VPN or an AWS VPN.

**AWS Direct Connect is incorrect.** AWS Direct Connect links your internal network to an AWS Direct Connect location over a standard Ethernet fiber-optic cable. One end of the cable is connected to your router, the other to an AWS Direct Connect router. With this connection, you can create virtual interfaces directly to public AWS services (for example, to Amazon S3) or to Amazon VPC, bypassing internet service providers in your network path.

**Amazon API Gateway is incorrect.** Amazon API Gateway enables you to create and deploy your own REST and WebSocket APIs at any scale. You can create robust, secure, and scalable APIs that access AWS or other web services, as well as data that's stored in the AWS Cloud.

**AWS Global Accelerator is incorrect.** AWS Global Accelerator is a network layer service in which you create accelerators to improve availability and performance for internet applications used by a global audience.

**Question 62.** Which state does the instance enter when you launch it for the first time?

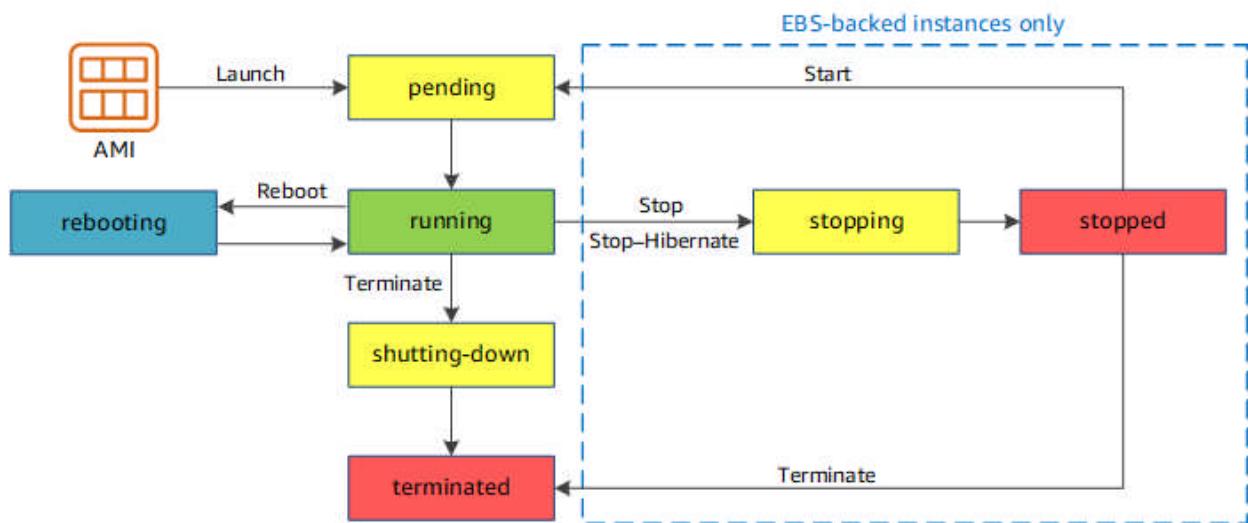
- (A) running
- (B) stopping
- (C) terminated
- (D) pending**

**Explanation 62.** **pending is the correct answer.** When you launch an instance, it enters the **pending** state. The instance type that you specified at launch determines the hardware of the host computer for your instance. After the instance is ready for you, it enters the **running** state. You can connect to your running instance and use it the way that you'd use a computer sitting in front of you.

As soon as your instance transitions to the running state, you're billed for each second, with a one-minute minimum, that you keep the instance running, even if the instance remains idle and you don't connect to it.

An Amazon EC2 instance transitions through different states from the moment you launch it through to its termination.

**The following illustration represents the transitions between instance states.**



**Question 63.** Resource \_\_\_\_\_ make it easier to manage and automate tasks on large numbers of resources at one time.

- (A) Handler
- (B) Groups**
- (C) Management
- (D) Automation

**Explanation 63. Groups is the correct answer.**

Resource **groups** make it easier to manage and automate tasks on large numbers of resources at one time. You can use resource groups to organize your AWS resources.

In AWS, a **resource** is an entity that you can work with. Examples include an Amazon EC2 instance, an AWS CloudFormation stack, or an Amazon S3 bucket. If you work with multiple resources, you might find it useful to manage

them as a group rather than move from one AWS service to another for each task. If you manage large numbers of related resources, such as EC2 instances that make up an application layer, you likely need to perform bulk actions on these resources at one time. Examples of bulk actions include:

1. Applying updates or security patches.
2. Upgrading applications.
3. Opening or closing ports to network traffic.
4. Collecting specific log and monitoring data from your fleet of instances.

**Question 64.** You have been tasked to implement a solution to store, and access your log files from Amazon Elastic Compute Cloud (Amazon EC2) instances and Route 53 and get access to them as a single and consistent flow of events. Which AWS service will you use to meet the requirement?

- (A) AWS CloudFormation
- (B) Amazon CloudWatch Logs**
- (C) AWS CloudTrail
- (D) Amazon CloudFront

**Explanation 64. Amazon CloudWatch Logs is the correct answer.** You can use Amazon CloudWatch Logs to monitor, store, and access your log files from Amazon Elastic Compute

Cloud (Amazon EC2) instances, AWS CloudTrail, Route 53, and other sources.

CloudWatch Logs enables you to centralize the logs from all of your systems, applications, and AWS services that you use, in a single, highly scalable service. You can then easily view them, search them for specific error codes or patterns, filter them based on specific fields, or archive them securely for future analysis.

CloudWatch Logs enables you to see all of your logs, regardless of their source, as a single and consistent flow of events ordered by time, and you can query them and sort them based on other dimensions, group them by specific fields, create custom computations with a powerful query language, and visualize log data in dashboards.

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

**AWS CloudTrail is incorrect.** AWS CloudTrail is an AWS service that helps you enable governance, compliance, and operational and risk auditing of your AWS account. Actions taken by a user, role, or an AWS service are recorded as events in CloudTrail.

**Amazon CloudFront is incorrect.** Amazon CloudFront speeds up the distribution of your static and dynamic web content, such as .html, .css, .php, image, and media files. When users request your content, CloudFront delivers it through a worldwide network of edge locations that provide low latency and high performance.

**Question 65.** You have been tasked to create a highly available architecture for your Application Load Balancer, as cost-effective as possible. What's the minimum number of Availability Zones required to set up to complete the task?

- (A) Four
- (B) Three
- (C) Five
- (D) Two**

**Explanation 65. Two is the correct answer.** A load balancer serves as the single point of contact for clients. The load balancer distributes incoming application traffic across

multiple targets, such as EC2 instances, in multiple Availability Zones. This increases the availability of your application.

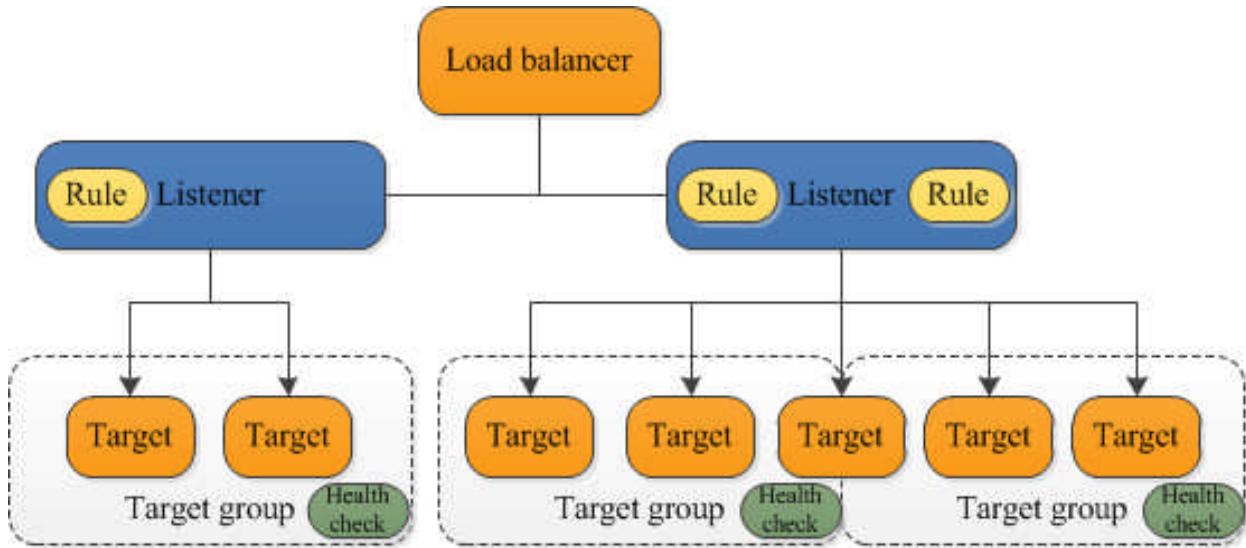
You add one or more listeners to your load balancer.

A **listener** checks for connection requests from clients, using the protocol and port that you configure. The rules that you define for a listener determine how the load balancer routes requests to its registered targets. Each rule consists of a priority, one or more actions, and one or more conditions. When the conditions for a rule are met, then its actions are performed. You must define a default rule for each listener, and you can optionally define additional rules.

Each target group routes requests to one or more registered targets, such as EC2 instances, using the protocol and port number that you specify. You can register a target with multiple target groups. You can configure health checks on a per target group basis. Health checks are performed on all targets registered to a target group that is specified in a listener rule for your load balancer.

The following diagram illustrates the basic components. Notice that each listener contains a default rule, and one listener contains another rule that routes requests to a different target

group. One target is registered with two target groups.



So in order to create a highly available architecture for your Application Load Balancer, the minimum number of Availability Zones required to set up is **two**.

**The rest options are incorrect.** Although these options will make the application highly available, the question refers to the minimum number of Availability Zones.

**Question 66.** Which statements are true regarding how to configure CloudFront to deliver your content? (Choose all that apply.)

- (A) **You upload your files to your origin servers**
- (B) You assign a domain name to your new distribution that you can see in the CloudFront console
- (C) CloudFront sends your distribution's configuration and

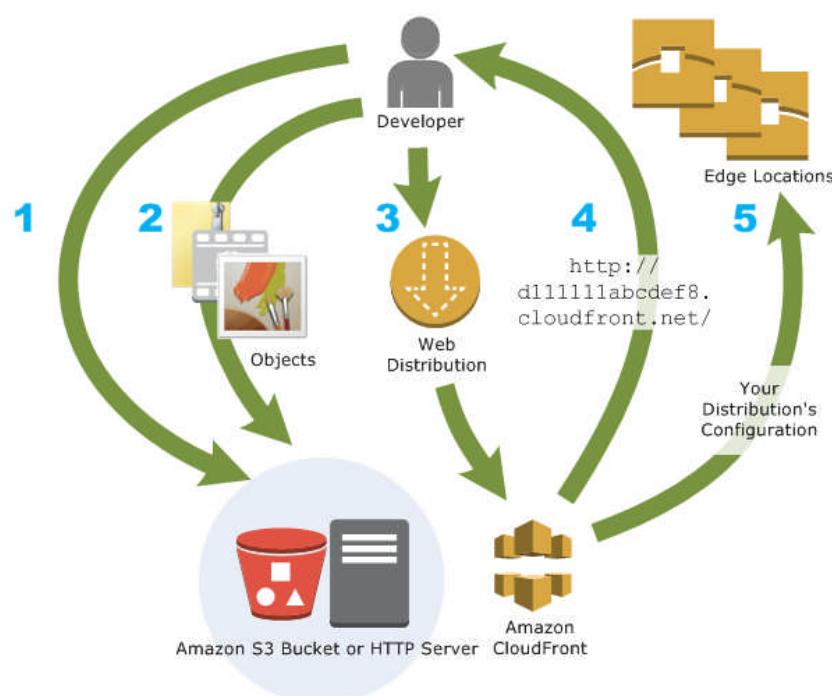
your content to all of its edge locations

(D) You create a CloudFront distribution, which tells CloudFront which origin servers to get your files from when users request the files

(E) You specify origin servers, like an Amazon S3 bucket, from which CloudFront gets your files which will then be distributed

### Explanation 66. A, D, and E are the correct answers.

You create a CloudFront distribution to tell CloudFront where you want the content to be delivered from, and the details about how to track and manage content delivery. Then CloudFront uses computers—edge servers—that are close to your viewers to deliver that content quickly when someone wants to see it or use it.



## How you configure CloudFront to deliver your content

1. You specify origin servers, like an Amazon S3 bucket or your own HTTP server, from which CloudFront gets your files which will then be distributed from CloudFront edge locations all over the world. An origin server stores the original, definitive version of your objects. If you're serving content over HTTP, your origin server is either an Amazon S3 bucket or an HTTP server, such as a web server.

Your HTTP server can run on an Amazon Elastic Compute Cloud (Amazon EC2) instance or on a server that you manage; these servers are also known as custom origins. If you use the Adobe Flash Media Server RTMP protocol to distribute media files on demand, your origin server is always an Amazon S3 bucket.

2. You upload your files to your origin servers. Your files, also known as objects, typically include web pages, images, and media files, but can be anything that can be served over HTTP or a supported version of Adobe RTMP, the protocol used by Adobe Flash Media Server.

If you're using an Amazon S3 bucket as an origin server, you can make the objects in your bucket publicly readable, so that anyone who knows the CloudFront URLs for your objects can access them. You also have the option of keeping objects private and controlling who accesses them.

**3.** You create a CloudFront distribution, which tells CloudFront which origin servers to get your files from when users request the files through your web site or application. At the same time, you specify details such as whether you want CloudFront to log all requests and whether you want the distribution to be enabled as soon as it's created.

**4.** CloudFront assigns a domain name to your new distribution that you can see in the CloudFront console, or that is returned in the response to a programmatic request, for example, an API request. If you like, you can add an alternate domain name to use instead.

**5.** CloudFront sends your distribution's configuration (but not your content) to all of its edge locations or points of presence (POPs)—collections of servers in geographically-dispersed data centers where CloudFront caches copies of your files.

**Question 67.** Which of the following is not a benefit of using an Application Load Balancer instead of a Classic Load Balancer?

- (A) Support for returning a custom HTTP response
- (B) Enables you to route requests to multiple domains using multiple load balancers**
- (C) You can register each instance or IP address with the same target group using multiple ports
- (D) Support for path-based routing

**Explanation 67. Enables you to route requests to multiple domains using multiple load balancers is the correct answer. Using an Application Load Balancer instead of a Classic Load Balancer has the following benefits:**

1. Support for path-based routing. You can configure rules for your listener that forward requests based on the URL in the request. This enables you to structure your application as smaller services, and route requests to the correct service based on the content of the URL.
2. Support for host-based routing. You can configure rules for your listener that forward requests based on the host field in the HTTP header. This enables you to route requests to multiple domains using a single load balancer.

- 3.** Support for routing based on fields in the request, such as standard and custom HTTP headers and methods, query parameters, and source IP addresses.
- 4.** Support for routing requests to multiple applications on a single EC2 instance. You can register each instance or IP address with the same target group using multiple ports.
- 5.** Support for redirecting requests from one URL to another.
- 6.** Support for returning a custom HTTP response.
- 7.** Support for registering targets by IP address, including targets outside the VPC for the load balancer.
- 8.** Support for registering Lambda functions as targets.
- 9.** Support for the load balancer to authenticate users of your applications through their corporate or social identities before routing requests.
- 10.** Support for containerized applications. Amazon Elastic Container Service (Amazon ECS) can select an unused port when scheduling a task and register the task with a target

group using this port. This enables you to make efficient use of your clusters.

**11.** Support for monitoring the health of each service independently, as health checks are defined at the target group level and many CloudWatch metrics are reported at the target group level. Attaching a target group to an Auto Scaling group enables you to scale each service dynamically based on demand.

**12.** Access logs contain additional information and are stored in compressed format.

**13.** Improved load balancer performance.

**Question 68.** Which of the following is true regarding Elastic Load Balancing?

- (A) Elastic Load Balancing enables you to launch Amazon Web Services (AWS) resources into a virtual network that you've defined
- (B) Elastic Load Balancing speeds up the distribution of your static and dynamic web content
- (C) Elastic Load Balancing automatically distributes incoming application traffic across multiple targets, such as Amazon EC2**
- (D) Elastic Load Balancing is a highly available and scalable Domain Name System (DNS) web service

**Explanation 68. Elastic Load Balancing automatically distributes incoming application traffic across multiple targets, such as Amazon EC2 is the correct answer.**

Elastic Load Balancing automatically distributes incoming application traffic across multiple targets, such as Amazon EC2 instances, containers, IP addresses, and Lambda functions.

It can handle the varying load of your application traffic in a single Availability Zone or across multiple Availability Zones.

Elastic Load Balancing offers three types of load balancers that all feature the high availability, automatic scaling, and robust security necessary to make your applications fault-tolerant.

**Elastic Load Balancing speeds up the distribution of your static and dynamic web content is incorrect** as this describes the CloudFront.

**Elastic Load Balancing enables you to launch Amazon Web Services (AWS) resources into a virtual network that you've defined is incorrect** as this describes the Amazon Virtual Private Cloud.

**Elastic Load Balancing is a highly available and scalable Domain Name System (DNS) web service is incorrect** as this describes the Amazon Route 53.

**Question 69.** Which of the following cases is the most common use for Amazon S3?

- (A) Use as the primary storage for a database or file system
- (B) Use for any applications that require access to raw block-level storage
- (C) Storage and distribution of static web content and media**
- (D) Ideal for temporary storage of information that is continually changing

**Explanation 69. Storage and distribution of static web content and media is the correct answer.** Amazon Simple Storage Service (Amazon S3) is storage for the Internet.<sup>2</sup> It's a simple storage service that offers software developers a highly-scalable, reliable, and low-latency data storage infrastructure at very low costs.

**One very common use** for Amazon S3 is storage and distribution of static web content and media. This content can be delivered directly from Amazon S3 since each object in Amazon S3 has a unique HTTP URL address or Amazon S3 can serve as an origin store for a content delivery network (CDN), such as AmazonCloudFront.

**Use as the primary storage for a database or file system and Use for any applications that require access to raw block-level storage are incorrect** as these cases are the most common use for Amazon Elastic Block Store (EBS).

**Ideal for temporary storage of information that is continually changing is incorrect** as this case is the most common use for Amazon EC2 Instance Store Volumes.

**Question 70.** Amazon CloudFront is a highly-secure CDN that provides both network and application-level protection.

(A) **TRUE**

(B) FALSE

**Explanation 70.** **TRUE is the correct answer.** Amazon CloudFront is a fast content delivery network (CDN) service that securely delivers data, videos, applications, and APIs to customers globally with low latency, high transfer speeds, all within a developer-friendly environment. CloudFront is integrated with AWS – both physical locations that are directly connected to the AWS global infrastructure, as well as other AWS services.

Amazon CloudFront is a highly-secure CDN that provides both network and application-level protection. Your traffic and applications benefit through a variety of built-in protections such as AWS Shield Standard, at no additional cost.

**Question 71.** You are working on a video sharing web app that recently encounters a huge amount of traffic from users all over the world. As a result, the application faced availability and slow performance issues. Which of the following service will you implement to fix these issues?

- (A) **AWS Global Accelerator**
- (B) Amazon Virtual Private Cloud
- (C) Amazon API Gateway
- (D) Amazon Route 53

**Explanation 71. AWS Global Accelerator is the correct answer.** AWS Global Accelerator is a service in which you create accelerators to improve availability and performance of your applications for local and global users.

Global Accelerator directs traffic to optimal endpoints over the AWS global network. This improves the availability and performance of your internet applications that are used by a global audience. Global Accelerator is a global service that supports endpoints in multiple AWS Regions.

By default, Global Accelerator provides you with two static IP addresses that you associate with your accelerator. (Or, instead of using the IP addresses that Global Accelerator provides, you can configure these entry points to be IPv4 addresses from

your own IP address ranges that you bring to Global Accelerator.)

The static IP addresses are anycast from the AWS edge network and distribute incoming application traffic across multiple endpoint resources in multiple AWS Regions, which increases the availability of your applications. Endpoints can be Network Load Balancers, Application Load Balancers, Amazon EC2 instances, or Elastic IP addresses that are located in one AWS Region or multiple Regions.

**Amazon Virtual Private Cloud is incorrect.** Amazon Virtual Private Cloud (Amazon VPC) enables you to launch Amazon Web Services (AWS) resources into a virtual network that you've defined. This virtual network closely resembles a traditional network that you'd operate in your own data center, with the benefits of using the scalable infrastructure of AWS.

**Amazon API Gateway is incorrect.** Amazon API Gateway enables you to create and deploy your own REST and WebSocket APIs at any scale. You can create robust, secure, and scalable APIs that access AWS or other web services, as well as data that's stored in the AWS Cloud. You can create APIs to use in your own client applications, or you can make your APIs available to third-party app developers.

**Amazon Route 53 is incorrect.** Amazon Route 53 is a highly available and scalable Domain Name System (DNS) web service.

**Question 72.** Which of the following storage types is a recommended storage option when you run a database on an instance?

- (A) **Amazon EBS**
- (B) Amazon EFS file system
- (C) Amazon EC2 instance store
- (D) Amazon S3

**Explanation 72. Amazon EBS is the correct answer.** Amazon EBS provides durable, block-level storage volumes that you can attach to a running instance. You can use Amazon EBS as a primary storage device for data that requires frequent and granular updates. **Amazon EBS is the recommended storage option when you run a database on an instance.**

An EBS volume behaves like a raw, unformatted, external block device that you can attach to a single instance. The volume persists independently from the running life of an instance. After an EBS volume is attached to an instance, you can use it like any other physical hard drive.

**Amazon EFS file system is incorrect.** Amazon EFS provides scalable file storage for use with Amazon EC2. You can create an EFS file system and configure your instances to mount the file system. You can use an EFS file system as a common data source for workloads and applications running on multiple instances.

**Amazon EC2 instance store is incorrect.** Many instances can access storage from disks that are physically attached to the host computer. This disk storage is referred to as instance store. Instance store provides temporary block-level storage for instances. The data on an instance store volume persists only during the life of the associated instance; if you stop or terminate an instance, any data on instance store volumes is lost.

**Amazon S3 is incorrect.** Amazon S3 provides access to reliable and inexpensive data storage infrastructure. It is designed to make web-scale computing easier by enabling you to store and retrieve any amount of data, at any time, from within Amazon EC2 or anywhere on the web. For example, you can use Amazon S3 to store backup copies of your data and applications.

**Question 73.** Given the following characteristics which of those describes the AWS Lambda? (Choose all that apply.)

- (A) Speed up the distribution of your static and dynamic web content
- (B) Run code without provisioning or managing servers
- (C) Build data processing triggers for AWS services like Amazon S3
- (D) Store and retrieve any amount of data at any time
- (E) Distribute your incoming application traffic across multiple targets

**Explanation 73. B and C are the correct answers.** AWS Lambda is a compute service that lets you run code without provisioning or managing servers. AWS Lambda executes your code only when needed and scales automatically, from a few requests per day to thousands per second.

You can use AWS Lambda to run your code in response to events, such as changes to data in an Amazon S3 bucket or an Amazon DynamoDB table; to run your code in response to HTTP requests using Amazon API Gateway, or invoke your code using API calls made using AWS SDKs.

With these capabilities, you can use Lambda to easily build data processing triggers for AWS services like Amazon S3 and Amazon DynamoDB, process streaming data stored in Kinesis, or create your own back end that operates at AWS scale, performance, and security.

**Store and retrieve any amount of data at any time is incorrect** as this characteristic describes the Amazon S3.

**Speed up the distribution of your static and dynamic web content is incorrect** as this characteristic describes the Amazon CloudFront.

**Distribute your incoming application traffic across multiple targets is incorrect** as this describes the Elastic Load Balancing.

**Question 74.** Which of the following is true regarding CloudFront?

- (A) **Amazon CloudFront speeds up the distribution of your static and dynamic web content**
- (B) Amazon CloudFront automatically distributes incoming application traffic across multiple targets, such as Amazon EC2
- (C) Amazon CloudFront enables you to launch Amazon Web Services (AWS) resources into a virtual network that you've defined
- (D) Amazon CloudFront is a highly available and scalable Domain Name System (DNS) web service

**Explanation 74.** **Amazon CloudFront speeds up the distribution of your static and dynamic web content is the correct answer.** When users request your content, CloudFront delivers it through a worldwide network of edge locations that provide low latency and high performance.

**Amazon CloudFront automatically distributes incoming application traffic across multiple targets, such as Amazon EC2 is incorrect** as this describes the Elastic Load Balancing.

**Amazon CloudFront enables you to launch Amazon Web Services (AWS) resources into a virtual network that you've**

**defined is incorrect** as this describes the Amazon Virtual Private Cloud.

**Amazon CloudFront is a highly available and scalable Domain Name System (DNS) web service is incorrect** as this describes the Amazon Route 53.

**Question 75.** Which of the following services takes care of provisioning and configuring the resources (like Amazon EC2 instances or Amazon RDS DB instances) for you, so you can spend less time managing those resources?

- (A) **AWS CloudFormation**
- (B) AWS CloudTrail
- (C) Amazon CloudWatch
- (D) Amazon EC2 Auto Scaling

**Explanation 75. AWS CloudFormation is the correct answer.** AWS CloudFormation is a service that helps you model and set up your Amazon Web Services resources so that you can spend less time managing those resources and more time focusing on your applications that run in AWS.

You create a template that describes all the AWS resources that you want (like Amazon EC2 instances or Amazon RDS DB instances), and AWS CloudFormation takes care of provisioning

and configuring those resources for you. You don't need to individually create and configure AWS resources and figure out what's dependent on what; AWS CloudFormation handles all of that.

**AWS CloudTrail is incorrect.** With AWS CloudTrail, you can monitor your AWS deployments in the cloud by getting a history of AWS API calls for your account, including API calls made via the AWS Management Console, the AWS SDKs, the command line tools, and higher-level AWS services. You can also identify which users and accounts called AWS APIs for services that support CloudTrail, the source IP address the calls were made from, and when the calls occurred.

**Amazon CloudWatch is incorrect.** Amazon CloudWatch provides a reliable, scalable, and flexible monitoring solution that you can start using within minutes. You no longer need to set up, manage, and scale your own monitoring systems and infrastructure.

**Amazon EC2 Auto Scaling is incorrect.** Amazon EC2 Auto Scaling helps you ensure that you have the correct number of Amazon EC2 instances available to handle the load for your application. You create collections of EC2 instances, called Auto Scaling groups. You can specify the minimum number of

instances in each Auto Scaling group, and Amazon EC2 Auto Scaling ensures that your group never goes below this size.

**Question 76.** Which of the following cloud computing deployment models connects infrastructure and applications between cloud-based resources and existing resources that are not located in the cloud?

- (A) Cloud
- (B) Hybrid**
- (C) On-premises
- (D) Mixed

**Explanation 76.** **Hybrid is the correct answer.** A hybrid deployment is a way to connect infrastructure and applications between cloud-based resources and existing resources that are not located in the cloud. The most common method of hybrid deployment is between the cloud and existing on-premises infrastructure to extend, and grow, an organization's infrastructure into the cloud while connecting cloud resources to internal system.



**Cloud is incorrect.** A cloud-based application is fully deployed in the cloud and all parts of the application run in the cloud. Applications in the cloud have either been created in the cloud or have been migrated from an existing infrastructure to take advantage of the benefits of cloud computing. Cloud-based applications can be built on low-level infrastructure pieces or can use higher-level services that provide abstraction from the management, architecting, and scaling requirements of core infrastructure.



**On-premises is incorrect.** Deploying resources on-premises, using virtualization and resource management tools, is sometimes called “private cloud”. On-premises deployment does not provide many of the benefits of cloud computing but is sometimes sought for its ability to provide dedicated resources. In most cases this deployment model is the same as legacy IT infrastructure while using application management and virtualization technologies to try and increase resource utilization.



**Mixed is incorrect as it is a fictitious cloud computing deployment model.**

**Question 77.** Which of the following services makes it easy to move massive volumes of data to the cloud, including video libraries, image repositories, or even a complete data center migration with a secure, fast, and cost-effective way?

- (A) AWS Snow Family
- (B) AWS Transfer Family
- (C) AWS DataSync
- (D) AWS Snowmobile**

**Explanation 77. AWS Snowmobile is the correct answer.**

AWS Snowmobile is an Exabyte-scale data transfer service used to move extremely large amounts of data to AWS. You can transfer up to 100PB per Snowmobile, a 45-foot long ruggedized shipping container, pulled by a semi-trailer truck.

Snowmobile makes it easy to move massive volumes of data to the cloud, including video libraries, image repositories, or even a complete data center migration. Transferring data with Snowmobile is more secure, fast, and cost-effective.

After an initial assessment, a Snowmobile will be transported to your data center and AWS personnel will configure it for you so it can be accessed as a network storage target. When your Snowmobile is on-site, AWS personnel will work with your team

to connect a removable, high-speed network switch from Snowmobile to your local network and you can begin your high-speed data transfer from any number of sources within your data center to the Snowmobile.

**AWS Snow Family is incorrect.** The AWS Snow Family is a service that helps customers who need to run operations in austere, non-data center environments, and in locations where there's no consistent network connectivity. You can use these devices to locally and cost-effectively access the storage and compute power of the AWS Cloud in places where an internet connection might not be an option.

**AWS Transfer Family is incorrect.** AWS Transfer Family is a secure transfer service that stores your data in Amazon S3 and simplifies the migration of Secure File Transfer Protocol (SFTP), File Transfer Protocol Secure (FTPS), and File Transfer Protocol (FTP) workflows to AWS.

**AWS DataSync is incorrect.** AWS DataSync is a data-transfer service that simplifies, automates, and accelerates moving and replicating data between on-premises storage systems and AWS storage services over the internet or AWS Direct Connect.

**Question 78.** What do you have to ensure before creating an application load balancer?

- (A) Ensure that you have a virtual private cloud (VPC) with at least one public subnet in each of the Availability Zones used by your targets
- (B) Ensure that you have a virtual private cloud (VPC) with at least two public subnets in each of the Availability Zones used by your targets
- (C) Ensure that you have a virtual private cloud (VPC) with at least three public subnets in each of the Availability Zones used by your targets
- (D) Ensure that you have a virtual private cloud (VPC) with at least four public subnets in each of the Availability Zones used by your targets

**Explanation 78.** Ensure that you have a virtual private cloud (VPC) with at least one public subnet in each of the Availability Zones used by your targets is the correct answer. A load balancer takes requests from clients and distributes them across targets in a target group.

Before you begin, ensure that you have a virtual private cloud (VPC) with at least one public subnet in each of the Availability Zones used by your targets.

To create a load balancer using the AWS Management Console, complete the following tasks.

## Tasks

Step 1: Configure a load balancer and a listener

Step 2: Configure security settings for an HTTPS listener

Step 3: Configure a security group

Step 4: Configure a target group

Step 5: Configure targets for the target group

Step 6: Create the load balancer

**Question 79.** Amazon S3 is optimal for storing numerous classes of information that are relatively static and benefit from its durability, availability, and elasticity features. However, in a number of situations, Amazon S3 is not the optimal solution. Which of the following options is considered an anti-pattern for Amazon S3? (Choose all that apply.)

- (A) **Dynamic website hosting**
- (B) Static website hosting
- (C) **Rapidly changing data**
- (D) Software delivery
- (E) Media hosting

**Explanation 79.** A and C are the correct answers. Amazon

S3 is optimal for storing numerous classes of information that are relatively static and benefit from its durability, availability, and elasticity features. However, in a number of situations, Amazon S3 is not the optimal solution. Amazon S3 has the following anti-patterns:

**File system**—Amazon S3 uses a flat namespace and isn't meant to serve as a standalone, POSIX-compliant file system. However, by using delimiters (commonly either the '/' or '\' character) you are able to construct your keys to emulate the hierarchical folder structure of the file system within a given bucket.

**Structured data with query**—Amazon S3 doesn't offer query capabilities: to retrieve a specific object you need to already know the bucket name and key. Thus, you can't use Amazon S3 as a database by itself. Instead, pair AmazonS3 with a database to index and query metadata about Amazon S3 buckets and objects.

**Rapidly changing data**—Data that must be updated very frequently might be better served by a storage solution with lower read / write latencies, such as Amazon EBS volumes, Amazon RDS or other relational databases, or Amazon DynamoDB.

**Backup and archival storage**—Data that requires long-term encrypted archival storage within frequent read access may be stored more cost-effectively in Amazon Glacier.

**Dynamic website hosting**—While Amazon S3 is ideal for websites with only static content, dynamic websites that depend on database interaction or use server-side scripting should be hosted on Amazon EC2.

**The AWS Solutions site lists many of the ways you can use Amazon S3. The following list summarizes some of those ways.**

**Backup and storage** – Provide data backup and storage services for others.

**Application hosting** – Provide services that deploy, install, and manage web applications.

**Media hosting** – Build a redundant, scalable, and highly available infrastructure that hosts video, photo, or music uploads and downloads.

**Software delivery** – Host your software applications that customers can download.

**Question 80.** Which of the following AWS services will you use in order to scale your relational database in the cloud and automate time-consuming administration tasks such as hardware provisioning patching and backups?

- (A) Amazon Redshift
- (B) Amazon RDS**
- (C) Amazon ElastiCache
- (D) Amazon DynamoDB

**Explanation 80. Amazon RDS is the correct answer.**

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 automating time-consuming administration tasks such as hardware provisioning, database setup, patching and backups.

It frees you to focus on your applications so you can give them the fast performance, high availability, security and compatibility they need.

Amazon RDS is available on several database instance types – optimized for memory, performance or I/O – and provides you with six familiar database engines to choose from, including Amazon Aurora, PostgreSQL, MySQL, MariaDB, Oracle Database, and SQL Server.

**Amazon Redshift is incorrect.** Amazon Redshift is a fast, fully managed, petabyte-scale data warehouse service that makes it simple and cost-effective to efficiently analyze all your data using your existing business intelligence tools.

It is optimized for datasets ranging from a few hundred gigabytes to a petabyte or more and costs less than \$1,000 per terabyte per year, a tenth the cost of most traditional data warehousing solutions.

**Amazon ElastiCache is incorrect.** Amazon ElastiCache makes it easy to set up, manage, and scale distributed in-memory cache environments in the AWS Cloud. It provides a high performance, resizable, and cost-effective in-memory cache while removing the complexity associated with deploying and managing a distributed cache environment.

**Amazon DynamoDB is incorrect.** Amazon DynamoDB is a fully managed NoSQL database service that provides fast and predictable performance with seamless scalability. You can use Amazon DynamoDB to create a database table that can store and retrieve any amount of data, and serve any level of request traffic.

Amazon DynamoDB automatically spreads the data and traffic

for the table over a sufficient number of servers to handle the request capacity specified by the customer and the amount of data stored, while maintaining consistent and fast performance.

**Question 81.** Your database-driven application transfers gigabytes to terabytes of data on a regular basis across continents. Which of the following services will you use to enable fast, easy, and secure transfers of your files over long distances between your client and an S3 bucket?

- (A) Amazon S3 Requester Pays buckets
- (B) Amazon S3 Access Points
- (C) Amazon S3 Object Tagging
- (D) **Amazon S3 Transfer Acceleration**

**Explanation 81.** **Amazon S3 Transfer Acceleration is the correct answer.** Amazon S3 Transfer Acceleration enables fast, easy, and secure transfers of files over long distances between your client and an S3 bucket. Transfer Acceleration takes advantage of Amazon CloudFront's globally distributed edge locations. As the data arrives at an edge location, data is routed to Amazon S3 over an optimized network path.

**You might want to use Transfer Acceleration on a bucket for various reasons, including the following:**

1. You have customers that upload to a centralized bucket from all over the world.
2. You transfer gigabytes to terabytes of data on a regular basis across continents.
3. You are unable to utilize all of your available bandwidth over the Internet when uploading to Amazon S3.

**Amazon S3 Requester Pays buckets is incorrect.** In general, bucket owners pay for all Amazon S3 storage and data transfer costs associated with their bucket. A bucket owner, however, can configure a bucket to be a **Requester Pays bucket**. With Requester Pays buckets, the requester instead of the bucket owner pays the cost of the request and the data download from the bucket.

The bucket owner always pays the cost of storing data. Typically, you configure buckets to be Requester Pays when you want to share data but not incur charges associated with others accessing the data.

**Amazon S3 Access Points is incorrect.** Amazon S3 Access Points simplify managing data access at scale for shared datasets in S3. Access points are named network endpoints that are attached to buckets that you can use to perform S3 object operations, such as GetObject and PutObject.

**Amazon S3 Object Tagging is incorrect as it is used for categorizing the storage.**

**Question 82.** You are using AWS Trusted Advisor as it provides you real-time guidance to help you provision your resources following AWS best practices. Which of the following categories is not included in the AWS Trusted Advisor's best practice recommendations?

- (A) Cost optimization
- (B) Performance
- (C) Security
- (D) Sales**

**Explanation 82. Sales is the correct answer.** AWS Trusted Advisor is an online tool that provides you real-time guidance to help you provision your resources following AWS best practices.

Trusted Advisor checks help optimize your AWS infrastructure, increase security and performance, reduce your overall costs, and monitor service limits. Whether establishing new workflows, developing applications, or as part of ongoing improvement, take advantage of the recommendations provided by Trusted Advisor on a regular basis to help keep your solutions provisioned optimally.



AWS Trusted Advisor analyzes your AWS environment and provides best practice recommendations in five categories.

## 1. Cost optimization

AWS Trusted Advisor can save you money on AWS by eliminating unused and idle resources or by making commitments to reserved capacity.

## 2. Performance

AWS Trusted Advisor can improve the performance of your service by checking your service limits, ensuring you take advantage of provisioned throughput, and monitoring for overutilized instances.

## 3. Security

AWS Trusted Advisor can improve the security of your application by closing gaps, enabling various AWS security features, and examining your permissions.

## 4. Fault tolerance

AWS Trusted Advisor can increase the availability and redundancy of your AWS application by take advantage of auto-scaling, health checks, multi-AZ, and backup capabilities.

## 5. Service limits

AWS Trusted Advisor checks for service usage that is more than 80% of the service limit. Values are based on a snapshot, so your current usage might differ. Limit and usage data can take up to 24 hours to reflect any changes.

**Question 83.** Which of the following can a developer use to interact with your AWS services? (Choose all that apply.)

- (A) **AWS CLI**
- (B) AWS Config
- (C) **AWS SDK**
- (D) AWS OpsWorks
- (E) AWS Systems Manager

**Explanation 83. AWS CLI and AWS SDK are the correct answers.** The **AWS Command Line Interface** (AWS CLI) is an open-source tool that enables you to interact with AWS services using commands in your command-line shell. With minimal configuration, the AWS CLI enables you to start running commands that implement functionality equivalent to

that provided by the browser-based AWS Management Console from the command prompt in your favorite terminal program:

**Linux shells** – Use common shell programs such as **bash**, **zsh**, and **tcsh** to run commands in Linux or macOS.

**Windows command line** – On Windows, run commands at the Windows command prompt or in PowerShell.

**Remotely** – Run commands on Amazon Elastic Compute Cloud (Amazon EC2) instances through a remote terminal program such as PuTTY or SSH, or with AWS Systems Manager.

You can also use **Software Development Kits (SDKs)** to interact with your AWS services. SDKs take the complexity out of coding by providing language-specific APIs for AWS services to enable you to develop cloud applications much faster.

**AWS Config is incorrect.** AWS Config provides a detailed view of the resources associated with your AWS account, including how they are configured, how they are related to one another, and how the configurations and their relationships have changed over time.

**AWS OpsWorks is incorrect.** AWS OpsWorks provides a simple and flexible way to create and manage stacks and

applications. With AWS OpsWorks, you can provision AWS resources, manage their configuration, deploy applications to those resources, and monitor their health.

**AWS Systems Manager is incorrect.** Use AWS Systems Manager to organize, monitor, and automate management tasks on your AWS resources.

**Question 84.** CloudFront speeds up the distribution of your content by routing each user request through the AWS backbone network to the edge location that can best serve your content.

- (A) **TRUE**
- (B) FALSE

**Explanation 84.** **TRUE is the correct answer.** Amazon CloudFront is a web service that speeds up distribution of your static and dynamic web content, such as .html, .css, .js, and image files, to your users. CloudFront delivers your content through a worldwide network of data centers called edge locations.

When a user requests content that you're serving with CloudFront, the user is routed to the edge location that provides the lowest latency (time delay), so that content is

delivered with the best possible performance.

1. If the content is already in the edge location with the lowest latency, CloudFront delivers it immediately.
2. If the content is not in that edge location, CloudFront retrieves it from an origin that you've defined—such as an Amazon S3 bucket, a MediaPackage channel, or an HTTP server (for example, a web server) that you have identified as the source for the definitive version of your content.

CloudFront speeds up the distribution of your content by routing each user request through the AWS backbone network to the edge location that can best serve your content.

Typically, this is a CloudFront edge server that provides the fastest delivery to the viewer. Using the AWS network dramatically reduces the number of networks that your users' requests must pass through, which improves performance.

**Question 85.** In order to speed up your dynamic database-driven website, your company decides to implement Memcache as a distributed memory object caching system. Now, your company wants to migrate the app to the cloud for all the benefits cloud computing has to offer. Which AWS service your company will use to set up, manage, and scale a distributed in-memory data store or cache environment in the cloud?

- (A) Amazon Redshift
- (B) Amazon DynamoDB
- (C) Amazon ElastiCache**
- (D) Amazon DocumentDB

**Explanation 85. Amazon ElastiCache is the correct answer.**

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

Existing applications that use Memcached can use ElastiCache with almost no modification. Your applications simply need information about the hostnames and port numbers of the ElastiCache nodes that you have deployed. The ElastiCache

Auto Discovery feature for Memcached lets your applications identify all of the nodes in a cache cluster and connect to them. This means that you don't have to maintain a list of available hostnames and port numbers. In this way, your applications are effectively insulated from changes to node membership in a cluster.

ElastiCache for Memcached has multiple features to enhance reliability for critical production deployments:

- 1.** Automatic detection and recovery from cache node failures.
- 2.** Automatic discovery of nodes within a cluster enabled for automatic discovery, so that no changes need to be made to your application when you add or remove nodes.
- 3.** Flexible Availability Zone placement of nodes and clusters.
- 4.** Integration with other AWS services such as Amazon EC2, Amazon CloudWatch, AWS CloudTrail, and Amazon SNS to provide a secure, high-performance, managed in-memory caching solution.

**Amazon Redshift is incorrect.** Amazon Redshift is a fast, fully managed, petabyte-scale data warehouse service that makes it simple and cost-effective to efficiently analyze all your data using your existing business intelligence tools.

**Amazon DynamoDB is incorrect.** Amazon DynamoDB is a fully managed NoSQL database service that provides fast and predictable performance with seamless scalability. You can use Amazon DynamoDB to create a database table that can store and retrieve any amount of data, and serve any level of request traffic.

**Amazon DocumentDB is incorrect.** Amazon DocumentDB (with MongoDB compatibility) is a fast, reliable, and fully-managed database service that makes it easy for you to set up, operate, and scale MongoDB-compatible databases.

**Question 86.** Which of the following recommendations is not considered a best practice for using AWS CloudFormation more effectively and securely throughout its entire workflow?

- (A) **Embed credentials in your templates**
- (B) Use nested stacks to reuse common template patterns
- (C) Reuse templates to replicate stacks in multiple environments
- (D) Use IAM to control access

**Explanation 86. Embed credentials in your templates is the correct answer.** Best practices are recommendations that can help you use AWS CloudFormation more effectively and securely throughout its entire workflow. Learn how to plan and

organize your stacks, create templates that describe your resources and the software applications that run on them, and manage your stacks and their resources. The following best practices are based on real-world experience from current AWS CloudFormation customers.

## **1. Organize your stacks by lifecycle and ownership**

Use the lifecycle and ownership of your AWS resources to help you decide what resources should go in each stack. Initially, you might put all your resources in one stack, but as your stack grows in scale and broadens in scope, managing a single stack can be cumbersome and time-consuming.

## **2. Use IAM to control access**

IAM is an AWS service that you can use to manage users and their permissions in AWS. You can use IAM with AWS CloudFormation to specify what AWS CloudFormation actions users can perform, such as viewing stack templates, creating stacks, or deleting stacks.

## **3. Verify quotas for all resource types**

Before launching a stack, ensure that you can create all the resources that you want without hitting your AWS account limits. If you hit a limit, AWS CloudFormation won't create your stack successfully until you increase your quota or delete extra

resources.

## **4. Reuse templates to replicate stacks in multiple environments**

After you have your stacks and resources set up, you can reuse your templates to replicate your infrastructure in multiple environments.

For example, you can create environments for development, testing, and production so that you can test changes before implementing them into production.

## **5. Do not embed credentials in your templates**

Rather than embedding sensitive information in your AWS CloudFormation templates, we recommend you use dynamic references in your stack template.

Dynamic references provide a compact, powerful way for you to reference external values that are stored and managed in other services, such as the AWS Systems Manager Parameter Store or AWS Secrets Manager.

**Question 87.** You have been tasked to implement a solution to automate security vulnerability assessments throughout your development and deployment pipelines. Which of the following services will you enable to meet the requirement?

- (A) Amazon Macie
- (B) GuardDuty
- (C) Amazon Inspector**
- (D) AWS Shield

**Explanation 87. Amazon Inspector is the correct answer.**

Amazon Inspector tests the network accessibility of your Amazon EC2 instances and the security state of your applications that run on those instances. Amazon Inspector assesses applications for exposure, vulnerabilities, and deviations from best practices. After performing an assessment, Amazon Inspector produces a detailed list of security findings that is organized by level of severity.

With Amazon Inspector, you can automate security vulnerability assessments throughout your development and deployment pipelines or for static production systems. This allows you to make security testing a regular part of development and IT operations.

**Amazon Macie is incorrect.** Amazon Macie is a fully managed

data security and data privacy service that uses machine learning and pattern matching to discover, classify, and help you protect your sensitive data in Amazon S3.

**Amazon GuardDuty is incorrect.** Amazon GuardDuty is a continuous security monitoring service. Amazon GuardDuty can help to identify unexpected and potentially unauthorized or malicious activity in your AWS environment.

**AWS Shield is incorrect.** AWS provides two levels of protection against DDoS attacks: AWS Shield Standard and AWS Shield Advanced. AWS Shield Standard is automatically included at no extra cost beyond what you already pay for AWS WAF and your other AWS services. For added protection against DDoS attacks, AWS offers AWS Shield Advanced.

AWS Shield Advanced provides expanded DDoS attack protection for your Amazon EC2 instances, Elastic Load Balancing load balancers, Amazon CloudFront distributions, and Amazon Route 53 hosted zones.

**Question 88.** You have been tasked to deploy a MariaDB for a new project. Which AWS service will you use to complete the task?

- (A) Amazon Redshift
- (B) Amazon Neptune
- (C) Amazon RDS**
- (D) Amazon DynamoDB

**Explanation 88. Amazon RDS is the correct answer.**

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 automating time-consuming administration tasks such as hardware provisioning, database setup, patching, and backups. It frees you to focus on your applications so you can give them the fast performance, high availability, security, and compatibility they need.

Amazon RDS is available on several database instance types – optimized for memory, performance or I/O – and provides you with six familiar database engines to choose from, including Amazon Aurora, PostgreSQL, MySQL, MariaDB, Oracle Database, and SQL Server.

**Amazon Redshift is incorrect.** Amazon Redshift is a fast, fully

managed, petabyte-scale data warehouse service that makes it simple and cost-effective to efficiently analyze all your data using your existing business intelligence tools.

**Amazon Neptune is incorrect.** Amazon Neptune is a fast, reliable, fully-managed graph database service that makes it easy to build and run applications that work with highly connected datasets.

The core of Neptune is a purpose-built, high-performance graph database engine that is optimized for storing billions of relationships and querying the graph with milliseconds latency.

**Amazon DynamoDB is incorrect.** Amazon DynamoDB is a fully managed NoSQL database service that provides fast and predictable performance with seamless scalability. You can use Amazon DynamoDB to create a database table that can store and retrieve any amount of data, and serve any level of request traffic.

**Question 89.** Why do you need to use Amazon Relational Database Service (Amazon RDS) over traditional database management?

- (A) Manual software patching
- (B) Easy storage scaling**
- (C) Manual backups
- (D) Pay monthly fixed cost

**Explanation 89. Easy storage scaling is the correct answer.**

Amazon RDS is a managed relational database service that provides you six familiar database engines to choose from, including Amazon Aurora, MySQL, MariaDB, Oracle, Microsoft SQL Server, and PostgreSQL.

This means that the code, applications, and tools you already use today with your existing databases can be used with Amazon RDS. Amazon RDS handles routine database tasks such as provisioning, patching, backup, recovery, failure detection, and repair.

**Why do you need to use Amazon Relational Database Service (Amazon RDS) over traditional database management?**

## **Lower administrative burden**

### **1. Easy to use**

You can use the AWS Management Console, the Amazon RDS Command Line Interface, or simple API calls to access the capabilities of a production-ready relational database in minutes.

### **2. Automatic software patching**

Amazon RDS will make sure that the relational database software powering your deployment stays up-to-date with the latest patches. You can exert optional control over when and if your database instance is patched.

### **3. Best practice recommendations**

Amazon RDS provides best practice guidance by analyzing configuration and usage metrics from your database instances.

## **Scalability**

### **1. Push-button compute scaling**

You can scale the compute and memory resources powering your deployment up or down, up to a maximum of 32 vCPUs and 244 GiB of RAM. Compute scaling operations typically complete in a few minutes.

### **2. Easy storage scaling**

As your storage requirements grow, you can also provide additional storage. The Amazon Aurora engine will automatically grow the size of your database volume as your database storage needs grow, up to a maximum of 64 TB or a maximum you define. The MySQL, MariaDB, Oracle, and PostgreSQL engines allow you to scale up to 64 TB of storage and SQL Server supports up to 16 TB. Storage scaling is on-the-fly with zero downtime.

### **3. Read Replicas**

Read Replicas make 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 are available in Amazon RDS for MySQL, MariaDB, PostgreSQL, and Oracle as well as Amazon Aurora.

## **Availability and durability**

### **1. Automated backups**

The automated backup feature of Amazon RDS enables point-in-time recovery for your database instance. Amazon RDS will backup your database and transaction logs and store both for a user-specified retention period. This allows you to restore your

database instance to any second during your retention period, up to the last five minutes. Your automatic backup retention period can be configured to up to thirty-five days.

## **2. Database snapshots**

Database snapshots are user-initiated backups of your instance stored in Amazon S3 that are kept until you explicitly delete them. You can create a new instance from a database snapshot whenever you desire. Although database snapshots serve operationally as full backups, you are billed only for incremental storage use.

## **Cost-effectiveness**

### **1. Pay only for what you use**

There is no up-front commitment with Amazon RDS; you simply pay a monthly charge for each database instance that you launch. And, when you're finished with a database instance, you can easily delete it.

**Question 90.** Given the below AWS services, which one is a highly available and scalable cloud Domain Name System (DNS) web service?

- (A) Amazon S3
- (B) Amazon Route 53**
- (C) AWS Lambda
- (D) AWS Elastic Beanstalk

**Explanation 90. Amazon Route 53 is the correct answer.**

Amazon Route 53 is a highly available and scalable cloud Domain Name System (DNS) web service. It is designed to give developers and businesses an extremely reliable and cost-effective way to route end users to Internet applications by translating names like www.example.com into the numeric IP addresses like 192.0.2.1 that computers use to connect to each other. Amazon Route 53 is fully compliant with IPv6 as well.

Amazon Route 53 effectively connects user requests to infrastructure running in AWS – such as Amazon EC2 instances, Elastic Load Balancing load balancers, or Amazon S3 buckets – and can also be used to route users to infrastructure outside of AWS.

**AWS WAF is incorrect.** AWS WAF is a web application firewall that lets you monitor web requests that are forwarded to

Amazon CloudFront distributions or an Application Load Balancer. You can also use AWS WAF to block or allow requests based on conditions that you specify, such as the IP addresses that requests originate from or values in the requests.

**Amazon S3 is incorrect.** Amazon Simple Storage Service (Amazon S3) is storage for the internet. You can use Amazon S3 to store and retrieve any amount of data at any time, from anywhere on the web.

**AWS Lambda is incorrect.** With AWS Lambda, you can run code without provisioning or managing servers. You pay only for the compute time that you consume—there's no charge when your code isn't running. You can run code for virtually any type of application or backend service—all with zero administration. Just upload your code and Lambda takes care of everything required to run and scale your code with high availability.

**AWS Elastic Beanstalk is incorrect.** With AWS Elastic Beanstalk, you can quickly deploy and manage applications in the AWS Cloud without worrying about the infrastructure that runs those applications. AWS Elastic Beanstalk reduces management complexity without restricting choice or control. You simply upload your application, and AWS Elastic Beanstalk

automatically handles the details of capacity provisioning, load balancing, scaling, and application health monitoring.

**Question 91.** Amazon \_\_\_\_\_ is a web service that provides secure, resizable compute capacity in the cloud.

- (A) CloudFront
- (B) EC2**
- (C) Route 53
- (D) Lightsail

**Explanation 91.** **EC2 is the correct answer.** Amazon Elastic Compute Cloud (Amazon EC2) is a web service that provides secure, resizable compute capacity in the cloud. It is designed to make web-scale cloud computing easier for developers. Amazon EC2's simple web service interface allows you to obtain and configure capacity with minimal friction. It provides you with complete control of your computing resources and lets you run on Amazon's proven computing environment.

**CloudFront is incorrect.** Amazon CloudFront speeds up the distribution of your static and dynamic web content, such as .html, .css, .php, image, and media files. When users request your content, CloudFront delivers it through a worldwide network of edge locations that provide low latency and high performance.

**Route 53 is incorrect.** Amazon Route 53 is a highly available and scalable Domain Name System (DNS) web service.

**Lightsail is incorrect.** Amazon Lightsail is the easiest way to get started with AWS for developers who just need virtual private servers. Lightsail includes everything you need to launch your project quickly – a virtual machine, SSD-based storage, data transfer, DNS management, and a static IP – for a low, predictable price.

**Question 92.** Which of the following are typical scenarios for using Kinesis Data Streams? (Choose all that apply.)

- (A) **Real-time metrics and reporting**
- (B) **Complex stream processing**
- (C) Feed real-time dashboards
- (D) Create real-time metrics
- (E) **Real-time data analytics**

**Explanation 92. A, B, and E are the correct answers.** You can use Kinesis Data Streams for rapid and continuous data intake and aggregation. The type of data used can include IT infrastructure log data, application logs, social media, market data feeds, and web clickstream data. Because the response time for the data intake and processing is in real-time, the processing is typically lightweight.

The following are typical scenarios for using Kinesis Data Streams:

### **Accelerated log and data feed intake and processing**

You can have producers push data directly into a stream. For example, push system and application logs and they are available for processing in seconds. This prevents the log data from being lost if the front end or application server fails.

Kinesis Data Streams provides accelerated data feed intake because you don't batch the data on the servers before you submit it for intake.

### **Real-time metrics and reporting**

You can use data collected into Kinesis Data Streams for simple data analysis and reporting in real-time. For example, your data-processing application can work on metrics and reporting for system and application logs as the data is streaming in, rather than wait to receive batches of data.

### **Real-time data analytics**

This combines the power of parallel processing with the value of real-time data. For example, process website clickstreams in real-time, and then analyze site usability engagement using multiple different Kinesis Data Streams applications running in parallel.

## Complex stream processing

You can create Directed Acyclic Graphs (DAGs) of Kinesis Data Streams applications and data streams. This typically involves putting data from multiple Kinesis Data Streams applications into another stream for downstream processing by a different Kinesis Data Streams application.

**The rest options are incorrect** as they are scenarios for using Amazon Kinesis Data Analytics.

**Question 93.** Given the following types of Elastic Load Balancing, which one will you choose for load balancing of HTTP and HTTPS traffic?

- (A) Application Load Balancer
- (B) Network Load Balancer
- (C) Classic Load Balancer
- (D) HTTP and HTTPS Load Balancer

**Explanation 93.** **Application Load Balancer is the correct answer.** Application Load Balancer is best suited for load balancing of HTTP and HTTPS traffic and provides advanced request routing targeted at the delivery of modern application architectures, including microservices and containers.

Operating at the individual request level (Layer 7), Application Load Balancer routes traffic to targets within Amazon Virtual

Private Cloud (Amazon VPC) based on the content of the request.

**Network Load Balancer is incorrect.** Network Load Balancer is best suited for load balancing of Transmission Control Protocol (TCP), User Datagram Protocol (UDP) and Transport Layer Security (TLS) traffic where extreme performance is required. Operating at the connection level (Layer 4), Network Load Balancer routes traffic to targets within Amazon Virtual Private Cloud (Amazon VPC) and is capable of handling millions of requests per second while maintaining ultra-low latencies. Network Load Balancer is also optimized to handle sudden and volatile traffic patterns.

**Classic Load Balancer is incorrect.** Classic Load Balancer provides basic load balancing across multiple Amazon EC2 instances and operates at both the request level and connection level. Classic Load Balancer is intended for applications that were built within the EC2-Classic network.

**HTTP and HTTPS Load Balancer is incorrect** as it is a fictitious type of Elastic Load Balancing.

**Question 94.** Which of the following options is not considered a benefit of using Kinesis Video Streams?

- (A) Kinesis Video Streams offers you a fixed cost pricing model**
- (B) Kinesis Video Streams enables you to connect and stream video, audio, and other data from millions of devices
- (C) Kinesis Video Streams is serverless, so there is no infrastructure to set up or manage
- (D) Kinesis Video Streams encrypts all data as it flows through the service and when it persists the data

**Explanation 94. Kinesis Video Streams offers you a fixed cost pricing model is the correct answer.** Kinesis Video Streams offers you a fixed cost pricing model is the correct answer as it is not considered a benefit using Kinesis Video Stream.

Amazon Kinesis Video Streams is a fully managed AWS service that you can use to stream live video from devices to the AWS Cloud or build applications for real-time video processing or batch-oriented video analytics. Kinesis Video Streams isn't just storage for video data. You can use it to watch your video streams in real-time as they are received in the cloud.

Benefits of using Kinesis Video Streams include the following:

**Connect and stream from millions of devices** – Kinesis Video Streams enables you to connect and stream video, audio, and

other data from millions of devices ranging from consumer smartphones, drones, dash cams, and more. You can use the Kinesis Video Streams producer libraries to configure your devices and reliably stream in real-time, or as after-the-fact media uploads.

**Durably store, encrypt, and index data** – You can configure your Kinesis video stream to durably store media data for custom retention periods. Kinesis Video Streams also generates an index over the stored data based on producer-generated or service-side time stamps. Your applications can easily retrieve specified data in a stream using the time-index.

**Focus on managing applications instead of infrastructure** – Kinesis Video Streams is serverless, so there is no infrastructure to set up or manage. You don't need to worry about the deployment, configuration, or elastic scaling of the underlying infrastructure as your data streams and a number of consuming applications grow and shrink. Kinesis Video Streams automatically does all the administration and maintenance required to manage streams, so you can focus on the applications, not the infrastructure.

**Build real-time and batch applications on data streams** – You can use Kinesis Video Streams to build custom real-time

applications that operate on live data streams, and create batch or ad hoc applications that operate on durably persisted data without strict latency requirements. You can build, deploy, and manage custom applications: open source (Apache MXNet, OpenCV), homegrown, or third-party solutions via the AWS Marketplace to process and analyze your streams.

**Stream data more securely** – Kinesis Video Streams encrypts all data as it flows through the service and when it persists the data. Kinesis Video Streams enforces Transport Layer Security (TLS)-based encryption on data streaming from devices, and encrypts all data at rest using AWS Key Management Service (AWS KMS). Additionally, you can manage access to your data using AWS Identity and Access Management (IAM).

**Question 95.** You have been tasked to implement a solution for your application so automatically scaling your application's resources based on the demand. Which AWS service will you enable to meet the requirement?

- (A) Amazon CloudWatch
- (B) AWS Auto Scaling**
- (C) AWS Health
- (D) AWS Systems Manager

**Explanation 95. AWS Auto Scaling is the correct answer.**

AWS Auto Scaling enables you to configure automatic scaling for the AWS resources that are part of your application in a matter of minutes. The AWS Auto Scaling console provides a single user interface to use the automatic scaling features of multiple AWS services. You can configure automatic scaling for individual resources or for whole applications.

With AWS Auto Scaling, you configure and manage scaling for your resources through a scaling plan. The scaling plan uses dynamic scaling and predictive scaling to automatically scale your application's resources. This ensures that you add the required computing power to handle the load on your application and then remove it when it's no longer required.

**Amazon CloudWatch is incorrect.** Amazon CloudWatch provides a reliable, scalable, and flexible monitoring solution that you can start using within minutes. You no longer need to set up, manage, and scale your own monitoring systems and infrastructure.

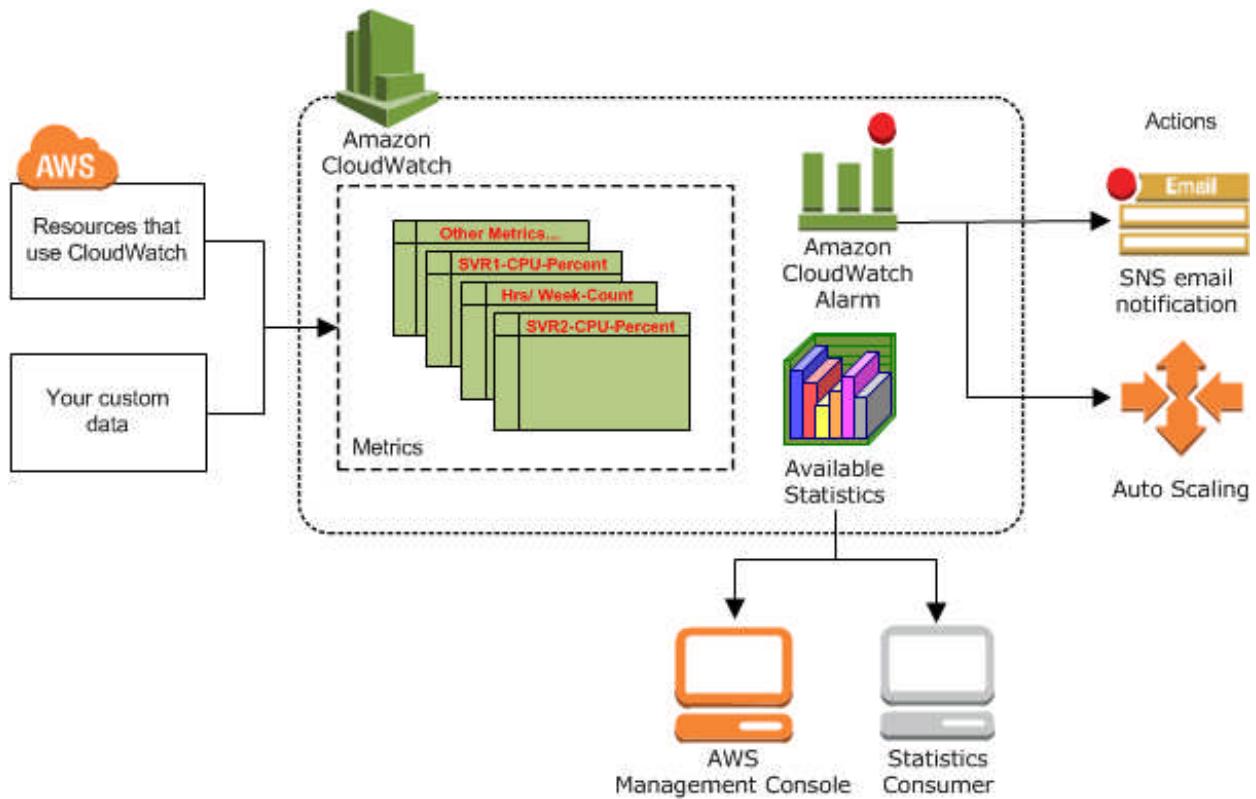
**AWS Health is incorrect.** AWS Health provides personalized information about events that can affect your AWS infrastructure, guides you through scheduled changes, and accelerates the troubleshooting of issues that affect your AWS resources and accounts.

**AWS Systems Manager is incorrect.** Use AWS Systems Manager to organize, monitor, and automate management tasks on your AWS resources.

**Question 96.** Which AWS service will you use to configure alarm actions to stop, start, or terminate Amazon EC2 instances when certain criteria are met?

- (A) Amazon Cognito
- (B) Amazon Inspector
- (C) Amazon CloudWatch**
- (D) AWS CloudFormation

**Explanation 96. Amazon CloudWatch is the correct answer.** Amazon CloudWatch is basically a metrics repository. An AWS service—such as Amazon EC2—puts metrics into the repository, and you retrieve statistics based on those metrics. If you put your own custom metrics into the repository, you can retrieve statistics on these metrics as well.



You can configure alarm actions to stop, start, or terminate an Amazon EC2 instance when certain criteria are met. In addition, you can create alarms that initiate Amazon EC2 Auto Scaling and Amazon Simple Notification Service (Amazon SNS) actions on your behalf.

**Amazon Cognito is incorrect.** Amazon Cognito handles user authentication and authorization for your web and mobile apps. With user pools, you can easily and securely add sign-up and sign-in functionality to your apps. With identity pools (federated identities), your apps can get temporary credentials that grant users access to specific AWS resources, whether the users are anonymous or are signed in.

**Amazon Inspector is incorrect.** Amazon Inspector is a security vulnerability assessment service that helps improve the security and compliance of your AWS resources.

Amazon Inspector automatically assesses resources for vulnerabilities or deviations from best practices, and then produces a detailed list of security findings prioritized by level of severity. Amazon Inspector includes a knowledge base of hundreds of rules mapped to common security standards and vulnerability definitions that are regularly updated by AWS security researchers.

**AWS CloudFormation is incorrect.** AWS CloudFormation enables you to create and provision AWS infrastructure deployments predictably and repeatedly.

It helps you leverage AWS products such as Amazon EC2, Amazon Elastic Block Store, Amazon SNS, Elastic Load Balancing, and Auto Scaling to build highly reliable, highly scalable, cost-effective applications in the cloud without worrying about creating and configuring the underlying AWS infrastructure.

- Question 97.** Which of the following options is not a consolidated billing benefit?
- (A) You get one bill for multiple accounts
  - (B) You can track the charges across multiple accounts and download the combined cost and usage data
  - (C) You can combine the usage across all accounts in the organization to share the volume pricing discounts
  - (D) **Consolidated billing is offered for a small extra charge**

**Explanation 97.** **Consolidated billing is offered for a small extra charge is the correct answer.** You can use the consolidated billing feature in AWS Organizations to consolidate billing and payment for multiple AWS accounts or multiple Amazon Internet Services Pvt. Ltd (AISPL) accounts. Every organization in AWS Organizations has a master account that pays the charges of all the **member accounts**.

**Consolidated billing has the following benefits:**

**One bill** – You get one bill for multiple accounts.

**Easy tracking** – You can track the charges across multiple accounts and download the combined cost and usage data.

**Combined usage** – You can combine the usage across all accounts in the organization to share the volume pricing discounts, Reserved Instance discounts, and Savings Plans.

This can result in a lower charge for your project, department, or company than with individual standalone accounts.

**No extra fee** – Consolidated billing is offered at no additional cost.

**Question 98.** Which of the following VPC networking components allows communication between your VPC and the internet?

- (A) **Internet gateways**
- (B) VPC peering
- (C) Elastic IP address
- (D) ClassicLink

**Explanation 98. Internet gateways is the correct answer.**

An internet gateway is a horizontally scaled, redundant, and highly available VPC component that allows communication between your VPC and the internet.

An internet gateway serves two purposes: to provide a target in your VPC route tables for internet-routable traffic and to perform network address translation (NAT) for instances that have been assigned public IPv4 addresses.

An internet gateway supports IPv4 and IPv6 traffic. It does not cause availability risks or bandwidth constraints on your

network traffic. There's no additional charge for having an internet gateway in your account.

**VPC peering is incorrect.** A VPC peering connection is a networking connection between two VPCs that enables you to route traffic between them privately. Instances in either VPC can communicate with each other as if they are within the same network.

**Elastic IP address is incorrect.** An Elastic IP address is a static, public IPv4 address designed for dynamic cloud computing. You can associate an Elastic IP address with any instance or network interface in any VPC in your account. With an Elastic IP address, you can mask the failure of an instance by rapidly remapping the address to another instance in your VPC.

**ClassicLink is incorrect.** ClassicLink allows you to link an EC2-Classic instance to a VPC in your account, within the same region. This allows you to associate the VPC security groups with the EC2-Classic instance, enabling communication between your EC2-Classic instance and instances in your VPC using private IPv4 addresses. ClassicLink removes the need to make use of public IPv4 addresses or Elastic IP addresses to enable communication between instances in these platforms.

**Question 99.** Amazon Simple Queue Service (Amazon SQS) offers a secure, durable, and available hosted queue that lets you integrate and decouple distributed software systems and components. Which of the following are the main benefits of using SQS? (Choose all that apply.)

- (A) Reliability
- (B) Scalability
- (C) Availability
- (D) Cost
- (E) Security

**Explanation 99.** A, B, C and E are the correct answers.

Amazon Simple Queue Service (Amazon SQS) offers a secure, durable, and available hosted queue that lets you integrate and decouple distributed software systems and components.

**The main benefits of Amazon SQS are:**

**Security** – You control who can send messages to and receive messages from an Amazon SQS queue. Server-side encryption (SSE) lets you transmit sensitive data by protecting the contents of messages in queues using keys managed in AWS Key Management Service (AWS KMS).

**Durability** – To ensure the safety of your messages, Amazon SQS stores them on multiple servers. Standard queues support

at-least-once message delivery, and FIFO queues support exactly-once message processing.

**Availability** – Amazon SQS uses redundant infrastructure to provide highly-concurrent access to messages and high availability for producing and consuming messages.

**Scalability** – Amazon SQS can process each buffered request independently, scaling transparently to handle any load increases or spikes without any provisioning instructions.

**Reliability** – Amazon SQS locks your messages during processing so that multiple producers can send and multiple consumers can receive messages at the same time.

**Customization** – Your queues don't have to be exactly alike—for example, you can set a default delay on a queue. You can store the contents of messages larger than 256 KB using Amazon Simple Storage Service (Amazon S3) or Amazon DynamoDB, with Amazon SQS holding a pointer to the Amazon S3 object, or you can split a large message into smaller messages.

**Question 100.** Which of the following AWS service will you configure if you upload periodic logs to a bucket, that your application might need them for a week or a month, and you want to store those logs as cost-effective as possible throughout their lifecycle?

- (A) Amazon S3 Versioning
- (B) Amazon S3 Lifecycle**
- (C) Amazon S3 Subresources
- (D) Amazon S3 Batch Operations

**Explanation 100.** **Amazon S3 Lifecycle is the correct answer.** To manage your objects so that they are stored cost-effectively throughout their lifecycle, configure their Amazon S3 Lifecycle. An S3 Lifecycle configuration is a set of rules that define actions that Amazon S3 applies to a group of objects. There are two types of actions:

**Transition actions**—Define when objects transition to another storage class. For example, you might choose to transition objects to the S3 Standard-IA storage class 30 days after you created them, or archive objects to the S3 Glacier storage class one year after creating them. There are costs associated with the lifecycle transition requests.

**Expiration actions**—Define when objects expire. Amazon S3

deletes expired objects on your behalf. The lifecycle expiration costs depend on when you choose to expire objects.

**Amazon S3 Versioning is incorrect.** Use Amazon S3 Versioning to keep multiple versions of an object in one bucket. For example, you could store examsdigest-logo.jpg (version 111111) and examsdigest-logo.jpg (version 222222) in a single bucket. S3 Versioning protects you from the consequences of unintended overwrites and deletions.

**Amazon S3 Subresources is incorrect.** Amazon S3 defines a set of subresources associated with buckets and objects. Subresources are subordinates to objects. This means that subresources don't exist on their own. They are always associated with some other entity, such as an object or a bucket.

**Amazon S3 Batch Operations is incorrect.** You can use S3 Batch Operations to perform large-scale batch operations on Amazon S3 objects. S3 Batch Operations can perform a single operation on lists of Amazon S3 objects that you specify. Amazon S3 tracks progress, sends notifications, and stores a detailed completion report of all actions, providing a fully managed, auditable, serverless experience.

## **DOMAIN 4: BILLING AND PRICING**

## Questions 101-115

**Question 101.** Which of the following options is not a consolidated billing benefit?

- (A) You get one bill for multiple accounts
- (B) You can track the charges across multiple accounts and download the combined cost and usage data
- (C) You can combine the usage across all accounts in the organization to share the volume pricing discounts
- (D) Consolidated billing is offered for a small extra charge

**Question 102.** \_\_\_\_\_ enable you to use your existing server-bound software licenses and address corporate compliance and regulatory requirements.

- (A) Dedicated Hosts
- (B) Dedicated Instances
- (C) Dedicated Servers
- (D) Dedicated License

**Question 103.** Which of the following AWS support plan provides access to Application architecture guidance and Technical account manager features?

- (A) Basic
- (B) Developer
- (C) Business
- (D) Enterprise

**Question 104.** Which of the following pricing models that AWS offer, you pay for compute or database capacity with no long-term commitments or upfront payments?

- (A) Dedicated Instances
- (B) Spot Instances
- (C) On Demand
- (D) Reservations

**Question 105.** Which of the following plans is recommended to those who experiment or test the AWS services?

- (A) Basic
- (B) Developer
- (C) Business
- (D) Enterprise

**Question 106.** Spot Instance enables you to purchase capacity reservations that recur on a daily, weekly, or monthly basis, with a specified start time and duration, for a one-year term. You reserve the capacity in advance so that you know it is available when you need it. You pay for the time that the instances are scheduled, even if you do not use them.

- (A) TRUE
- (B) FALSE

**Question 107.** As your startup is growing you need to implement a solution to centrally manage billing; control access, and security; and share resources across your AWS accounts. Which of the following AWS services will you implement to meet the requirement?

- (A) Service Quotas
- (B) AWS OpsWorks
- (C) AWS Organizations
- (D) AWS Well-Architected Tool

**Question 108.** Which feature in Cost Explorer helps you identify cost-saving opportunities by downsizing or terminating instances in Amazon Elastic Compute Cloud (Amazon EC2)?

- (A) Rightsizing Recommendations
- (B) Cost Allocation Tags
- (C) Trusted Advisor Checks
- (D) AWS Pricing Calculator

**Question 109.** If you purchase a large number of Amazon EC2 Reserved Instances in an AWS Region, you will automatically receive discounts on your upfront fees and hourly fees for future purchases of Standard Reserved Instances in that AWS Region.

- (A) TRUE
- (B) FALSE

**Question 110.** Which of the following is true regarding the Business support plan in AWS? (Choose all that apply.)

- (A) Advisor Best Practice Checks: 7 Core checks
- (B) Advisor Best Practice Checks: Full set of checks
- (C) Programmatic Case Management: AWS Support API
- (D) Training: Access to online self-paced labs
- (E) Third-Party Software Support: Interoperability and configuration guidance and troubleshooting

**Question 111.** You have been tasked to implement a solution to receive an alert if the EC2 cost budget reaches the threshold of \$2,500.00. Which service will you use to track and inspect your budget?

- (A) AWS Budgets
- (B) AWS Pricing Calculator
- (C) Amazon Simple Workflow Service
- (D) AWS Support

**Question 112.** Which of the following Amazon EC2 instances lets you take advantage of unused EC2 capacity in the AWS Cloud and provides up to a 90% discount compared to On-Demand prices.

- (A) Scheduled Instances
- (B) Reserved Instances
- (C) Dedicated Instances
- (D) Spot Instances

**Question 113.** Which of the following options are AWS Cost & Usage Report features? (Choose all that apply.)

- (A) Track your Amazon EC2 Reserved Instance (RI) usage
- (B) Leverage strategic data integrations with AWS services
- (C) Access comprehensive AWS cost and usage information
- (D) Forecast future costs and usage
- (E) Add notifications to your budget

**Question 114.** You are developing a new application that focuses on background processing related tasks. Which of the following instance purchasing option consider the most cost-effective solution for your application?

- (A) Spot Instances
- (B) On-Demand Instances
- (C) Reserved Instances
- (D) Dedicated Instances

**Question 115.** Which AWS tool provides you real-time guidance to help you optimize your AWS infrastructure, increase security and performance and reduce your overall costs?

- (A) AWS Service Quotas
- (B) AWS Trusted Advisor
- (C) AWS Health
- (D) AWS Control Tower

# Answers 101-115

**Question 101.** Which of the following options is not a consolidated billing benefit?

- (A) You get one bill for multiple accounts
- (B) You can track the charges across multiple accounts and download the combined cost and usage data
- (C) You can combine the usage across all accounts in the organization to share the volume pricing discounts
- (D) Consolidated billing is offered for a small extra charge**

**Explanation 101.** **Consolidated billing is offered for a small extra charge is the correct answer.** You can use the consolidated billing feature in AWS Organizations to consolidate billing and payment for multiple AWS accounts or multiple Amazon Internet Services Pvt. Ltd (AISPL) accounts. Every organization in AWS Organizations has a master account that pays the charges of all the **member accounts**.

**Consolidated billing has the following benefits:**

**One bill** – You get one bill for multiple accounts.

**Easy tracking** – You can track the charges across multiple accounts and download the combined cost and usage data.

**Combined usage** – You can combine the usage across all

accounts in the organization to share the volume pricing discounts, Reserved Instance discounts, and Savings Plans. This can result in a lower charge for your project, department, or company than with individual standalone accounts.

**No extra fee** – Consolidated billing is offered at no additional cost.

**Question 102.** \_\_\_\_\_ enable you to use your existing server-bound software licenses and address corporate compliance and regulatory requirements.

- (A) Dedicated Hosts
- (B) Dedicated Instances
- (C) Dedicated Servers
- (D) Dedicated License

**Explanation 102. Dedicated Hosts is the correct answer.**

You can use Dedicated Hosts and Dedicated instances to launch Amazon EC2 instances on physical servers that are dedicated for your use.

An important difference between a Dedicated Host and a Dedicated instance is that a Dedicated Host gives you additional visibility and control over how instances are placed on a physical server, and you can consistently deploy your instances to the same physical server over time. As a result,

Dedicated Hosts enable you to use your existing server-bound software licenses and address corporate compliance and regulatory requirements.

**Dedicated Servers and Dedicated License are incorrect as they are fictitious terms.**

**Question 103.** Which of the following AWS support plan provides access to Application architecture guidance and Technical account manager features?

- (A) Basic
- (B) Developer
- (C) Business
- (D) Enterprise**

**Explanation 103. Enterprise is the correct answer.** AWS Support offers four support plans: Basic, Developer, Business, and Enterprise.

The **Basic** plan is Use with caution of charge and offers support for account and billing questions and service quota increases. The other plans offer an Avoid (rewrite) number of technical support cases with pay-by-the-month pricing and no long-term contracts.

All AWS customers automatically have 24/7 access to these features of the Basic support plan:

1. One-on-one responses to account and billing questions
2. Support forums
3. Service health checks
4. Documentation, technical papers, and best practice guides

Customers with a **Developer** support plan have access to these additional features:

1. Best practice guidance
2. Building-block architecture support: guidance on how to use AWS products, features, and services together
3. AWS Identity and Access Management (IAM) to control user access to AWS Support

In addition, customers with a **Business** or **Enterprise** support plan have access to these features:

1. Use-case guidance – What AWS products, features, and services to use to best support your specific needs.
2. AWS Trusted Advisor – A feature of AWS Support, which inspects customer environments and identifies opportunities to save money, close security gaps, and improve system reliability and performance.
3. The AWS Support API to interact with Support Center and Trusted Advisor. You can use the AWS Support API to automate

support case management and Trusted Advisor operations.

**4.** Third-party software support – Help with Amazon Elastic Compute Cloud (Amazon EC2) instance operating systems and configuration. Also, help with the performance of the most popular third-party software components on AWS. Third-party software support isn't available for customers on Basic or Developer support plans.

In addition, customers with an **Enterprise** support plan have access to these features:

- 1.** Application architecture guidance – Contextual guidance on how services fit together to meet your specific use case, workload, or application.
- 2.** Infrastructure event management – Short-term engagement with AWS Support to get a deep understanding of your use case. After analysis, provide architectural and scaling guidance for an event.
- 3.** Technical account manager – Work with a technical account manager (TAM) for your specific use cases and applications.
- 4.** White-glove case routing.
- 5.** Management business reviews.

**Question 104.** Which of the following pricing models that AWS offer, you pay for compute or database capacity with no long-term commitments or upfront payments?

- (A) Dedicated Instances
- (B) Spot Instances
- (C) On Demand**
- (D) Reservations

**Explanation 104.** **On Demand is the correct answer.** AWS offers several pricing models depending on product. These include:

1. On Demand means you pay for compute or database capacity with no long-term commitments or upfront payments.
2. Dedicated Instances (available with Amazon Elastic Compute Cloud (Amazon EC2)) run in a virtual private cloud (VPC) on hardware that's dedicated to a single customer.
3. Spot Instances are an Amazon EC2 pricing mechanism that lets you purchase spare computing capacity with no upfront commitment at discounted hourly rates.
4. Reservations provide you with the ability to receive a greater discount, up to 75 percent, by paying for capacity ahead of time.

**Question 105.** Which of the following plans is recommended to those who experiment or test the AWS services?

- (A) Basic
- (B) Developer**
- (C) Business
- (D) Enterprise

**Explanation 105. Developer is the correct answer.** Amazon recommends **Developer Support** if you are testing or doing early development on AWS and want the ability to get technical support during business hours as well as general architectural guidance as you build and test. In addition to what is available with Basic Support, Developer Support provides:

**AWS Trusted Advisor** – Access to the 7 core Trusted Advisor checks and guidance to provision your resources following best practices to help reduce costs, increase performance and fault tolerance, and improve security.

**AWS Personal Health Dashboard** – A personalized view of the health of AWS services, and alerts when your resources are impacted. Also includes the Health API for integration with your existing management systems.

**Basic Support is incorrect.** Basic Support is included for all AWS customers and includes 24×7 access to customer service, documentation, whitepapers, and support forums.

**Business Support is incorrect.** Amazon recommends **Business Support** if you have production workloads on AWS and want 24×7 access to technical support and architectural guidance in the context of your specific use-cases.

**Enterprise Support is incorrect.** With Enterprise Support, you get 24×7 technical support from high-quality engineers, tools and technology to automatically manage health of your environment, consultative architectural guidance delivered in the context of your applications and use-cases, and a designated Technical Account Manager (TAM) to coordinate access to proactive / preventative programs and AWS subject matter experts.

**Question 106.** Spot Instance enables you to purchase capacity reservations that recur on a daily, weekly, or monthly basis, with a specified start time and duration, for a one-year term. You reserve the capacity in advance so that you know it is available when you need it. You pay for the time that the instances are scheduled, even if you do not use them.

(A) TRUE

**(B) FALSE**

**Explanation 106. FALSE is the correct answer.** Scheduled Reserved Instances (Scheduled Instances) enable you to purchase capacity reservations that recur on a daily, weekly, or monthly basis, with a specified start time and duration, for a one-year term. You reserve the capacity in advance so that you know it is available when you need it. You pay for the time that the instances are scheduled, even if you do not use them.

A **Spot Instance** is an unused EC2 instance that is available for less than the On-Demand price. Because Spot Instances enable you to request unused EC2 instances at steep discounts, you can lower your Amazon EC2 costs significantly.

**Question 107.** As your startup is growing you need to implement a solution to centrally manage billing; control access, and security; and share resources across your AWS accounts. Which of the following AWS services will you implement to meet the requirement?

- (A) Service Quotas
- (B) AWS OpsWorks
- (C) AWS Organizations**
- (D) AWS Well-Architected Tool

**Explanation 107. AWS Organizations is the correct answer.**

AWS Organizations helps you centrally govern your environment as you grow and scale your workloads on AWS.

Whether you are a growing startup or a large enterprise, Organizations helps you to centrally manage billing; control access, compliance, and security; and share resources across your AWS accounts.

Using AWS Organizations, you can automate account creation, create groups of accounts to reflect your business needs, and apply policies for these groups for governance.

You can also simplify billing by setting up a single payment method for all of your AWS accounts. Through integrations with

other AWS services, you can use Organizations to define central configurations and resource sharing across accounts in your organization. AWS Organizations is available to all AWS customers at no additional charge.

**Service Quotas is incorrect.** Service Quotas is a service for viewing and managing your quotas easily and at scale as your AWS workloads grow. Quotas also referred to as limits, are the maximum number of resources that you can create in an AWS account.

**AWS OpsWorks is incorrect.** AWS OpsWorks provides a simple and flexible way to create and manage stacks and applications. With AWS OpsWorks, you can provision AWS resources, manage their configuration, deploy applications to those resources, and monitor their health.

**AWS Well-Architected Tool is incorrect.** The AWS Well-Architected Tool reviews your workloads against current AWS architectural best practices. The AWS Well-Architected Tool measures the workload and provides recommendations on how to improve your architecture.

**Question 108.** Which feature in Cost Explorer helps you identify cost-saving opportunities by downsizing or terminating instances in Amazon Elastic Compute Cloud (Amazon EC2)?

- (A) **Rightsizing Recommendations**
- (B) Cost Allocation Tags
- (C) Trusted Advisor Checks
- (D) AWS Pricing Calculator

**Explanation 108. Rightsizing Recommendations is the correct answer.** The rightsizing recommendations feature in Cost Explorer helps you identify cost-saving opportunities by downsizing or terminating instances in Amazon Elastic Compute Cloud (Amazon EC2).

Rightsizing recommendations analyze your Amazon EC2 resources and usage to show opportunities for how you can lower your spending.

You can see all of your underutilized Amazon EC2 instances across member accounts in a single view to immediately identify how much you can save. After you identify your recommendations, you can take action on the Amazon EC2 console.

**Cost Allocation Tags is incorrect.** A tag is a label that you or

AWS assigns to an AWS resource. Each tag consists of a key and a value. For each resource, each tag key must be unique, and each tag key can have only one value.

You can use tags to organize your resources, and cost allocation tags to track your AWS costs on a detailed level. After you activate cost allocation tags, AWS uses the cost allocation tags to organize your resource costs on your cost allocation report, to make it easier for you to categorize and track your AWS costs.

**Trusted Advisor Checks is incorrect.** Trusted Advisor checks help optimize your AWS infrastructure, increase security and performance, reduce your overall costs, and monitor service limits. Trusted Advisor Checks is not a Cost Explorer feature.

**AWS Pricing Calculator is incorrect.** AWS Pricing Calculator lets you explore AWS services and create an estimate for the cost of your use cases on AWS.

You can model your solutions before building them, explore the price points and calculations behind your estimate, and find the available instance types and contract terms that meet your needs.

**Question 109.** If you purchase a large number of Amazon EC2 Reserved Instances in an AWS Region, you will automatically receive discounts on your upfront fees and hourly fees for future purchases of Standard Reserved Instances in that AWS Region.

- (A) **TRUE**  
(B) FALSE

**Explanation 109.** **TRUE is the correct answer.** If you purchase a large number of Amazon EC2 Reserved Instances in an AWS Region, you will automatically receive discounts on your upfront fees and hourly fees for future purchases of Standard Reserved Instances in that AWS Region. A complete list of the Reserved Instance tiers is shown below:

<b>Standard Reserved Instance Volume Discounts</b>		
<b>Total Reserved Instances</b>	<b>Upfront Discount</b>	<b>Hourly Discount</b>
Less than \$500,000	0%	0%
\$500,000 to \$4,000,000	5%	5%
\$4,000,000 to \$10,000,000	10%	10%

More than \$10,000,000	Contact AWS	Contact AWS
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For example, as soon as you have aggregated active Reserved Instances with a List Value totaling more than \$500,000 in a single AWS Region, you will automatically receive a 5% discount on both upfront and hourly fees for all future Standard Reserved Instance purchases in that AWS Region, and those discounts will continue to apply to new Standard Reserved Instances as long as you continue to qualify for the discount tier.

**Question 110.** Which of the following is true regarding the Business support plan in AWS? (Choose all that apply.)

- (A) **Advisor Best Practice Checks: 7 Core checks**
- (B) Advisor Best Practice Checks: Full set of checks
- (C) **Programmatic Case Management: AWS Support API**
- (D) Training: Access to online self-paced labs
- (E) **Third-Party Software Support: Interoperability and configuration guidance and troubleshooting**

**Explanation 110. A, C and E are the correct answers.**

1. Advisor Best Practice Checks: Full set of checks
2. Programmatic Case Management: AWS Support API

### 3. Third-Party Software Support: Interoperability and configuration guidance and troubleshooting

**Advisor Best Practice Checks:** 7 Core checks is incorrect as this is a feature from the Developer plan.

**Training:** Access to online self-paced labs is incorrect as this is a feature from the Enterprise plan.

**The following image is the comparison between the available AWS plans.**

	<u>Developer</u>	<u>Business</u>	<u>Enterprise</u>
AWS Trusted Advisor Best Practice Checks	7 Core <a href="#">checks</a>	Full set of <a href="#">checks</a>	Full set of <a href="#">checks</a>
Enhanced Technical Support	Business hours** email access to Cloud Support Associates Unlimited cases / 1 primary contact	24x7 phone, email, and chat access to Cloud Support Engineers Unlimited cases / unlimited contacts (IAM supported)	24x7 phone, email, and chat access to Cloud Support Engineers Unlimited cases / unlimited contacts (IAM supported)
Case Severity / Response Times*	General guidance: < 24 hours** System impaired: < 12 hours**	General guidance: < 24 hours System impaired: < 12 hours	General guidance: < 24 hours System impaired: < 12 hours Production system impaired: < 4 hours Production system down: < 1 hour Business-critical system down: < 15 minutes
Architectural Guidance	General	Contextual to your use-cases	Consultative review and guidance based on your applications
Programmatic Case Management		AWS Support API	AWS Support API
Third-Party Software Support		Interoperability and configuration guidance and troubleshooting	Interoperability and configuration guidance and troubleshooting
Proactive Programs		Access to <a href="#">Infrastructure Event Management</a> for additional fee	<a href="#">Infrastructure Event Management</a> Well-Architected Reviews Operations Reviews Technical Account Manager (TAM) coordinates access to programs and other AWS experts as needed
Technical Account Management			Designated Technical Account Manager (TAM) to proactively monitor your environment and assist with optimization
Training			Access to online self-paced labs

**Question 111.** You have been tasked to implement a solution to receive an alert if the EC2 cost budget reaches the threshold of \$2,500.00. Which service will you use to track and inspect your budget?

- (A) AWS Budgets
- (B) AWS Pricing Calculator
- (C) Amazon Simple Workflow Service
- (D) AWS Support

**Explanation 111. AWS Budgets is the correct answer.**

AWS Budgets gives you the ability to set custom budgets that alert you when your costs or usage exceed (or are forecasted to exceed) your budgeted amount.

You can also use AWS Budgets to set reservation utilization or coverage targets and receive alerts when your utilization drops below the threshold you define. Reservation alerts are supported for Amazon EC2, Amazon RDS, Amazon Redshift, Amazon ElastiCache, and Amazon Elasticsearch reservations.

<a href="#">Services</a> ▾ <a href="#">Resource Groups</a> ▾ 	 examsdigest ▾   Global ▾ 
<b>AWS Budgets</b>	
<input style="width: 100%; border: 1px solid #ccc; border-radius: 4px; padding: 2px;" type="text" value="Filter by budget name"/>	 Download CSV  Create
<a href="#">All budgets (1)</a> <a href="#">Cost budgets (1)</a> <a href="#">Usage budgets (0)</a> <a href="#">Reservation budgets (0)</a> <a href="#">Savings Plans budgets (0)</a>	
<b>Budget name</b> ▾ <b>Type</b> ▾ <b>Current</b> <b>Budgeted</b> <b>Forecasted</b> <b>Current vs. budgeted</b> ▾	
<a href="#">EC2 Budget</a> Cost   \$0.00   \$2,500.00   -  0%	

**AWS Pricing Calculator is incorrect.** AWS Pricing Calculator is a web service that you can use to create cost estimates that match your AWS use case.

**Amazon Simple Workflow Service is incorrect.** Amazon Simple Workflow Service (Amazon SWF) makes it easy to build applications that coordinate work across distributed components. In Amazon SWF, a task represents a logical unit of work that is performed by a component of your application.

**AWS Support is incorrect.** AWS Support provides a mix of tools and technology, people, and programs designed to proactively help you optimize performance, lower costs, and innovate faster. It saves time for your team by helping you to move faster in the cloud and focus on your core business.

**Question 112.** Which of the following Amazon EC2 instances lets you take advantage of unused EC2 capacity in the AWS Cloud and provides up to a 90% discount compared to On-Demand prices.

- (A) Scheduled Instances
- (B) Reserved Instances
- (C) Dedicated Instances
- (D) Spot Instances**

**Explanation 112. Spot Instances is the correct answer.**

A Spot Instance is an unused EC2 instance that is available for less than the On-Demand price. Because Spot Instances enable you to request unused EC2 instances at steep discounts, you can lower your Amazon EC2 costs significantly.

**Amazon EC2 Spot Instances let you take advantage of unused EC2 capacity in the AWS cloud. Spot Instances are available at up to a 90% discount compared to On-Demand prices.**

**Scheduled Instances is incorrect.** Scheduled Reserved Instances (Scheduled Instances) enable you to purchase capacity reservations that recur on a daily, weekly, or monthly basis, with a specified start time and duration, for a one-year term.

You reserve the capacity in advance so that you know it is available when you need it. You pay for the time that the instances are scheduled, even if you do not use them.

**Reserved Instances is incorrect.** Reserved Instances provide you with significant savings on your Amazon EC2 costs compared to On-Demand Instance pricing. Reserved Instances are not physical instances, but rather a billing discount applied to the use of On-Demand Instances in your account.

These On-Demand Instances must match certain attributes, such as instance type and Region, in order to benefit from the billing discount.

**Dedicated Instances is incorrect.** Dedicated Instances are Amazon EC2 instances that run in a virtual private cloud (VPC) on hardware that's dedicated to a single customer.

Dedicated Instances that belong to different AWS accounts are physically isolated at a hardware level, even if those accounts are linked to a single-payer account.

**Question 113.** Which of the following options are AWS Cost & Usage Report features? (Choose all that apply.)

- (A) Track your Amazon EC2 Reserved Instance (RI) usage
- (B) Leverage strategic data integrations with AWS services
- (C) Access comprehensive AWS cost and usage information
- (D) Forecast future costs and usage
- (E) Add notifications to your budget

**Explanation 113. A, B, and C are the correct answers.**

The AWS Cost & Usage Report contains the most comprehensive set of AWS cost and usage data available, including additional metadata about AWS services, pricing, and reservations (e.g., Amazon EC2 Reserved Instances (RIs)).

The AWS Cost & Usage Report lists AWS usage for each service category used by an account and its IAM users in hourly or daily line items, as well as any tags that you have activated for cost allocation purposes.

You can also customize the AWS Cost & Usage Report to aggregate your usage data to the hourly, daily or monthly level.

## **AWS Cost & Usage Report Features**

### **Access comprehensive AWS cost and usage information**

The AWS Cost & Usage Report gives you the ability to delve deeply into your AWS cost and usage data, understand how you are using your AWS implementation, and identify opportunities for optimization.

### **Track your Amazon EC2 Reserved Instance (RI) usage**

Each line item of usage that receives an RI discount contains information about where the discount was allocated. This makes it easier to trace which instances are benefitting from specific reservations.

### **Leverage strategic data integrations with AWS services**

Using the Amazon Athena data integration feature, you can quickly query your cost and usage information using standard SQL queries. You can also upload your data directly into Amazon Redshift or Amazon QuickSight.

**Forecast future costs and usage is incorrect** as this is a feature from AWS Cost Explorer.

**Add notifications to your budget is incorrect** as this is a feature from AWS Budget.

**Question 114.** You are developing a new application that focuses on background processing related tasks. Which of the following instance purchasing option consider the most cost-effective solution for your application?

- (A) **Spot Instances**
- (B) On-Demand Instances
- (C) Reserved Instances
- (D) Dedicated Instances

**Explanation 114. Spot Instances is the correct answer.**

A Spot Instance is an unused EC2 instance that is available for less than the On-Demand price. Because Spot Instances enable you to request unused EC2 instances at steep discounts, you can lower your Amazon EC2 costs significantly. The hourly price for a Spot Instance is called a Spot price.

Spot Instances are a cost-effective choice if you can be flexible about when your applications run and if your applications can be interrupted. For example, Spot Instances are well-suited for data analysis, batch jobs, background processing, and optional tasks.

**On-Demand Instances is incorrect.** With On-Demand Instances, you pay for compute capacity by the second with no long-term commitments. You have full control over its lifecycle

—you decide when to launch, stop, hibernate, start, reboot, or terminate it.

There is no long-term commitment required when you purchase On-Demand Instances. You pay only for the seconds that your On-Demand Instances are in the running state.

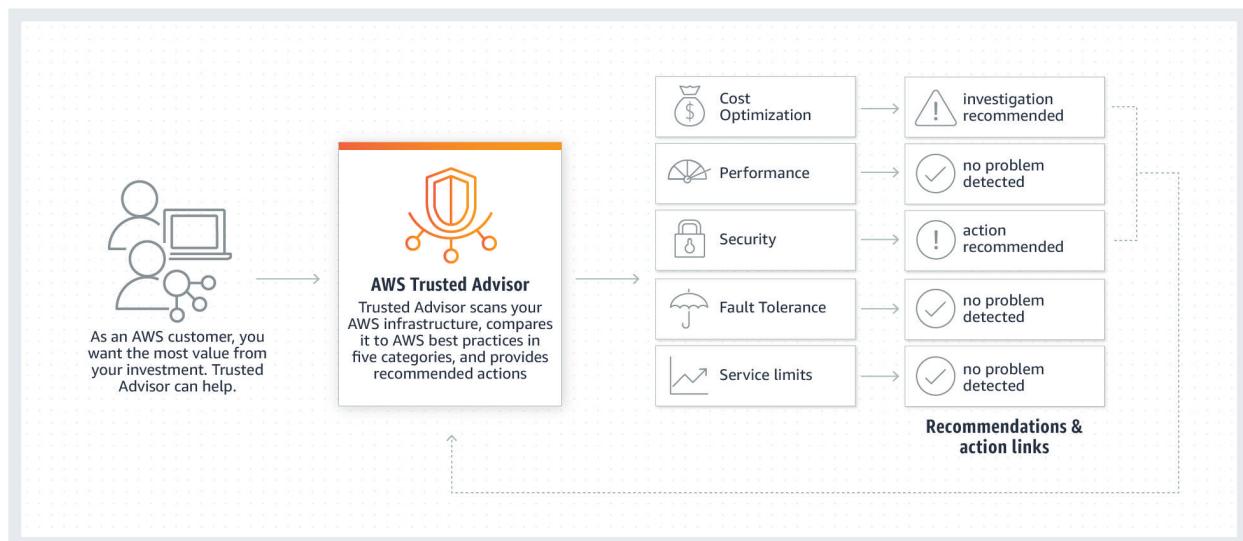
**Reserved Instances is incorrect.** Reserved Instances provide you with significant savings on your Amazon EC2 costs compared to On-Demand Instance pricing. Reserved Instances are not physical instances, but rather a billing discount applied to the use of On-Demand Instances in your account. These On-Demand Instances must match certain attributes, such as instance type and Region, in order to benefit from the billing discount.

**Dedicated Instances is incorrect.** Dedicated Instances are Amazon EC2 instances that run in a virtual private cloud (VPC) on hardware that's dedicated to a single customer. Dedicated Instances that belong to different AWS accounts are physically isolated at a hardware level, even if those accounts are linked to a single-payer account. However, Dedicated Instances may share hardware with other instances from the same AWS account that are not Dedicated Instances.

**Question 115.** Which AWS tool provides you real-time guidance to help you optimize your AWS infrastructure, increase security and performance and reduce your overall costs?

- (A) AWS Service Quotas
- (B) AWS Trusted Advisor**
- (C) AWS Health
- (D) AWS Control Tower

**Explanation 115. AWS Trusted Advisor is the correct answer.** AWS Trusted Advisor is an online tool that provides you real time guidance to help you provision your resources following AWS best practices. Trusted Advisor checks help optimize your AWS infrastructure, increase security and performance, reduce your overall costs, and monitor service limits. Whether establishing new workflows, developing applications, or as part of ongoing improvement, take advantage of the recommendations provided by Trusted Advisor on a regular basis to help keep your solutions provisioned optimally.



**AWS Service Quotas is incorrect.** AWS Service Quotas is a service for viewing and managing your quotas easily and at scale as your AWS workloads grow. Quotas, also referred to as limits, are the maximum number of resources that you can create in an AWS account.

**AWS Health is incorrect.** AWS Health provides personalized information about events that can affect your AWS infrastructure, guides you through scheduled changes, and accelerates the troubleshooting of issues that affect your AWS resources and accounts.

**AWS Control Tower is incorrect.** AWS Control Tower is a service that enables you to enforce and manage governance rules for security, operations, and compliance at scale across all your organizations and accounts in the AWS Cloud.

**THE END**

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