



# 16

# Mock Tests

The AWS Certified Cloud Practitioner exam is a 90-minute, multi-choice, and multi-answer-style exam. AWS charges USD 100 to enroll for the exam, which can be booked via their website at <https://www.aws.training/certification>. The exams are delivered at test centers located across several cities in many countries or can be taken online at home.

In this chapter, we will offer you two complete exam-style mock tests that you can use to gauge your readiness for the official AWS Certified Cloud Practitioner exam.

These tests comprise 65 questions each with full answer explanations available at the end of this chapter. To effectively use these tests, ensure you follow these steps:

- Set aside 90 minutes for each test, where you will not be disturbed. You can use your phone to set an alarm.
- Grab some paper and a pen and for each question, jot down the question's number and the Correct answer.
- Ensure that if you have time left over when you complete the test, you review your answers once more.
- At the end of the 90 minutes, review your answers and compare them with the answer explanation section at the end of this chapter.

You want to be able to answer all the questions correctly before you enter the exam room. You should use these tests to identify any questions that you did not answer correctly and then go back and review the chapter that covers the concepts examined in the question. This way, you will fill any gaps in your knowledge and be in a better position to get a high score on the official exam.

## Mock test 1

1. Which type of cloud service model is most like an on-premises environment, where you configure virtual infrastructure components such as compute, network, and storage services that you can host your applications on?
  - A. **Software as a Service (SaaS)**
  - B. **Platform as a Service (PaaS)**
  - C. **Infrastructure as a Service (IaaS)**
  - D. **Function as a Service (FaaS)**
2. Your company is looking to move all its applications and services to the cloud but would like to migrate workloads in stages. This would require you to ensure that there is connectivity between the on-premises infrastructure and the applications you deploy on AWS for a while. What cloud deployment model would you need to establish?
  - A. Private cloud
  - B. Public cloud
  - C. Hybrid cloud
  - D. Multi-cloud
3. Which of the following statements are valid reasons for choosing a specific AWS Region to deploy your applications in? (Choose two)
  - A. Your organization would choose a specific AWS Region that enables you to ensure that your applications are closer to your end users, thereby reducing any latency.
  - B. If your organization has specific compliance or data residency laws to follow, then your choice of an AWS Region will be dictated by this requirement.
  - C. Your organization would choose a Region closer to its location since your IT staff will need to visit the AWS data centers to set up servers and networking equipment.

- D. Your organization would choose a Region-based location where your business has an established legal presence. This is because you cannot access other Regions unless you have a legal establishment in that Region.
  - E. Your organization would select an AWS Region that offered higher variable costs but lower upfront costs.
4. Which component of the AWS Global Infrastructure enables you to cache content (videos, images, and documents) and offer low-latency access when your users try to download them?
- A. AWS Regions
  - B. Availability Zones
  - C. Edge locations
  - D. Local Zones
5. Which of the following AWS services can help you design a hybrid cloud architecture and enable your on-premises applications to get access to Amazon S3 cloud storage?
- A. Amazon Snowball Edge
  - B. AWS Storage Gateway
  - C. Amazon Elastic Block Store
  - D. Amazon CloudFront
6. You are planning on using AWS services to host an application that is still under development, and you need to decide which AWS support plan you should subscribe to. You do not need production-level support currently and are happy with a 12-hour response time for any system-impaired issues. Which is the most cost-effective support plan you should subscribe to?
- A. Basic Support plan
  - B. Developer Support plan
  - C. Business Support plan
  - D. Enterprise Support plan

7. Which of the following are regarded as global services on AWS? (Choose two)
- A. AWS IAM
  - B. Amazon Route53
  - C. Amazon EC2
  - D. Amazon EFS
  - E. Amazon RDS
8. Which of the following statements closely relates to the advantage of cloud computing that discusses the ability to *go global in minutes*?
- A. The ability to trade capital expenses for variable expenses and thus avoid huge CAPEX.
  - B. The ability to provision resources just in time for when you need them using tools such as Auto Scaling.
  - C. The ability to deploy your applications across multiple Regions with just a few mouse clicks.
  - D. The ability to focus on experimentation and the development of your applications rather than infrastructure builds, management, and maintenance.
9. Which AWS service can you configure to send out an alert to an email address if your total expenditure crosses a predefined monthly cost?
- A. Set up a billing alarm in Amazon CloudWatch
  - B. Set up a billing alarm in Amazon CloudTrail
  - C. Set up a billing alarm in Amazon Config
  - D. Set up a billing alarm in Amazon Trusted Advisor
10. Which of the following resource types is tied to the Availability Zone that it was launched in?
- A. **Elastic Block Store (EBS)**
  - B. **Elastic File Store (EFS)**
  - C. Amazon Route53 Hosted Zones
  - D. Amazon DynamoDB

11. As part of enhancing the security of your AWS account, you need to ensure that all IAM users use complex passwords comprising of at least one capital letter, a number, a symbol, and a minimum of 9 characters. Which AWS IAM feature can you use to configure these requirements?
  - A. Password policies
  - B. Permission boundaries
  - C. Service Control Policies (SCPs)
  - D. Resource policies
12. As a recommended best practice, what additional authentication security measure can you implement for your root user and IAM users?
  - A. Implement MFA.
  - B. Implement LastPass.
  - C. Implement AWS WAF.
  - D. Implement AWS Shield.
13. What is the easiest way to assign permissions to many IAM users who share a common job function?
  - A. Create a customer-managed IAM policy and attach the same policies to all IAM users who share a common job function.
  - B. Create an IAM Group, add IAM users who share the common job function to that group, and apply an IAM policy to the group with the necessary permissions.
  - C. Create an SCP to restrict users who share a common job function for specific permissions.
  - D. Create an IAM role with the necessary permissions and assign the role to all IAM users who share the common job function.

14. You have outsourced the development of your application to a third-party provider. This provider will require temporary access to your AWS account to set up the necessary infrastructure and deploy the application. What type of identity should you configure for the provider to use to gain access?
- A. IAM User
  - B. IAM Group
  - C. IAM role
  - D. Root user
15. Which tool on AWS can be used to estimate your monthly costs?
- A. AWS Pricing Calculator
  - B. AWS TCO Calculator
  - C. AWS Free Tier Calculator
  - D. AWS Monthly Calculator
16. You need to differentiate the cost of running different workloads in your AWS account by business unit and department. How you can identify your resources, as well as their owners, in the billing reports generated by AWS?
- A. Designate specific tags as cost allocation tags in the AWS Billing and Cost Management Console.
  - B. Set up an SNS alert for each department.
  - C. Create a billing alarm.
  - D. Configure consolidated billing in AWS Organizations.
17. Which AWS tool enables you to view your **Reserved Instance (RI)** utilization?
- A. AWS Cost Explorer
  - B. AWS Config
  - C. AWS CloudTrail
  - D. AWS Personal Health Dashboard

18. Which set of credentials do you need to configure for IAM users who need to access your AWS account via the **command-line interface (CLI)**?
- A. IAM username and password
  - B. IAM access key ID and secret access key
  - C. IAM MFA
  - D. IAM key pairs
19. An application is to be deployed on EC2 instances that will need to access an Amazon S3 bucket to upload any artifacts that are created. Which security option is considered a best practice to grant the application running on the EC2 instances the necessary permissions to upload files to the Amazon S3 bucket?
- A. Create an IAM user account with a set of access keys and assign the required level of permissions using an IAM policy. Hardcode the application with the access keys.
  - B. Create an IAM user account with a username and password and assign the required level of permissions using an IAM policy. Hardcode the application with the username and password.
  - C. Create an IAM role with the required level of permissions using an IAM policy. Attach the role to the application running on the EC2 instance.
  - D. Create an IAM role with the required level of permissions using an IAM policy. Attach the role to the EC2 instances that will host the application.
20. Which AWS service enables you to troubleshoot IAM policies by identifying which set of permissions are allowed and which are denied?
- A. AWS Policy Simulator
  - B. AWS Policy Manager
  - C. AWS CloudTrail
  - D. AWS SCPs



21. As part of your regular compliance processes, you are required to regularly audit the list of your IAM users and review information such as if they have been configured with passwords and access keys, as well as if MFA has been enabled on those accounts. Which AWS IAM service enables you to produce regular reports containing the preceding information?
- A. IAM Credentials Report
  - B. IAM MFA Report
  - C. AWS CloudWatch
  - D. AWS Config
22. Which type of AWS policy enables you to define boundaries against what an IAM user or IAM role can be permitted to do in your AWS account?
- A. IAM policies
  - B. Resource-based policies
  - C. **SCPs**
  - D. Permission boundaries
23. Which type of AWS policy enables you to control the maximum set of permissions that can be defined for AWS member accounts of an organization?
- A. IAM policies
  - B. Resource-based policies
  - C. **SCPs**
  - D. Permission boundaries
24. Which of the following Amazon S3 storage classes can help you reduce the cost of storage for objects that are infrequently accessed, and yet still give you instant access when you need it?
- A. Amazon S3 Standard-IA
  - B. Amazon S3 Glacier
  - C. Amazon S3 Glacier Deep Archive
  - D. Amazon S3 Standard

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25. You are hosting an Amazon S3 bucket that contains important documents, and you want to enhance security whereby IAM users who try to access the objects can only do so from within the corporate office network. How would you configure your S3 bucket to fulfill this requirement?
- A. Create a resource policy granting the necessary level of access with a condition statement that defines and specifies the corporate office IP block.
  - B. Create a resource policy granting the necessary level of access with a condition statement that specifies your corporate IAM users' accounts.
  - C. Create an SCP granting access with a condition statement that specifies the corporate office IP block.
  - D. Create an Amazon S3 **Access Control List (ACL)** with a condition statement that specifies your corporate IAM users' accounts.
26. Which type of Amazon S3 Storage class is cost-effective where you are unsure of your access patterns for the data contained within the S3 bucket?
- A. Amazon S3 Standard storage class
  - B. Amazon S3 Standard-IA storage class
  - C. Amazon S3 One-Zone IA
  - D. Amazon S3 Intelligent Tiering
27. Your junior colleague accidentally deleted some financial data that was stored in an Amazon S3 bucket. How can you prevent such accidental deletions of data in Amazon S3?
- A. Do not give junior administrators access to Amazon S3.
  - B. Set up Amazon S3 Versioning on your S3 bucket.
  - C. Set up Amazon S3 Lifecycle Management.
  - D. Set up Amazon S3 Termination Protection.
28. Which feature of Amazon S3 enables you to create a secondary copy of your objects in a given S3 bucket that will be stored in a different Region for compliance purposes?
- A. Amazon S3 **Cross-Region Replication (CRR)**
  - B. Amazon S3 Same Region Replication
  - C. Amazon S3 Versioning
  - D. Amazon S3 Multi-Copy

29. Company policy dictates that objects stored in Amazon S3 must be encrypted at rest. It is also mandated that your choice of encryption should offer an auditing feature that shows when your **Customer Master Key (CMK)** was used and by whom. Which type of Amazon S3 encryption option will you need to configure to fulfill the requirements?
- A. **Server-Side Encryption with Amazon S3-Managed Keys (SSE-S3)**
  - B. Client-Side Encryption
  - C. **Server-Side Encryption with KMS keys stored in AWS Key Management Service (SSE-KMS) Bitlocker**
30. You need to retrieve a small subset of some archive data urgently to resolve a pending investigation. The data is stored in the Amazon S3 Glacier storage class. Which retrieval option can use to access the data urgently?
- A. Standard retrieval option
  - B. Expedited retrieval option
  - C. Bulk retrieval option
  - D. Power retrieval option
31. You have a team of remote workers who need to upload research documents and videos to your Amazon S3 bucket hosted in the us-east-1 Region. You would like to ensure that your remote staff can upload research material with low latency access. What can you do to reduce speed variability for uploads, which are often experienced due to the architecture of the public internet?
- A. Enable Amazon **S3 Transfer Acceleration (S3TA)** for your bucket.
  - B. Configure an IPSec site-to-site VPN connection between your remote workers and the VPC in the us-east-1 Region.
  - C. Use the Amazon Storage Gateway service.
  - D. Set up Amazon Express Route.

32. You need to transfer large amounts of data from your on-premises network to the Amazon S3 platform. The total data capacity is around 400 TB. You have decided to opt for the Amazon Snowball Edge service to complete the transfer. No data compute or processing is required. Which *flavor* of the Amazon Snowball Edge service would you recommend?
- A. Snowball Edge Compute Optimized
  - B. Snowball Edge Storage Optimized
  - C. Snowball Edge Data Optimized
  - D. Snowball Edge Function Optimized
33. You host several Microsoft Windows applications on-premises that need low latency access to large amounts of storage. You would like to use the Amazon Storage Gateway service to host all application-level data. Which gateway option would you recommend?
- A. Amazon S3 File Gateway
  - B. Amazon FSx File Gateway
  - C. Volume Gateway Cached Mode
  - D. Tape Gateway
34. Following best practices, you have deployed your application servers within the private subnets of a VPC. However, these servers require internet access to download updates and security patches. Which type of resource can enable you to grant internet access to EC2 instances in private subnets without having to assign public IP addresses to those instances?
- A. Internet gateway
  - B. NAT gateway
  - C. Subnet
  - D. Route table

35. Which of the following statements is true about security groups?
- A. Security groups are stateful and you need to configure both inbound and the corresponding outbound rules for traffic to flow bidirectionally.
  - B. Security groups are stateless and you do not need to configure both inbound and the corresponding outbound rules for traffic to flow bidirectionally.
  - C. Security groups can be used to explicitly deny inbound traffic from a specific IP address range.
  - D. Security groups are used to limit what actions IAM users that are members of the group can perform.
36. Which feature of the AWS VPC service enables you to connect multiple VPCs so that traffic between those VPCs can be sent using private IP address space?
- A. VPC peering
  - B. VPC Flow Logs
  - C. Subnets
  - D. VPC endpoints
37. Which service enables you to reduce the complexity associated with establishing multiple VPC peering connections?
- A. AWS Transit Gateway
  - B. AWS VPC Manager
  - C. AWS Direct Connect
  - D. IPSec VPN Tunnel
38. Which AWS service enables you to connect your on-premises network to your AWS account using a dedicated private connection that bypasses the internet altogether?
- A. IPSec VPN
  - B. Express Route
  - C. Direct Connect
  - D. Snowball

39. Which AWS feature can help you establish connectivity between your on-premises network and your AWS VPC using an IPsec tunnel?
- A. Direct Connect
  - B. **Virtual Private Network (VPN)**
  - C. AWS Outposts
  - D. Amazon SNS
40. You are about to publish your web application using an **Application Load Balancer (ALB)** and would like to use a friendly domain name to advertise the site to your users rather than the ALB's DNS name. Which AWS service can you use to configure the alias's name so that when users type in the friendly domain name into the browser, they are directed to the ALB's DNS URL?
- A. Amazon Route53
  - B. Amazon CloudFront
  - C. Amazon S3
  - D. Amazon Direct Connect
41. Which AWS service enables you to purchase and register new domain names that can be used to publish your website on the internet?
- A. Route53
  - B. VPC
  - C. RDS
  - D. Elastic Beanstalk
42. You have developed a web application that you want to offer redundancy and resilience for. Which feature of the Amazon Route53 service can help you design your web application with a primary site where all users' traffic is directed to, by default, and if the primary site is offline, then users are redirected to a secondary site located in a different Region.
- A. Simple routing policy
  - B. Weighted routing policy
  - C. Failover routing policy
  - D. Geolocation routing policy

43. You plan to host a new Amazon S3 static website through which you will offer free recipe guides. The site is going to be accessed by users across the globe. The site contains lots of videos and images about the recipes you offer. Which AWS service can help you cache your digital assets locally to where users are located and thus reduce latency when your users access content on your website?
- A. Amazon Route53
  - B. Amazon VPC
  - C. Amazon CloudFront
  - D. Amazon Cloud9
44. You have created an EC2 AMI that contains the base operating system and all necessary corporate settings/configurations. Your colleagues in another Region are trying to launch new EC2 instances but they are unable to access your AMI. What do you need to do so that your colleagues can use the new image?
- A. Copy the AMI to other Regions.
  - B. Set up a VPC endpoint between the Regions to allow your colleagues to download the AMI.
  - C. Copy the AMI to an S3 bucket.
  - D. Use the Amazon Snowball service to send a copy of the AMI to your colleagues.
45. Which EC2 instance type is designed for floating-point number calculations, graphics processing, or data pattern matching?
- A. General Purpose
  - B. Memory-Optimized
  - C. Compute Optimized
  - D. Accelerated Computing
46. You need to deploy a certain third-party application on an EC2 instance where the licensing term is based on a per-CPU core/socket basis. Which EC2 pricing option do you need to use for this requirement?
- A. On-Demand
  - B. Reserved Instance
  - C. Spot Instance
  - D. Dedicated Host

47. You are currently running a test phase for a new application that is being developed in-house. Your UAT testers will need to access test servers for 3 hours a day, three times a week. The test phase is supposed to last 5 weeks. You cannot afford any interruptions to the application while the tests are being run. Which EC2 pricing option will be the most cost-effective?
- A. On-Demand
  - B. Reserved
  - C. Spot
  - D. Dedicated Host
48. Which EBS volume type is designed for critical, I/O-intensive databases and application workloads?
- A. gp2
  - B. st1
  - C. sc1
  - D. io1
49. Which of the following payment options will help you achieve the maximum discount for your RIs?
- A. A 1-year commitment with payment made using the **Partial Upfront** option.
  - B. A 1-year commitment with payment made using the **All Upfront** option.
  - C. A 1-year commitment with payment made using the **No Upfront** option.
  - D. A 3-year commitment with payment made using the **All Upfront** option.
50. Which AWS service enables you to quickly deploy a **Virtual Private Server (VPS)** that comes preconfigured with common application stacks, SSD storage, and fixed IP addresses for a fixed monthly fee based on the configuration of the server?
- A. Amazon EC2
  - B. Amazon Lightsail
  - C. Amazon ECS
  - D. Amazon ECR



51. You are planning on deploying a Docker application on AWS. You wish to deploy your Docker image without having to manage EC2 instances such as provisioning and scaling clusters, or patching and updating virtual servers yourself. Which service enables you to fulfill this requirement?
- A. Amazon ECS deployed using the EC2 Launch Type
  - B. Amazon ECS deployed using the Fargate Launch Type
  - C. Amazon ECS deployed using ECR
  - D. Amazon ECS deployed with Lambda functions to manage your servers
52. Which of the following services is part of the AWS serverless offering that allows you to run code in response to a trigger or event?
- A. Amazon ECS
  - B. AWS Lambda
  - C. Amazon EC2
  - D. AWS CloudFront
53. Which AWS storage option is designed to offer file sharing capabilities for Windows-aware applications and offers options for integration with Microsoft Active Directory?
- A. AWS FSx for Lustre
  - B. Amazon FSx for Windows File Server
  - C. AWS Elastic File System
  - D. AWS instance store volumes
54. You are planning on deploying 10 EC2 instances across two Availability Zones that will host the new line of business applications. All the servers will need to share common files and will run the Amazon Linux 2 operating system. Which storage architecture would you recommend to host the shared files for your application servers?
- A. Amazon **Elastic File System (EFS)**
  - B. Amazon FSx Lustre
  - C. Amazon S3
  - D. Amazon EBS

55. You have just launched a Windows EC2 instance. How can you obtain the Windows local administrator password?
- A. Raise a support request with Amazon to obtain the password.
  - B. The password is sent to you automatically via email.
  - C. The password is sent to you via an SMS text message to your registered mobile.
  - D. Use the key pair to decrypt the password.
56. Which AWS service enables you to configure a hybrid solution by extending AWS Infrastructure so that EC2 and EBS services can be hosted in your on-premise data center?
- A. AWS RDS
  - B. AWS Direct Connect
  - C. AWS Outposts
  - D. AWS Route53
57. Your company provides spread betting services. You wish to run an end of day analysis against the day's transaction costs and carry out the necessary market analysis. Which AWS service dynamically provisions the necessary compute services that will scale based on the volume and resource requirements of your submitted jobs?
- A. AWS Batch
  - B. AWS CloudFront
  - C. AWS Lambda
  - D. AWS Blockchain
58. Which AWS service can help you deploy, manage, and scale containerized applications using Kubernetes on AWS?
- A. Amazon ECS
  - B. Amazon EKS
  - C. Amazon MFA
  - D. Amazon EC2

59. Which of the following statements is an example of an advantage of using Amazon RDS over databases installed on EC2 instances?
- A. Amazon RDS is a fully managed database where AWS manages the underlying compute and storage architecture, as well as patching and updates.
  - B. Amazon RDS grants you access to the operating system, allowing you to fine-tune the database for the operating system it is running.
  - C. Amazon RDS is faster than running the Microsoft SQL Server database on EC2 instances.
  - D. Amazon RDS automatically enables encryption of the data in Amazon RDS.
60. Which feature of Amazon RDS enables you to create a standby copy of the database and offer failover capabilities if the master copy fails?
- A. Read Replicas
  - B. Multi-AZ
  - C. Failover policy
  - D. Snapshots
61. Your company is planning to migrate its on-premises MySQL database to Amazon RDS. Which service will enable you to perform the migration?
- A. Amazon **Server Migration Service (SMS)**
  - B. Amazon **Database Migration Service (DMS)**
  - C. Amazon VM Import Export
  - D. Amazon Redshift Migration Utility
62. Which feature of AWS Redshift allows you to perform SQL queries against data stored directly on Amazon S3 buckets?
- A. Redshift leader node
  - B. Redshift Spectrum
  - C. Redshift Copy
  - D. Redshift Streams

63. Which Amazon RDS engine offers high resilience with copies of the database placed across a minimum of three Availability Zones?
- A. MySQL
  - B. PostgreSQL
  - C. Microsoft SQL Server
  - D. Amazon Aurora
64. Which AWS-managed database service enables you to store data using complex structures with options for nested attributes, such as a JSON-style document?
- A. Amazon RDS
  - B. Amazon Redshift
  - C. Amazon DynamoDB
  - D. Amazon Aurora
65. Which AWS database service is designed to store sensitive data that is immutable and where the transactional logs are cryptographically verifiable?
- A. AWS QLDB
  - B. Amazon Neptune
  - C. Amazon Aurora
  - D. Amazon RDS

## Mock test 2

1. You are currently performing a manual snapshot of your single instance MySQL Amazon RDS database every 4 hours. Some users have complained that the application that connects to the database experiences a brief outage when the backup process initializes. What can you do to resolve this issue?
- A. Configure your Amazon RDS database with Read Replicas.
  - B. Configure your Amazon RDS database with Multi-AZ.
  - C. Configure an AWS backup to perform the RDS database backups.
  - D. Use the DMS service to migrate the MySQL database to Microsoft SQL Server.

2. Your organization is in a healthcare industry based in New York. You are planning on using an in-memory caching engine to alleviate the load on your Amazon RDS database for frequently used queries. Which AWS in-memory caching engine offers Multi-AZ capabilities, encryption of data, and compliance with the **Health Insurance Portability and Accountability Act (HIPAA)**?
  - A. Amazon ElastiCache for Redis
  - B. Amazon ElastiCache for Memcached
  - C. Amazon CloudFront
  - D. Amazon DynamoDB DAX
3. Which AWS service offers a fully managed data warehousing capability and enables you to analyze large datasets using standard SQL and **Business Intelligence (BI)** tools?
  - A. Amazon RDS
  - B. Amazon QLDB
  - C. Amazon Redshift
  - D. Amazon Aurora
4. Which of the following services further increase your EC2 instances' costs? (Choose two)
  - A. Detailed monitoring
  - B. Use of Elastic Load Balancers
  - C. S3 buckets that you connect to
  - D. DynamoDB tables that you query
  - E. Setting up multiple key pairs
5. Your developer team needs to deploy an Elastic Load Balancer that will direct traffic to your web servers based on the URL path and over the HTTPS protocol. Which Elastic Load Balancer would you recommend?
  - A. Network Load Balancer
  - B. ALB
  - C. Gateway Load Balancer
  - D. Classic Load Balancer

6. Which feature of the Elastic Load Balancer service is suitable for **Transmission Control Protocol (TCP)**, **User Datagram Protocol (UDP)**, and **Transport Layer Security (TLS)** type traffic and operates at layer 4 of the **Open Systems Interconnection (OSI)** model?
- A. Network Load Balancer
  - B. ALB
  - C. Gateway Load Balancer
  - D. Classic Load Balancer
7. Which of the following statements is true about Elastic Load Balancers?
- A. Elastic Load Balancers act as firewalls to protect the application running on your EC2 instances.
  - B. Elastic Load Balancers enable you to achieve high availability across multiple Regions by distributing incoming web traffic to targets located in multiple Regions.
  - C. Elastic Load Balancers enable you to achieve high availability within a single Region by distributing incoming web traffic to targets located in multiple Availability Zones.
  - D. Elastic Load Balancers enable you to scale horizontally by provisioning or terminating EC2 instances based on the demand of your resources.
8. Which component of an Elastic Load Balancer do you need to configure to ensure you accept traffic on a designated port and forward that traffic on a specific port to your EC2 instances behind the load balancer?
- A. Port forwarder
  - B. NAT Gateway
  - C. Listener
  - D. Echo

9. You are building a multi-tier architecture with web servers placed in the public subnet and application servers placed in the private subnet of your VPC. Which type of load balancer would you choose to distribute traffic to your application servers?
  - A. Internet-facing
  - B. Internal load balancers
  - C. Dynamic load balancers
  - D. Static load balancers
10. Which configuration feature of the AWS Auto Scaling service enables you to define a maximum number of EC2 instances that can be launched in your fleet?
  - A. Auto Scaling group
  - B. Auto Scaling Launch Configuration
  - C. Auto Scaling MaxFleet Size
  - D. Auto Scaling policy
11. Which AWS service can help you provision only the necessary number of EC2 instances required to meet application demand, thus saving on costs usually associated with overprovisioning resources?
  - A. Elastic Load Balancer
  - B. Auto Scaling
  - C. Cost Explorer
  - D. EC2 Launcher
12. You have recently launched a new *free coupon* web application across a fleet of EC2 instances configured in an Auto Scaling group. Traffic has increased dramatically before the Black Friday sale and you have noticed that your Auto Scaling service is not launching any more EC2 instances, even though the threshold metrics have been crossed in CloudWatch. Your colleague tells you that you may have crossed a quota or limit on the number of EC2 instances you can launch. Which AWS service can offer you a quick look to determine this is the case?
  - A. Personal Health Dashboard
  - B. AWS Systems Manager
  - C. AWS Config
  - D. AWS Trusted Advisor

13. Which firewall protection service does the ALB offer to help protect against common web exploits such as cross-site scripting and SQL injection?
- A. AWS WAF
  - B. AWS Shield
  - C. Amazon Guard Duty
  - D. **Network Access Control Lists (NACLs)**
14. Which dynamic scaling policy offered by the Amazon Auto Scaling service can help you launch or terminate EC2 instances in the fleet based on the target value of a specific metric?
- A. Target tracking scaling policy
  - B. Step scaling policy
  - C. Simple scaling policy
  - D. Predictable scaling policy
15. You plan to use Amazon CloudWatch to send out alerts whenever the CPU utilization on your production EC2 instances is more than 80% for 15 minutes. Which AWS service can you use to send out this alert notification?
- A. Amazon SES
  - B. Amazon SNS
  - C. Amazon SQS
  - D. Amazon MQ
16. Which feature of the Amazon SNS service enables you to push notification messages to multiple endpoints in parallel?
- A. You can use the SNS Fanout scenario to help you push notifications to multiple endpoints.
  - B. You can use SNS FIFO topics to help you push notifications to multiple endpoints.
  - C. You can change the timeout period to ensure that notifications are sent to multiple endpoints.
  - D. To send out notifications to multiple endpoints, you will need to configure Amazon SQS to integrate with Amazon SNS.



17. Which AWS service enables you to design your application architecture by decoupling its components into distributed systems and facilitating the design and architecture of microservices?
  - A. Amazon SNS
  - B. Amazon Simple Queue Service (SQS)
  - C. Amazon MQ
  - D. Amazon Redshift
18. You plan to use Amazon SQS to help decouple your application components. Which queue type will help you ensure that the message order from one component to another is preserved?
  - A. Configure Amazon SQS with a standard queue.
  - B. Configure Amazon SQS with a FIFO queue.
  - C. Configure Amazon SQS with a LIFO queue.
  - D. Configure Amazon SQS with a DLQ.
19. You are planning on migrating an application to the cloud. Which message brokering service will enable you to continue to use Apache ActiveMQ and facilitate communications between application components?
  - A. Amazon SQS
  - B. Amazon MQ
  - C. Amazon SNS
  - D. Amazon SES
20. Which AWS service can help you trigger a Lambda function based on an event such as an object being deleted from an Amazon S3 bucket?
  - A. AWS ECS
  - B. AWS Batch
  - C. AWS EventBridge
  - D. Amazon CloudTrail

21. Your application architecture for an insurance claim solution has a workflow process that can take up to 30 days to complete and requires human intervention in the form of manual approval processes to follow. Which AWS service would you recommend for architecting the workflow process?
- A. Amazon SQS
  - B. Amazon Step Functions
  - C. AWS CloudFormation
  - D. AWS Lambda
22. You plan to configure a Lambda function that will be used to automatically start and stop EC2 instances at the start and close of the business day, respectively. How can you automate the start and stop of EC2 instances according to a specified schedule?
- A. Configure Amazon SNS to send out an alert trigger to the Lambda function.
  - B. Configure Amazon CloudTrail to trigger the Lambda function at the designated schedule.
  - C. Configure Amazon CloudWatch Events with a rule to trigger the Lambda function at the designated schedule.
  - D. Configure the Amazon Scheduler service.
23. You need to run certain SQL queries to analyze data from a streaming source and conduct analysis. Which of the following services can you use to analyze stream data in real time?
- A. Amazon SQS
  - B. Amazon Kinesis Data Streams
  - C. Amazon Kinesis Analytics
  - D. Amazon Athena
24. You are required to run ad hoc test queries against weekly reports that are stored in Amazon S3. Which AWS service can you use to query raw data in Amazon S3 using standard SQL?
- A. Amazon Athena
  - B. Amazon Kinesis
  - C. Amazon RDS
  - D. Amazon Redshift

25. Which AWS service can be used to load a massive amount of streaming data into your Redshift data warehousing solution in near real time?
- A. Amazon Kinesis Data Streams
  - B. Amazon Kinesis Firehose
  - C. Amazon Kinesis Video Streams
  - D. Amazon Athena
26. Which AWS service can be used to create and publish interactive BI dashboards that can be embedded into your applications, websites, and portals using Amazon-provided APIs and SDKs?
- A. Amazon Athena
  - B. Amazon QuickSight
  - C. Amazon Config
  - D. Amazon Glue
27. Which AWS service offers a serverless **Extract, Transform, and Load (ETL)** solution that's used to discover and extract data from various sources and perform any cleaning or normalization on data warehouses and data lakes, before loading them into databases?
- A. AWS QuickSight
  - B. Amazon Athena
  - C. Amazon Glue
  - D. Amazon CloudTrail
28. As part of your migration to the cloud, you need to re-host an application that uses Apache Spark to process vast amounts of data for a big data project. Which service on AWS can you use to help with data transformation and perform ETL jobs such as sort, aggregate, and join on large datasets?
- A. AWS QuickSight
  - B. Amazon EFS
  - C. Amazon EMR
  - D. Amazon S3

29. You need to regularly build test environments for new applications currently under development. Which AWS service can you use to automate the infrastructure build of your test environment and thus reduce the time taken to provision the infrastructure required?
- A. Amazon Elastic Beanstalk
  - B. Amazon CloudFormation
  - C. AWS OpsWorks
  - D. AWS Systems Manager
30. Which service can be used to orchestrate and configure environments to deploy applications using the Chef and Puppet enterprise tools?
- A. Amazon CloudFormation
  - B. AWS OpsWorks
  - C. Amazon Elastic Beanstalk
  - D. Amazon Cloud9
31. Which service enables developers to upload code to AWS and have the necessary infrastructure provisioned and managed to support that application?
- A. Amazon Elastic Beanstalk
  - B. Amazon CloudFormation
  - C. Amazon Cloud9
  - D. AWS OpsWorks
32. Which of the following environment tiers within the Elastic Beanstalk architecture is designed to support backend operations?
- A. Web services tier
  - B. Worker tier
  - C. Backend tier
  - D. Database tier

33. Which of the following formats are CloudFormation templates written in? (Choose two)
- A. YAML
  - B. XML
  - C. CSV
  - D. JSON
  - E. JAVA
34. Which of the following is an example of a custom CloudWatch metric?
- A. CPU utilization
  - B. Disk read in
  - C. Network bytes in
  - D. Memory
35. Which feature of CloudWatch can help send you notification alerts via Amazon SNS whenever a particular threshold is breached for a specified period?
- A. Dashboards
  - B. Alarms
  - C. Logs
  - D. Events
36. You plan to use CloudWatch Logs to monitor network traffic that enters the AWS environment that's been specifically destined for an EC2 instance. You would like to record all inbound network traffic on port 80 that was accepted. What service can you configure to help you achieve this requirement?
- A. ALB access logs
  - B. VPC Flow Logs
  - C. CloudTrail Logs
  - D. Config logs

37. Which AWS service enables you to track user activity and API usage in your AWS account for auditing purposes?
- A. AWS Config
  - B. AWS CloudWatch
  - C. AWS CloudTrail
  - D. AWS Trusted Advisor
38. Which AWS service can be used to see how resources are interrelated to each other, how they were configured in the past, and view historical changes to those resources over time?
- A. AWS Trusted Advisor
  - B. AWS Systems Manager
  - C. AWS Config
  - D. AWS IAM
39. Which feature of the AWS System Manager service enables you to roll out security patches across EC2 instances and on-premises servers?
- A. Patch Manager
  - B. Microsoft WSUS
  - C. AWS Config
  - D. SCCM

40. You are planning on deploying a three-tier application architecture that is comprised of a database backend. Your application has been hardcoded with the database connection strings and secrets such as username and password. The company's security policy dictates that this approach is unacceptable and they would like you to manage the secrets information more securely. What would you recommend?
- A. Store the configuration information in the SSM Parameter Store and reference the parameter name from your code to dynamically retrieve the connection information.
  - B. Store the configuration information in Amazon Redshift and reference the connection details from your code to dynamically retrieve the connection information.
  - C. Store the configuration information in Amazon S3 and reference the connection details from your code dynamically.
  - D. Store the configuration information on an EBS volume and reference the connection details from your code dynamically.
41. Which AWS service can be used to manage and resolve incidents that affect their AWS-hosted applications?
- A. AWS Systems Manager Incident Manager
  - B. AWS Systems Manager Event Manager
  - C. Amazon EventBridge
  - D. AWS **Personal Health Dashboard (PHD)**
42. Which AWS service can be used to identify resources that have not been configured by following security best practices?
- A. AWS CloudWatch
  - B. AWS Trusted Advisor
  - C. AWS IAM
  - D. AWS CloudTrail

43. You are trying to review the AWS Trusted Advisor service to analyze potential cost savings opportunities for various workloads you have deployed on AWS. However, you have noticed that the Cost Optimization category is grayed out and there are no reports on current configuration states. What could be preventing you from viewing the Cost Optimization report?
- A. You do not have enough permissions to access the Cost Optimization category on AWS Trusted Advisor.
  - B. You have not subscribed to either the business or enterprise support plans.
  - C. You have logged in with an IAM account and only the root user can access pricing and cost information.
  - D. The AWS account does not have an active debit/credit card associated with it.
44. Which Well-Architected Framework pillar suggests that replacing failed resources is often better than trying to figure out why the failure occurred? Identifying the reason for failure can be done later, but focusing on replacing the failed resource will help you get up and running quickly.
- A. Cost Optimization
  - B. Fault Tolerance
  - C. Reliability
  - D. Performance
45. Which of the following services can help fulfill the guidelines provided in the performance pillar concerning ensuring low latency access to video content hosted in a single S3 bucket globally?
- A. Use AWS CloudFront to cache the video content closer to end users.
  - B. Use AWS DynamoDB DAX to cache the video content closer to end users.
  - C. Use Amazon ElastiCache to cache the video content closer to end users.
  - D. Use Amazon Kinesis to cache the video content closer to end users.



46. Which pillar of the Well-Architected Framework refers to selecting the appropriate pricing options that allow you to adopt a consumption model for provisioning various resources?
- A. Performance pillar
  - B. Reliability pillar
  - C. Fault Tolerance pillar
  - D. Cost Optimization pillar
47. Regarding the AWS Shared Responsibility Model, who is responsible for patching Amazon RDS database instances?
- A. AWS
  - B. Customer
  - C. Database engine vendor
  - D. Both the customer and AWS
48. Which AWS service gives customers access to various compliance reports that confirm if the services offered by AWS meet specific requirements and regulatory requirements?
- A. AWS CloudTrail
  - B. AWS **Acceptable Usage Policy (AUP)**
  - C. AWS Artifacts
  - D. AWS Compliance Programs
49. AWS allows customers to run vulnerability scans and perform penetration testing. However, certain types of testing are not permitted. Which of the following actions is the customer prohibited from performing?
- A. Brute-force attacks by trying to guess your Amazon RDS database passwords.
  - B. Running malware detection programs on your EC2 instances.
  - C. Attempting to perform cross-site scripting or SQL injection tests via your ALB.
  - D. Performing simulated **Distributed Denial of Service (DDoS)** attacks.

50. Which AWS service enables you to encrypt data stored in your Amazon S3 buckets with a **CMK** and offers auditing capabilities?
- A. **Server-Side Encryption with Amazon S3-Managed Keys (SSE-S3)**
  - B. **Server-Side Encryption with CMKs Stored in AWS KMS (SSE-KMS)**
  - C. **Server-Side Encryption with Customer-Provided Keys (SSE-C)**
  - D. Client-Side Encryption with Amazon-Managed Keys
51. To meet strict compliance and regulatory requirements, you are required to encrypt the application data stored on your EC2 instances using dedicated FIPS 140-2 Level 3 validated devices. Which AWS service can you use to fulfill this requirement?
- A. AWS KMS
  - B. AWS CloudHSM
  - C. AWS TPM Hardware Modules
  - D. AWS Certificate Manager
52. Which AWS security solution offers protection against **DDoS** attacks and features an AWS **Shield Response Team (SRT)** 24/7 to assist you in handling such attacks?
- A. AWS WAF
  - B. AWS X-Ray
  - C. AWS Detective
  - D. AWS Shield Advanced
53. Which type of firewall solution integrates with Amazon CloudFront and ALBs to offer protection against common web exploits such as cross-site scripting and SQL injection?
- A. AWS WAF
  - B. AWS Shield
  - C. AWS X-Ray
  - D. AWS Firewall Manager

54. You are planning lots of data on Amazon S3 and you would like to monitor how your data is accessed, particularly highlighting any sensitive information such as **personally identifiable information (PII)**. Which AWS service can help you meet this requirement?
- A. Amazon Macie
  - B. AWS GuardDuty
  - C. AWS Detective
  - D. AWS X-Ray
55. You are building a mobile application that will be publicly accessible and you would like to integrate a third-party identity provider for authentication purposes, such as Facebook or Google. Which AWS service can be used to set up identity and access control solutions for your web and mobile applications?
- A. AWS Cognito
  - B. AWS IAM
  - C. Active Directory
  - D. AWS Certificate Manager
56. Which AWS service can help detect malicious activities by analyzing data from your CloudTrail event logs, Amazon VPC Flow Logs, and DNS logs?
- A. AWS Shield
  - B. AWS Detective
  - C. AWS GuardDuty
  - D. Amazon Macie
57. Which AWS service can help you determine the root cause of security issues by extracting time-based events such as logins, network traffic from Amazon VPC Flow Logs, and data ingested from GuardDuty findings?
- A. AWS Shield
  - B. AWS WAF
  - C. AWS Detective
  - D. Amazon Macie

58. You are planning on migrating your on-premises workloads and applications to the cloud. Which AWS service enables you to capture millions of real-time data points related to your IT environment and review recommendations for right sizing and appropriately costing workloads on AWS?
- A. AWS Pricing Calculator
  - B. AWS Migration Evaluator
  - C. AWS Hybrid Calculator
  - D. AWS Cost Explorer
59. Which EC2 instance pricing model can offer up to a 90% discount off the on-demand price and be used in scenarios where interruptions to your instances will not impact the application workflow?
- A. Reserved Instances
  - B. Spot Instances
  - C. Dedicated Instances
  - D. Dedicated Hosts
60. Which Amazon S3 storage class enables you to host 48 TB or 96 TB as part of the S3 storage capacity and provides the option to create a maximum of 100 S3 buckets on-premises?
- A. Standard storage class
  - B. Standard One-Zone (IA)
  - C. Glacier
  - D. Amazon S3 on Outposts
61. Which type of policy can you create to grant anonymous access to the objects stored in an S3 bucket that can be used to host website assets?
- A. IAM policy
  - B. IAM permission boundaries
  - C. Resource policy
  - D. SNS policy

62. Which AWS service enables you to register new domain names for your corporate business requirements?
- A. AWS DNS
  - B. AWS Route53
  - C. AWS VPC
  - D. Amazon Macie
63. Which AWS service offers image and video analysis that can be used to identify objects, people, text, scenes, and other activities?
- A. Amazon Rekognition
  - B. Amazon Kinesis Video Streams
  - C. Amazon Prime
  - D. Amazon Athena
64. Which AWS service offers text search and analytics capabilities that can store, analyze, and perform search functions against big data volumes in near real time?
- A. Amazon Redshift
  - B. Amazon ElastiCache
  - C. Amazon Elasticsearch
  - D. Amazon Search
65. You plan to migrate your entire on-premises network to the cloud and have also decided to move away from physical desktops and workstations to a complete VDI solution. Which service on AWS enables you to provision virtual desktops in the cloud, accessible via a web browser?
- A. Amazon EC2
  - B. Amazon Lightsail
  - C. Amazon WorkSpaces
  - D. Amazon EKS

## Chapter 14

1. A and B
2. B
3. A
4. A
5. A
6. B

## Chapter 15

1. A
2. A
3. A
4. C
5. B

## Chapter 16

### Mock Test 1

1. C

**Infrastructure as a Service (IaaS)** is a cloud service model that gives you access to virtualized infrastructure components comprising computing, network, and storage services. This is very similar to hosting your own VMware or Hyper-V virtualized platforms, where you deploy servers, attach storage volumes, and configure network connectivity services. However, the primary difference is that you do not have access to the underlying hypervisor platform with cloud-hosted IaaS solutions. IaaS offerings give the greatest amount of control over how the virtual components of your infrastructure are configured and also require you to take responsibility for managing, maintaining, and enforcing security measures for those components.

## 2. C

Companies who wish to move their entire suite of applications to the cloud would normally carry out a series of migration projects over time. During this migration phase, connectivity between the on-premises environment and the AWS cloud would be required to facilitate the migration. Many companies may also require a more permanent hybrid design architecture. This could be because certain types of applications need to be in much closer proximity to the on-premises infrastructure where users are based, such as your corporate office network, ultimately ensuring low-latency access, data residency requirements, or even unique local data processing requirements. AWS offers several services to build hybrid clouds from VPN technologies and Direct Connect services to offering on-premises services such as AWS Storage Gateway and AWS Outposts.

## 3. A and B

There are several reasons why you would choose a specific AWS Region to deploy your applications in, including the need for closer proximity to your end users and thus to reduce latency, data residence laws, regulatory requirements, the choice of services available, and costs.

## 4. C

Edge locations are AWS infrastructure facilities located across the globe that help cache content for Amazon CloudFront. Any content that is accessed from the origin is cached locally at one or more edge locations closer to users to access that content for a particular **time to live (TTL)**. This way, repeated access to the same content is delivered over a low latency connection.

## 5. B

AWS Storage Gateway enables you to build hybrid cloud solutions by giving access to the Amazon S3 and Glacier environments from your on-premises network. You install and configure the gateway appliance at your on-premises location and can use any one of four gateway types to access unlimited storage in the cloud. These gateway types are Amazon S3 File Gateway, Amazon FSx File Gateway, Tape Gateway, and Volume Gateway.

6. B

The Developer Support plan gives you access to technical support via email and chats only. This support plan is cheaper than the Business and Enterprise Support plans and is recommended for experimenting with or testing applications on AWS.

7. A and B

Several services are configured from a global perspective on AWS. For example, with IAM, every IAM user in your AWS account is unique across the entire AWS Global Infrastructure. The same applies to Amazon Route53, where domain names configured in host zones have a global presence across all Regions on AWS. Another global service on AWS is Amazon CloudFront.

8. C

One of the six advantages of cloud computing is the ability to **go global in minutes**. This is made possible because, as an AWS customer, you have access to all Regions and Availability Zones where you can provision the resources required to host your application in a matter of minutes.

9. A

Amazon CloudWatch enables you to set up alarms that can be triggered when a particular threshold is crossed. You can set up an alarm for billing alerts that monitors when your total spend crosses a specified dollar amount. This alarm can be configured to send out an alert to an email address that uses the Amazon SNS service.

10. A

Amazon EBS is like the virtual hard disks (volumes) that you attach to EC2 instances. They need to be provisioned in the same availability where the EC2 instance has been launched to be attached to that EC2 instance. Furthermore, you cannot attach an EBS volume to an EC2 instance in another Availability Zone. You could take a snapshot of the EBS volume and launch a new volume in another Availability Zone from that snapshot if required.

11. A

AWS IAM Password Policies enable you to define custom policies on your AWS account to specify complexity requirements and mandatory rotation periods for your IAM users' passwords. This ensures that IAM user accounts are created with complex, hard-to-crack passwords.



12. A

**Multi-Factor Authentication (MFA)** is a recommended best practice authentication security measure. It requires you to authenticate with a username and password, as well as a security token generated by a physical or virtual device you own. Used together, these factors provide increased security for your AWS account settings and resources.

13. B

An IAM Group can be used to club users who share common job functions. You can then assign the necessary permissions to the IAM Group, which will filter down to the IAM users that are members of the group.

Where possible, entities that need access to services and resources on AWS ought to be granted access via IAM roles using temporary security credentials. For example, users who need to access resources in another AWS account can be granted permission to assume a role rather than having to create IAM accounts for them in the other account. This is considered best practice and AWS highly recommends this approach.

14. C

An IAM role enables you to grant external users access to resources in your AWS account using temporary credentials that are managed by the AWS **Security Token Service (STS)**. An IAM role will also have an IAM policy attached to it that specifies the exact set of permissions the role will grant to the external user(s).

15. A

AWS Pricing Calculator can help you estimate the monthly costs of the resources you wish to provision on AWS. In addition to specifying the expected usage for the month, to calculate the cost of the resources, you can provide additional details such as the amount of data transferred in and out of the AWS Region and cross-Region to get a complete estimate.

16. A

You can use cost allocation tags to identify your resource costs on your cost allocation report and track your AWS costs by resources and who owns them. AWS provides two types of cost allocation tags: AWS-generated tags and user-defined tags.

17. A

AWS Cost Explorer enables you to view 12 months of usage and spending data, as well as a forecast of what your future costs will be for the next 12 months. Cost Explorer can also provide information on how much of your RI you have utilized, as well as the savings that have been made from using RIs over on-demand options for EC2 Amazon Redshift, Amazon RDS, and more.

18. B

To access an AWS account as an IAM user, you need to create a set of access keys, which is a combination of an access key ID and a secret access key. Note these keys are considered long-term access keys. One set of keys is associated with a specific IAM user.

19. D

You can create an IAM role with the necessary permissions to upload objects to a specific Amazon S3 bucket. You should then deploy your EC2 instances with this role attached (this involves creating an instance profile associated with the role). The IAM role will enable the application running on the EC2 instance to access the Amazon S3 bucket. Using an IAM role, the EC2 instance will obtain temporary credentials from the **Security Token Service (STS)**.

20. A

AWS Policy Simulator can help you identify which set of policies are allowed and which are denied against specific identities, groups of identities, and IAM roles. You can obtain granular visibility into specific permissions that have been allowed and denied, helping you troubleshoot access issues.

21. A

The IAM Credentials Report enables you to review IAM user accounts created in your AWS account. You can identify if an IAM user has been configured with a username and password, as well as access keys. You can also identify IAM users that may not have accessed resources in your AWS accounts recently, which may indicate that those accounts may not be required anymore. Regularly deleting unwanted IAM user accounts is part of the security best practice.

22. D

Permission boundaries enable you to define the maximum set of permissions that can be granted by an identity-based policy for an IAM user or IAM role.

23. C

**SCPs** is a feature of the AWS Organization service that enables you to set the maximum set of permissions that can be defined for member accounts. You can also set policies to prevent the root users of member accounts from removing the membership to an organization management account once the invitation to become a member account has been accepted.

24. A

Amazon S3 Standard-IA can be used to store objects that you are not going to frequently access, but at the same time, you have instant access to the data when you need it.

25. A

You can create a resource policy with a condition statement that allows you to restrict the application of the policy based on a predefined condition, such as the corporate office network IP block.

26. D

Amazon S3 Intelligent Tiering is ideal if you are unsure of what your object access patterns might be. Objects are automatically transitioned across four different tiers, two of which are latency access tiers, which are designed to move objects between frequently accessed and infrequently accessed tiers, while the other two are optional archive access tiers. For the infrequent access tier, if you do not access your objects for 30 days, then it transitions to the Amazon S3 Standard-IA storage class, which is cheaper. If you need to access the same objects again later, they are transitioned back to the Amazon S3 Standard storage class.

27. B

To protect against accidental deletions or overwriting, Amazon S3 Versioning can be enabled. This service ensures that if someone tries to perform a delete request on an object without specifying the version ID, it will not be deleted. Instead, a delete marker will be added and the object will be hidden from view. You can then delete this marker to reenable access to the object. You should also consider setting a bucket policy so that not all users can perform delete requests.

28. A

Amazon S3 **CRR** is used to asynchronously copy objects across AWS buckets in different AWS Regions. This feature can be used to fulfill compliance and regulatory requirements, which may require you to store copies of data thousands of kilometers away for **Disaster Recovery (DR)** purposes.

29. C

With SSE-KMS, you can encrypt your objects in Amazon S3. You can create and manage your **CMKs**, as well as benefit from the auditing feature, which shows when your CMK was used and by whom. This service integrates with Amazon CloudTrail to offer full auditing features.

30. B

If you need urgent access to just a subset of your archives, you can opt for the Expedited retrieval option. Expedited retrievals are made available within 1 to 5 minutes for archives of up to 250 **megabytes (MB)**.

31. A

S3TA reduces this speed variability that is often experienced due to the architecture of the public internet. S3TA routes your uploads via Amazon CloudFront's globally distributed edge locations and AWS backbone networks. This, in turn, gives faster speeds and consistently low latency for your data transfers.

32. B

The Amazon Snowball Edge Storage Optimized device offers a larger storage capacity and is ideal for data migration tasks. With 80 TB of HDD and 1 TB of **serial advanced technology attachment (SATA)** SSD volumes, you can start moving large volumes of data to the cloud. The device also comes with 40 vCPUs and 80 GB of memory.

33. B

Amazon FSx File Gateway enables you to connect your on-premises Windows applications that need large amounts of storage to the cloud-hosted Amazon FSx service for Windows File Server with low latency connectivity. Amazon FSx File Gateway also supports integration with **Active Directory (AD)** and the ability to configure access controls using **ACLs**.

34. B

NAT gateways help relay outbound requests to the internet on behalf of EC2 instances configured to use them. The NAT gateway replaces the source IPv4 address of your EC2 instances with the private IP address of the NAT gateway, thus acting as a proxy. Response traffic is then redirected by the NAT gateway back to the private IP address of the EC2 instance that made the original request.

35. B

Security groups are stateful. This means that even if you have not configured any inbound rules, response traffic to any outbound requests will be permitted inbound by the Security Group. Similarly, if you configured any inbound rules, outbound response traffic to any inbound traffic is permitted, without you having to explicitly create those outbound rules.

36. A

A VPC peering connection is a private network connection between two VPCs. The service allows you to connect multiple VPCs so that instances in one VPC can access resources in another VPC over a private IP address space.

37. A

The problem with VPC peering, when you're configuring multiple VPC to connect, is that every VPC must establish a one-to-one connection with its peer. This can quickly create complex connections that are difficult to manage. Route tables for each VPC also need to be configured for every peering connection.

AWS Transit Gateway allows you to connect your VPCs via the gateway in a hub-and-spoke model, greatly reducing this complexity as each VPC only needs to connect to the Gateway to access other VPCs.

38. C

Direct Connect is a service that enables you to connect your corporate data center to your VPC and the public services offered by AWS, such as Amazon S3, via a dedicated private connection that bypasses the internet altogether. The service enables you to achieve bandwidth connectivity of up to 100 Gbps.

39. B

You can set up a **VPN** connection between your on-premises network and your VPC. This is a secure encrypted site-to-site tunnel that's established between two endpoints over the public internet. It offers AES 128 or 256-bit **IPsec** encryption, which means that you can transfer data between the two endpoints securely.

40. A

Amazon Route53 can help you create alias records so that when a user types in a corporate domain-friendly name into the browser, it will direct the traffic to an AWS service, such as an ALB, giving access to the web application.

41. A

Amazon Route 53 offers domain name registration. You can purchase and manage domain names such as `example.com` and Amazon Route 53 will automatically configure the DNS settings for your domains.

42. C

To offer high availability of your web application, you can host two copies of your resources ideally across different Regions. One set of resources will be designated as your primary resource and the other as a secondary resource. If the primary resource is offline, then users' requests are redirected to the secondary resource.

43. C

Amazon CloudFront is a **Content Delivery Network (CDN)** that helps you distribute your static and dynamic content globally over low latency connections. The service caches content at edge locations closer to where your users are accessing the website.

44. A

To launch an EC2 instance with a custom AMI that you have built in another Region, you need to ensure that you copy the AMI to that Region.

45. D

Accelerated Computing EC2 instance types are designed with hardware accelerators, or co-processors, to perform complex functions. They are best for processing complex graphics, number crunching, and machine learning.

46. D

A Dedicated Host is a physical host dedicated for your use alone and gives you additional control and management capability over how instances are placed on a physical server. In addition, dedicated hosts can help address certain third-party licensing terms that are based on a per-CPU core/socket basis.

47. A

On-Demand is ideal for users who need the flexibility to consume compute resources when required and without any long-term commitment. They are ideal for test/dev environments or for applications that have short spiky or unpredictable workloads.

48. D

Provisioned IOPS SSDs offering high-performance EBS storage is ideal for critical, I/O-intensive databases and application workloads.

49. D

Using an **All Upfront** payment option for your RIs means paying for the entire term of the RI upfront at the beginning of the contract. You do not get a monthly/hourly bill and you benefit from the maximum available discount. Furthermore, a 3-year commitment will offer a bigger discount than a 1-year one.

50. B

Amazon Lightsail is a VPS solution that comes pre-configured with common application stacks such as WordPress, Drupal, Plesk, LAMP, and your chosen operating system. You choose the size of the server and it comes preconfigured with SSD storage, an IP address, and more. The best part about Lightsail is that you have a fixed monthly fee based on the instance type and the associated operating system and applications that have been deployed.

51. B

The ECS Fargate Launch Type enables you to set up your ECS environment without having to spin up EC2 instances, provision and scale clusters, or patch and update virtual servers yourself. AWS will manage how the ECS tasks are placed on the cluster, scale them as required, and fully manage the entire environment for you.

52. B

Amazon Lambda is a serverless offering from AWS that allows you to run code and perform some tasks. Amazon Lambda is known as a **Function as a Service (FaaS)** solution that can be used to build an entirely serverless architecture comprised of storage, databases, and network capabilities where you do not manage any underlying servers.

53. B

Microsoft Windows-aware applications that need to share files can easily use FSx for Windows File Share, which offers support for the SMB protocol and Windows NTFS, **AD** integration, and **Distributed File System (DFS)**.

54. A

Amazon EFS can be used by Linux-based EC2 instances as a centralized file storage solution. This is particularly useful when you have applications deployed across multiple EC2 instances that need to share common files. Amazon EFS can also be accessed from on-premises servers over a VPN or Direct Connect service.

55. D

When you launch a server (Windows or Linux), you must configure it to be associated with a key pair. This is an encrypted key where you will be able to use your private key to log in to Linux-based servers or decrypt the Windows administrator password using the AWS Management Console.

56. C

AWS Outposts is ideal when you want to run AWS resources with very low latency connections to your on-premises application or if you require local data processing due to any compliance and regulatory requirements. You can get AWS Outposts delivered to your local on-premises location as a 42U rack and can scale from 1 rack to 96 racks to create pools of compute and storage capacity.

57. A

AWS Batch can be used to run thousands of batch computing jobs on AWS for performing various types of analysis. AWS Batch will set up and provision the necessary compute resources to fulfill your batch requests. There is no need to deploy server clusters as AWS takes care of this for you.

58. B

Amazon EKS is designed to help you deploy, manage, and scale containerized applications using Kubernetes on AWS.

59. A

The primary advantage of using Amazon RDS over installing databases on EC2 is the fact that AWS manages all the compute and storage provisioning, as well as performing all management tasks on the database. This frees you up to focus on your application and the infrastructure components that host the database.



60. B

Amazon RDS offers a feature known as Multi-AZ where the primary (master) copy of your database is deployed in one Availability Zone and a secondary (standby) copy is deployed in another Availability Zone. Data is then synchronously replicated from the master copy to the standby copy continuously. If the master copy fails, AWS will promote the standby copy to become the new master and perform a failover.

61. B

Amazon offers a **Database Migration Service (DMS)** that can be used to migrate the data from one database to another. This migration can be performed from your on-premises network to the AWS cloud over a VPN connection or a Direct Connect connection. AWS DMS offers support for both homogeneous migrations, such as from MySQL to MySQL or Oracle to Oracle, as well as heterogeneous migrations between engines such as Oracle to Microsoft SQL Server or Amazon Aurora.

62. B

Redshift Spectrum allows you to perform SQL queries against data stored directly on Amazon S3 Buckets. This is particularly useful if, for instance, you store frequently accessed data in Redshift and some infrequently accessed data in Amazon S3.

63. D

Amazon Aurora is an AWS proprietary database that maintains copies of the database placed across a minimum of three Availability Zones. Amazon Aurora is also five times faster than standard MySQL databases and three times faster than standard PostgreSQL databases. It also offers self-healing storage capabilities that can scale up to 128 TB per database instance.

64. C

DynamoDB supports both key-value and document data models such as JSON. DynamoDB is a NoSQL database solution that offers a flexible schema and offers single digit millisecond performance at any scale.

65. A

Amazon QLDB is a fully managed ledger database that provides a transparent, immutable, and cryptographically verifiable transaction log owned by a central trusted authority. Amazon QLDB can maintain a history of all data changes.

## Mock test 2

1. B

In scenarios where you have a single RDS database instance deployed, your users are likely to experience a brief I/O suspension when your backup process initializes. By configuring your Amazon RDS database with Multi-AZ, the backup is taken from the standby copy of the database instead of the master. This will ensure that users do not experience any brief outages when trying to access the database.

2. A

Amazon ElastiCache for Redis is designed for complex data types, offers Multi-AZ capabilities, encryption of data, and compliance with FedRAMP, HIPAA, PCI-DSS, as well as high availability and automatic failover options.

3. C

Amazon Redshift is AWS's data warehousing solution that is designed for analytics and is optimized for scanning many rows of data for one or multiple columns. Instead of organizing data as rows, Redshift transparently organizes data by columns. You can use standard SQL to query the database and use it with your existing BI tools.

4. A and B

Detailed monitoring and use of Elastic Load Balancers will increase your EC2 instances' costs. This is because Elastic Load Balancers are not part of the free tier and you are charged based on each hour or partial hour that a load balancer is running and the number of **Load Balancer Capacity Units (LCUs)** used per hour. Furthermore, whereas basic monitoring is offered free of charge, detailed monitoring is a chargeable service.

5. B

**ALBs** are designed to distribute traffic at the application layer (using HTTP and HTTPS). Furthermore, with ALBs, you can have multiple target groups, allowing you to define complex routing rules based on the different application components. You can configure path-based routing, host-based routing, and much more. You can also configure Lambda functions as targets for your load balancer.

6. A

**Network Load Balancers** are designed to operate at the fourth layer of the OSI model and can handle millions of requests per second. Network Load Balancers are designed for load balancing both TCP and UDP traffic and maintaining ultra-low latencies.

7. C

Using a load balancer, you can direct incoming traffic to multiple registered EC2 instances across multiple Availability Zones within a given Region. This enables you to offer high availability in case any of the EC2 instances fails or even if an entire Availability Zone goes offline.

8. C

You need to configure listeners to specific ports that you will accept incoming traffic on and the ports you will use to forward traffic to the EC2 instances.

9. B

The nodes of an internal load balancer only have private IP addresses and allow communication between the web layer and the internal application layer. The DNS name of an internal load balancer can be publicly resolved to the private IP addresses of the nodes. Therefore, internal load balancers can only route requests from clients with access to the VPC for the load balancer.

10. A

When configuring your Auto Scaling group, you can define the minimum and maximum size of your group. You can also choose to keep the size of the group to an initial size that does not expand the group size but ensures that you always have the exact number of EC2 instances running.

11. B

Amazon Auto Scaling can help you provision new EC2 instances based on CloudWatch metrics that change according to the load on your instances. Similarly, when demand drops, you can configure Auto Scaling to terminate unwanted resources and thus save on costs.

12. D

AWS Trusted Advisor is an online tool that can offer guidance on AWS infrastructure, improve security and performance, reduce costs, and monitor service quotas. The service quota (service limits) category of Trusted Advisor can notify you if you use more than 80% of a service quota for a specific service. You can then follow recommendations to delete resources or request a quota increase.

13. A

The AWS ALB service provides integration with **Web Application Firewall (WAF)**, which helps protect against common web exploits such as SQL injection and cross-site scripting.

14. A

With the target tracking scaling policy, Auto Scaling will launch or terminate EC2 instances in the fleet based on the target value of a specific metric. The target tracking policy tracks the metric value and attempts to ensure the correct number of EC2 instances are running to meet that target value.

15. B

Amazon **Simple Notification Service (SNS)** is a push-based messaging and notification system that can be used to allow one application component to send messages to another application component or directly to end users. So, Amazon SNS can be used to send out alerts when a particular CloudWatch metric crosses a threshold for a period and triggers an alarm.

16. A

The Fanout scenario enables you to publish messages to an SNS topic for parallel asynchronous processing. You send the notifications to supported endpoints such as Kinesis Data Firehose delivery streams, Amazon SQS queues, HTTP(S) endpoints, and Lambda functions.

17. B

Amazon **SQS** is a fully managed message queuing solution that enables you to decouple your application components into distributed systems and facilitates the design and architecture of microservices. A queueing system such as Amazon SQS can help different components of your application work independently. Queues can hold messages in the form of requests/tasks until capacity is available.

18. B

**FIFO** stands for **First-In-First-Out** and its queues are designed to preserve the order of your messages, as well as ensure only one-time delivery with no duplicates.

With FIFO queues, you can get a throughput at a rate of 300 transactions per second. If you use batching, you can get up to 3,000 transactions per second, per API method (`SendMessageBatch`, `ReceiveMessage`, or `DeleteMessageBatch`).

19. B

Amazon recommends using Amazon MQ for migrating applications from existing message brokers where compatibility with APIs such as JMS or protocols such as AMQP 0-9-1, AMQP 1.0, MQTT, OpenWire, and STOMP are required.

20. C

Amazon EventBridge is a serverless *event bus service* that allows you to stream real-time events from your applications to support targets such as Lambda functions, which can then be triggered to take some form of action. In the preceding example, EventBridge can trigger a Lambda function if someone tries to delete an object in your S3 bucket and some action can be taken in response to the event.

21. B

Amazon Step Functions enables you to define these workflows as a series of state machines that contain states that make up the workflow. These states make decisions based on input, perform some action, and produce an output to other states. Step Functions also allow you to integrate human interaction, particularly where manual intervention is required, and can run for up to 1 year.

22. C

You can configure CloudWatch Events with a rule to trigger a Lambda function at a defined schedule. You would need to create the Lambda function and then, in the rule settings for CloudWatch events, specify the Lambda function as a target to be triggered at the designated schedule.

23. C

Kinesis Data Analytics lets you query and analyze stream data in real time. You can use standard programming and database query languages such as Java, Python, and SQL to query streaming data as it is being ingested.

24. A

Amazon Athena is an interactive query service that can be used to analyze data in Amazon S3 using standard SQL. To set up the service, you need to specify the source S3 bucket and define a schema.

25. B

Amazon Kinesis Firehose is designed to capture, transform, and deliver streaming data to several AWS services, including Amazon S3 and Redshift in near real time. The service can also batch, compress, transform, and encrypt your data streams, thereby reducing storage usage and increasing security.

26. B

Amazon QuickSight is a serverless **Business Intelligence (BI)** service that can help you build interactive dashboards and embedded visualizations into your applications and web portals.

27. C

AWS Glue is a fully managed ETL service that makes it easy for customers to prepare and load their data for analytics.

28. C

Amazon EMR is a managed Hadoop framework that allows you to process vast amounts of big data. You can use open source tools such as Apache Spark, Apache Hive, Apache HBase, Apache Flink, Apache Hudi, and Presto.

29. B

Amazon CloudFormation is a solution that can help you design, build, and deploy your infrastructure using code. You can create templates that use a declarative approach to instruct CloudFormation to build a precise infrastructure repeatedly, as required, by your testing team. CloudFormation templates can also be configured to accept input parameters for environment-specific configurations and variations required in the build.

30. B

AWS OpsWorks is a configuration management and orchestration service that enables you to provision resources such as servers both in the cloud and on-premises using Chef and Puppet. With OpsWorks, you can define service layers for your application stack such as the database layer, load balancer layer, and more.

31. A

Amazon Elastic Beanstalk is a service that enables you to deploy your application without having to manually configure the underlying infrastructure that will support the application. You upload your code in a supported language and environment and AWS will provision the underlying infrastructure, such as the compute, storage, and network components, to support the application. Amazon ElasticBeanstalk will also enable you to specify how the underlying infrastructure components will be deployed – for example, you can specify the EC2 instance type and size that is deployed or enforce that a set minimum number of EC2 instances are deployed as part of an Auto Scaling group.

32. B

In a multi-tier application architecture, backend operations such as application, middleware, or database operations are performed by the worker tier of your Elastic Beanstalk configuration. AWS Elastic Beanstalk will also provision an Amazon SQS queue to facilitate communication between the web services tier and the worker tier.

33. A and D

CloudFormation templates can be written in both JSON and YAML format. These are declarative markup languages that can help CloudFormaton provision infrastructure in your AWS account.

34. D

Memory is a custom metric because memory metrics are at the OS level and cannot be monitored by default. To ingest custom metrics, you need to use the CloudWatch agent or the **PutMetricData** API action to publish them to CloudWatch.

35. B

You can configure CloudWatch alarms to monitor a given resource metric, such as the average CPU utilization of an EC2 instance. If the metric crosses a specific threshold for a specified period, then the alarm can be triggered to take a certain action. The alarm only triggers if the threshold has been breached for a specified period.

36. B

VPC Flow Logs can capture information about the IP traffic going to and from network interfaces in your VPC. You can configure VPC Flow Logs to capture all traffic to the VPC, a specific subnet, or a specific network interface of an EC2 instance.

37. C

AWS CloudTrail stores event history from within the CloudTrail dashboard for every activity that occurs in your AWS account. You can create trails to store specific management events or data events and if you require more than 90 days' worth of event history.

38. C

AWS Config is a service that allows you to gain visibility into how your AWS resources are configured and deployed in your AWS account. This includes configuration information, as well as changes to those configurations over time. You can also use AWS Config to enforce specific configurations rules and ensure that you follow internal guidelines that fulfill compliance requirements.

39. A

AWS Systems Manager's Patch Manager enables you to automatically patch your EC2 instances that are comprised of security and application updates. Note that updates for applications on Windows servers are limited to those released by Microsoft.

40. A

AWS Systems Manager's Parameter Store enables you to provide sensitive information such as passwords and database strings as parameter values. These values can be stored or encrypted, and your application can be configured to securely retrieve these values as they are needed from the Parameter Store.

41. A

The AWS Systems Manager Incident Manager service offers a management console to track all your incidents and notify responders of the impact, identify data that can help with troubleshooting, and help you get services back up and running.

42. B

AWS Trusted Advisor analyzes your resources and how they have been configured and compares those configurations against security practices to identify opportunities to save money, improve system availability and performance, or address security concerns.



43. B

The AWS Trusted Advisor service offers different levels of checks based on the AWS support plan that you have subscribed to. To access the full range of checks across all categories, you must be subscribed to either the Business or Enterprise Support plan. With either of these plans, you can also use Amazon CloudWatch Events to monitor the status of Trusted Advisor checks.

44. C

The Reliability pillar also focuses on how quickly you can recover from failure based on your architectural design. This is because failures are bound to happen and your architecture must be able to recover from these failures swiftly. One key concept that you should also consider is that replacing failed resources is often better than trying to figure out why the failure occurred and then attempting to resolve the issue that caused the failure.

45. A

When architecting solutions for the cloud, you must select the resource types and sizes based on your performance needs, while monitoring your resources consistently to ensure you maintain those levels of performance as per demand. Amazon CloudFront can help you improve performance by reducing the latency associated with accessing large amounts of content across the globe. It does this by caching content locally at edge locations as they are being accessed.

46. D

The Cost Optimization pillar focuses on ensuring that you architect and build solutions in a manner that avoids unnecessary costs. At the same time, you want to be able to ensure that your applications are highly performant, reliable, operationally efficient, and secure. To achieve cost optimization, you should understand your spending patterns and analyze where the money is going.

47. A

Amazon RDS is a managed database service. The customer can provision databases and select the instance type and size to power the database. However, the customer cannot manage the instance itself as this is taken care of by AWS, which includes patching and installing database updates. In contrast, patching EC2 instances is the customer's responsibility as EC2 is not a fully managed service.

48. C

Compliance reports and agreements are available via a portal on AWS known as **AWS Artifact**. These reports include AWS **Service Organization Control (SOC)** reports, **Payment Card Industry (PCI)** reports, and certifications from accreditation bodies across different Regions.

49. D

As a customer, you need to follow the service policy for penetration testing, which includes permitted services and prohibited activities. Such prohibited activities are **Denial of Service (DoS)**, **DDoS**, simulated DoS, and simulated DDoS.

50. B

With SSE-KMS, you create and manage **CMKs**, and you use these keys to encrypt data keys and your data. SSE-KMS offers additional features such as auditing capabilities and integrates with CloudTrail.

51. B

AWS CloudHSM is a dedicated **Hardware Security Module (HSM)** that allows you to generate and manage your encryption keys in the cloud. You are provided with dedicated FIPS 140-2 Level 3 validated HSM devices, placed in your VPC, that are fully managed for you by AWS.

52. D

AWS Shield is a fully managed service offering protection against DDoS attacks. AWS Shield Advanced offers additional protection against attacks on your EC2 instances, ELBs, CloudFront, Global Accelerator, and Route53 resources. The service also offers a dedicated **AWS Shield Response Team (SRT)** 24/7 to assist you in handling such attacks.

53. A

AWS WAF can help protect applications at layer 7 of the **OSI** model, which helps you monitor and protect traffic over HTTP and HTTPS. This allows you to protect your content from common web exploits, such as SQL injection and cross-site scripting.

54. A

Amazon Macie uses machine learning and pattern matching techniques to detect and alert on any sensitive data, such as **PII**, stored in Amazon S3.

55. A

Amazon Cognito enables you to set up identity and access control solutions for your web and mobile applications using standards such as OAuth 2.0, SAML 2.0, and OpenID Connect. With Amazon Cognito, you can create user pools and identity pools.

56. C

AWS GuardDuty is a threat detection service that can analyze and detect malicious activity against your AWS accounts and application workloads. The service can detect the use of exposed credentials, any communication with malicious IP addresses and domains, as well as irregular activities carried out in your AWS account.

57. C

Amazon Detective can extract time-based events such as logins, network traffic from AWS CloudTrail and Amazon VPC Flow Logs, as well as ingest your GuardDuty findings to determine the root cause of those security findings.

58. B

With the Migration Evaluator service, you can use the AWS Application Discovery service, the TSO Logic agentless collector, or third-party tools to discover and gain insights into your current compute, storage, and total cost of ownership. The agentless collector tool can analyze any on-premises resources that just require read-only access to your VMware, Hyper-V, Windows, Linux, Active Directory, and SQL Server infrastructure.

59. B

Spot EC2 instances are ideal for applications that are fault-tolerant, scalable, or flexible, and where your application can tolerate interruptions. Spot Instances can save you up to 90% on On-Demand prices and there is no upfront commitment.

60. D

Amazon S3 on Outposts offers durability and redundancy by storing data across multiple devices and servers hosted on your outposts. It is ideal for low-latency access, while also enabling you to meet strict data residency requirements.

61. C

Resource policies are designed to enable access to resources such as objects in an Amazon S3 bucket. This policy enables you to identify a principal that you grant access to. With resource-based policies, you can configure the principal as a wildcard (\*), which denotes anyone, and enables you to grant anonymous access.

62. B

Amazon Route53 offers complete domain name registration services. When you choose a name to register, you do so under a **top-level domain (TLD)** such as .com, .co.uk, .org, or .net. If the name of choice under a particular TLD is not available, you could try a different TLD.

63. A

Amazon Rekognition is a service that uses machine learning to identify objects, people, text, scenes, and activities in images and videos, as well as to detect any inappropriate content. Amazon Rekognition can be used for various application solutions such as identifying people, or sensitive data such as **PII** in images and videos.

64. C

Elasticsearch is an open source full-text search and analytics engine that can analyze all types of data such as textual, numerical, geospatial, structured, and unstructured data. Amazon Elasticsearch offers integration with Kibana, which is a data visualization tool, and Logstash, which is an open source, server-side data processing pipeline.

65. C

Amazon WorkSpaces is an end user computing service that enables you to deploy virtual Linux and Windows desktops in the cloud. AWS manages these virtual desktops, including security patching and managing the operating system. With Amazon WorkSpaces, you can consider migrating away from your on-premises desktop infrastructure to a **Virtual Desktop Infrastructure (VDI)** solution.