

### Question #1Topic 1

A solutions architect is designing a solution where users will be directed to a backup static error page if the primary website is unavailable. The primary website's

DNS records are hosted in Amazon Route 53 where their domain is pointing to an Application Load Balancer (ALB).

Which configuration should the solutions architect use to meet the company's needs while minimizing changes and infrastructure overhead?

- A. Point a Route 53 alias record to an Amazon CloudFront distribution with the ALB as one of its origins. Then, create custom error pages for the distribution.
- B. Set up a Route 53 active-passive failover configuration. Direct traffic to a static error page hosted within an Amazon S3 bucket when Route 53 health checks determine that the ALB endpoint is unhealthy.
- C. Update the Route 53 record to use a latency-based routing policy. Add the backup static error page hosted within an Amazon S3 bucket to the record so the traffic is sent to the most responsive endpoints.
- D. Set up a Route 53 active-active configuration with the ALB and an Amazon EC2 instance hosting a static error page as endpoints. Route 53 will only send requests to the instance if the health checks fail for the ALB.

### Question #2Topic 1

A solutions architect is designing a high performance computing (HPC) workload on Amazon EC2. The EC2 instances need to communicate to each other frequently and require network performance with low latency and high throughput.

Which EC2 configuration meets these requirements?

- A. Launch the EC2 instances in a cluster placement group in one Availability Zone.
- B. Launch the EC2 instances in a spread placement group in one Availability Zone.
- C. Launch the EC2 instances in an Auto Scaling group in two Regions and peer the VPCs.
- D. Launch the EC2 instances in an Auto Scaling group spanning multiple Availability Zones.

### Question #3Topic 1

A company wants to host a scalable web application on AWS. The application will be accessed by users from different geographic regions of the world.

Application users will be able to download and upload unique data up to gigabytes in size. The development team wants a cost-effective solution to minimize upload and download latency and maximize performance.

What should a solutions architect do to accomplish this?

- A. Use Amazon S3 with Transfer Acceleration to host the application.
- B. Use Amazon S3 with CacheControl headers to host the application.
- C. Use Amazon EC2 with Auto Scaling and Amazon CloudFront to host the application.
- D. Use Amazon EC2 with Auto Scaling and Amazon ElastiCache to host the application.

Question #4Topic 1

A company is migrating from an on-premises infrastructure to the AWS Cloud. One of the company's applications stores files on a Windows file server farm that uses Distributed File System Replication (DFSR) to keep data in sync. A solutions architect needs to replace the file server farm.

Which service should the solutions architect use?

- A. Amazon EFS
- B. Amazon FSx
- C. Amazon S3
- D. AWS Storage Gateway

Question #5Topic 1

A company has a legacy application that processes data in two parts. The second part of the process takes longer than the first, so the company has decided to rewrite the application as two microservices running on Amazon ECS that can scale independently.

How should a solutions architect integrate the microservices?

- A. Implement code in microservice 1 to send data to an Amazon S3 bucket. Use S3 event notifications to invoke microservice 2.
- B. Implement code in microservice 1 to publish data to an Amazon SNS topic. Implement code in microservice 2 to subscribe to this topic.
- C. Implement code in microservice 1 to send data to Amazon Kinesis Data Firehose. Implement code in microservice 2 to read from Kinesis Data Firehose.
- D. Implement code in microservice 1 to send data to an Amazon SQS queue. Implement code in microservice 2 to process messages from the queue.

Question #6Topic 1

A company captures clickstream data from multiple websites and analyzes it using batch processing. The data is loaded nightly into Amazon Redshift and is consumed by business analysts. The company wants to move towards near-real-time data processing for timely insights. The solution should process the streaming data with minimal effort and operational overhead.

Which combination of AWS services are MOST cost-effective for this solution? (Choose two.)

- A. Amazon EC2
- B. AWS Lambda
- C. Amazon Kinesis Data Streams
- D. Amazon Kinesis Data Firehose
- E. Amazon Kinesis Data Analytics

Question #7Topic 1

A company's application runs on Amazon EC2 instances behind an Application Load Balancer (ALB). The instances run in an Amazon EC2 Auto Scaling group across multiple Availability Zones. On the first day of every month at midnight, the application becomes much slower when the month-end financial calculation batch executes. This causes the CPU utilization of the EC2 instances to immediately peak to 100%, which disrupts the application.

What should a solutions architect recommend to ensure the application is able to handle the workload and avoid downtime?

- A. Configure an Amazon CloudFront distribution in front of the ALB.
- B. Configure an EC2 Auto Scaling simple scaling policy based on CPU utilization.
- C. Configure an EC2 Auto Scaling scheduled scaling policy based on the monthly schedule.
- D. Configure Amazon ElastiCache to remove some of the workload from the EC2 instances.

Question #8Topic 1

A company runs a multi-tier web application that hosts news content. The application runs on Amazon EC2 instances behind an Application Load Balancer. The instances run in an EC2 Auto Scaling group across multiple Availability Zones and use an Amazon Aurora database. A solutions architect needs to make the application more resilient to periodic increases in request rates.

Which architecture should the solutions architect implement? (Choose two.)

- A. Add AWS Shield.
- B. Add Aurora Replica.
- C. Add AWS Direct Connect.
- D. Add AWS Global Accelerator.
- E. Add an Amazon CloudFront distribution in front of the Application Load Balancer.

Question #9Topic 1

An application running on AWS uses an Amazon Aurora Multi-AZ deployment for its database. When evaluating performance metrics, a solutions architect discovered that the database reads are causing high I/O and adding latency to the write requests against the database.

What should the solutions architect do to separate the read requests from the write requests?

- A. Enable read-through caching on the Amazon Aurora database.
- B. Update the application to read from the Multi-AZ standby instance.
- C. Create a read replica and modify the application to use the appropriate endpoint.
- D. Create a second Amazon Aurora database and link it to the primary database as a read replica.

#### Question #10Topic 1

A recently acquired company is required to build its own infrastructure on AWS and migrate multiple applications to the cloud within a month. Each application has approximately 50 TB of data to be transferred. After the migration is complete, this company and its parent company will both require secure network connectivity with consistent throughput from their data centers to the applications. A solutions architect must ensure one-time data migration and ongoing network connectivity.

Which solution will meet these requirements?

- A. AWS Direct Connect for both the initial transfer and ongoing connectivity.
- B. AWS Site-to-Site VPN for both the initial transfer and ongoing connectivity.
- C. AWS Snowball for the initial transfer and AWS Direct Connect for ongoing connectivity.
- D. AWS Snowball for the initial transfer and AWS Site-to-Site VPN for ongoing connectivity.

A company serves content to its subscribers across the world using an application running on AWS. The application has several Amazon EC2 instances in a private subnet behind an Application Load Balancer (ALB). Due to a recent change in copyright restrictions, the chief information officer (CIO) wants to block access for certain countries.

Which action will meet these requirements?

- A. Modify the ALB security group to deny incoming traffic from blocked countries.
- B. Modify the security group for EC2 instances to deny incoming traffic from blocked countries.
- C. Use Amazon CloudFront to serve the application and deny access to blocked countries.
- D. Use ALB listener rules to return access denied responses to incoming traffic from blocked countries.

#### Question #12Topic 1

A company is creating a new application that will store a large amount of data. The data will be analyzed hourly and modified by several Amazon EC2 Linux instances that are deployed across multiple Availability Zones. The application team believes the amount of space needed will continue to grow for the next 6 months.

Which set of actions should a solutions architect take to support these needs?

- A. Store the data in an Amazon Elastic Block Store (Amazon EBS) volume. Mount the EBS volume on the application instances.
- B. Store the data in an Amazon Elastic File System (Amazon EFS) file system. Mount the file system on the application instances.
- C. Store the data in Amazon S3 Glacier. Update the S3 Glacier vault policy to allow access to the application instances.
- D. Store the data in an Amazon Elastic Block Store (Amazon EBS) Provisioned IOPS volume shared between the application instances.

#### Question #13Topic 1

A company is migrating a three-tier application to AWS. The application requires a MySQL database. In the past, the application users reported poor application performance when creating new entries. These performance issues were caused by users generating different real-time reports from the application during working hours.

Which solution will improve the performance of the application when it is moved to AWS?

- A. Import the data into an Amazon DynamoDB table with provisioned capacity. Refactor the application to use DynamoDB for reports.
- B. Create the database on a compute optimized Amazon EC2 instance. Ensure compute resources exceed the on-premises database.
- C. Create an Amazon Aurora MySQL Multi-AZ DB cluster with multiple read replicas. Configure the application to use the reader endpoint for reports.
- D. Create an Amazon Aurora MySQL Multi-AZ DB cluster. Configure the application to use the backup instance of the cluster as an endpoint for the reports.

#### Question #14Topic 1

A solutions architect is deploying a distributed database on multiple Amazon EC2 instances. The database stores all data on multiple instances so it can withstand the loss of an instance. The database requires block storage with latency and throughput to support several million transactions per second per server.

Which storage solution should the solutions architect use?

- A. EBS Amazon Elastic Block Store (Amazon EBS)
- B. Amazon EC2 instance store
- C. Amazon Elastic File System (Amazon EFS)
- D. Amazon S3

#### Question #15Topic 1

Organizers for a global event want to put daily reports online as static HTML pages. The pages are expected to generate millions of views from users around the world. The files are stored in an Amazon S3 bucket. A solutions architect has been asked to design an efficient and effective solution.

Which action should the solutions architect take to accomplish this?

- A. Generate presigned URLs for the files.
- B. Use cross-Region replication to all Regions.
- C. Use the geoproximity feature of Amazon Route 53.
- D. Use Amazon CloudFront with the S3 bucket as its origin.

#### Question #16Topic 1

A solutions architect is designing a new service behind Amazon API Gateway. The request patterns for the service will be unpredictable and can change suddenly from 0 requests to over 500 per second. The total size of the data that needs to be persisted in a backend database is currently less than 1 GB with unpredictable future growth. Data can be queried using simple key-value requests.

Which combination of AWS services would meet these requirements? (Choose two.)

- A. AWS Fargate
- B. AWS Lambda
- C. Amazon DynamoDB
- D. Amazon EC2 Auto Scaling
- E. MySQL-compatible Amazon Aurora

#### Question #17Topic 1

A start-up company has a web application based in the us-east-1 Region with multiple Amazon EC2 instances running behind an Application Load Balancer across multiple Availability Zones. As the company's user base grows in the us-west-1 Region, it needs a solution with low latency and high availability.

What should a solutions architect do to accomplish this?

- A. Provision EC2 instances in us-west-1. Switch the Application Load Balancer to a Network Load Balancer to achieve cross-Region load balancing.
- B. Provision EC2 instances and an Application Load Balancer in us-west-1. Make the load balancer distribute the traffic based on the location of the request.
- C. Provision EC2 instances and configure an Application Load Balancer in us-west-1. Create an accelerator in AWS Global Accelerator that uses an endpoint group that includes the load balancer endpoints in both Regions.

D. Provision EC2 instances and configure an Application Load Balancer in us-west-1. Configure Amazon Route 53 with a weighted routing policy. Create alias records in Route 53 that point to the Application Load Balancer.

#### Question #18Topic 1

A solutions architect is designing a solution to access a catalog of images and provide users with the ability to submit requests to customize images. Image customization parameters will be in any request sent to an AWS API Gateway API. The customized image will be generated on demand, and users will receive a link they can click to view or download their customized image. The solution must be highly available for viewing and customizing images.

What is the MOST cost-effective solution to meet these requirements?

A. Use Amazon EC2 instances to manipulate the original image into the requested customizations. Store the original and manipulated images in Amazon S3. Configure an Elastic Load Balancer in front of the EC2 instances.

B. Use AWS Lambda to manipulate the original image to the requested customizations. Store the original and manipulated images in Amazon S3. Configure an Amazon CloudFront distribution with the S3 bucket as the origin.

C. Use AWS Lambda to manipulate the original image to the requested customizations. Store the original images in Amazon S3 and the manipulated images in Amazon DynamoDB. Configure an Elastic Load Balancer in front of the Amazon EC2 instances.

D. Use Amazon EC2 instances to manipulate the original image into the requested customizations. Store the original images in Amazon S3 and the manipulated images in Amazon DynamoDB. Configure an Amazon CloudFront distribution with the S3 bucket as the origin.

#### Question #19Topic 1

A company is planning to migrate a business-critical dataset to Amazon S3. The current solution design uses a single S3 bucket in the us-east-1 Region with versioning enabled to store the dataset. The company's disaster recovery policy states that all data multiple AWS Regions.

How should a solutions architect design the S3 solution?

A. Create an additional S3 bucket in another Region and configure cross-Region replication.

B. Create an additional S3 bucket in another Region and configure cross-origin resource sharing (CORS).

C. Create an additional S3 bucket with versioning in another Region and configure cross-Region replication.

D. Create an additional S3 bucket with versioning in another Region and configure cross-origin resource (CORS).

#### Question #20Topic 1

A company has application running on Amazon EC2 instances in a VPC. One of the applications needs to call an Amazon S3 API to store and read objects. The company's security policies restrict any internet-bound traffic from the applications.

Which action will fulfill these requirements and maintain security?

- A. Configure an S3 interface endpoint.
- B. Configure an S3 gateway endpoint.
- C. Create an S3 bucket in a private subnet.
- D. Create an S3 bucket in the same Region as the EC2 instance.

A company's web application uses an Amazon RDS PostgreSQL DB instance to store its application data. During the financial closing period at the start of every month, Accountants run large queries that impact the database's performance due to high usage. The company wants to minimize the impact that the reporting activity has on the web application.

What should a solutions architect do to reduce the impact on the database with the LEAST amount of effort?

- A. Create a read replica and direct reporting traffic to the replica.
- B. Create a Multi-AZ database and direct reporting traffic to the standby.
- C. Create a cross-Region read replica and direct reporting traffic to the replica.
- D. Create an Amazon Redshift database and direct reporting traffic to the Amazon Redshift database.

#### Question #22Topic 1

A company wants to migrate a high performance computing (HPC) application and data from on-premises to the AWS Cloud. The company uses tiered storage on premises with hot high-performance parallel storage to support the application during periodic runs of the application, and more economical cold storage to hold the data when the application is not actively running.

Which combination of solutions should a solutions architect recommend to support the storage needs of the application? (Choose two.)

- A. Amazon S3 for cold data storage
- B. Amazon Elastic File System (Amazon EFS) for cold data storage
- C. Amazon S3 for high-performance parallel storage
- D. Amazon FSx for Lustre for high-performance parallel storage
- E. Amazon FSx for Windows for high-performance parallel storage

#### Question #23Topic 1



A company's application is running on Amazon EC2 instances in a single Region. In the event of a disaster, a solutions architect needs to ensure that the resources can also be deployed to a second Region.

Which combination of actions should the solutions architect take to accomplish this? (Choose two.)

- A. Detach a volume on an EC2 instance and copy it to Amazon S3.
- B. Launch a new EC2 instance from an Amazon Machine Image (AMI) in a new Region.
- C. Launch a new EC2 instance in a new Region and copy a volume from Amazon S3 to the new instance.
- D. Copy an Amazon Machine Image (AMI) of an EC2 instance and specify a different Region for the destination.
- E. Copy an Amazon Elastic Block Store (Amazon EBS) volume from Amazon S3 and launch an EC2 instance in the destination Region using that EBS volume.

#### Question #24Topic 1

A solutions architect needs to ensure that API calls to Amazon DynamoDB from Amazon EC2 instances in a VPC do not traverse the internet.

What should the solutions architect do to accomplish this? (Choose two.)

- A. Create a route table entry for the endpoint.
- B. Create a gateway endpoint for DynamoDB.
- C. Create a new DynamoDB table that uses the endpoint.
- D. Create an ENI for the endpoint in each of the subnets of the VPC.
- E. Create a security group entry in the default security group to provide access.

#### Question #25Topic 1

A company's legacy application is currently relying on a single-instance Amazon RDS MySQL database without encryption. Due to new compliance requirements, all existing and new data in this database must be encrypted.

How should this be accomplished?

- A. Create an Amazon S3 bucket with server-side encryption enabled. Move all the data to Amazon S3. Delete the RDS instance.
- B. Enable RDS Multi-AZ mode with encryption at rest enabled. Perform a failover to the standby instance to delete the original instance.
- C. Take a Snapshot of the RDS instance. Create an encrypted copy of the snapshot. Restore the RDS instance from the encrypted snapshot.

D. Create an RDS read replica with encryption at rest enabled. Promote the read replica to master and switch the application over to the new master. Delete the old RDS instance.

#### Question #26Topic 1

A manufacturing company wants to implement predictive maintenance on its machinery equipment. The company will install thousands of IoT sensors that will send data to AWS in real time. A solutions architect is tasked with implementing a solution that will receive events in an ordered manner for each machinery asset and ensure that data is saved for further processing at a later time.

Which solution would be MOST efficient?

- A. Use Amazon Kinesis Data Streams for real-time events with a partition for each equipment asset. Use Amazon Kinesis Data Firehose to save data to Amazon S3.
- B. Use Amazon Kinesis Data Streams for real-time events with a shard for each equipment asset. Use Amazon Kinesis Data Firehose to save data to Amazon Elastic Block Store (Amazon EBS).
- C. Use an Amazon SQS FIFO queue for real-time events with one queue for each equipment asset. Trigger an AWS Lambda function for the SQS queue to save data to Amazon Elastic File System (Amazon EFS).
- D. Use an Amazon SQS standard queue for real-time events with one queue for each equipment asset. Trigger an AWS Lambda function from the SQS queue to save data to Amazon S3.

#### Question #27Topic 1

A company's website runs on Amazon EC2 instances behind an Application Load Balancer (ALB). The website has a mix of dynamic and static content. Users around the globe are reporting that the website is slow.

Which set of actions will improve website performance for users worldwide?

- A. Create an Amazon CloudFront distribution and configure the ALB as an origin. Then update the Amazon Route 53 record to point to the CloudFront distribution.
- B. Create a latency-based Amazon Route 53 record for the ALB. Then launch new EC2 instances with larger instance sizes and register the instances with the ALB.
- C. Launch new EC2 instances hosting the same web application in different Regions closer to the users. Then register instances with the same ALB using cross-Region VPC peering.
- D. Host the website in an Amazon S3 bucket in the Regions closest to the users and delete the ALB and EC2 instances. Then update an Amazon Route 53 record to point to the S3 buckets.

#### Question #28Topic 1

A company has been storing analytics data in an Amazon RDS instance for the past few years. The company asked a solutions architect to find a solution that allows users to access this data using an API. The expectation is that the application will experience periods of inactivity but could receive bursts of traffic within seconds.

Which solution should the solutions architect suggest?

- A. Set up an Amazon API Gateway and use Amazon ECS.
- B. Set up an Amazon API Gateway and use AWS Elastic Beanstalk.
- C. Set up an Amazon API Gateway and use AWS Lambda functions.
- D. Set up an Amazon API Gateway and use Amazon EC2 with Auto Scaling.

#### Question #29Topic 1

A company must generate sales reports at the beginning of every month. The reporting process launches 20 Amazon EC2 instances on the first of the month. The process runs for 7 days and cannot be interrupted. The company wants to minimize costs.

Which pricing model should the company choose?

- A. Reserved Instances
- B. Spot Block Instances
- C. On-Demand Instances
- D. Scheduled Reserved Instances

#### Question #30Topic 1

A gaming company has multiple Amazon EC2 instances in a single Availability Zone for its multiplayer game that communicates with users on Layer 4. The chief technology officer (CTO) wants to make the architecture highly available and cost-effective.

What should a solutions architect do to meet these requirements? (Choose two.)?

- A. Increase the number of EC2 instances.
- B. Decrease the number of EC2 instances.
- C. Configure a Network Load Balancer in front of the EC2 instances.
- D. Configure an Application Load Balancer in front of the EC2 instances.
- E. Configure an Auto Scaling group to add or remove instances in multiple Availability Zones automatically.

#### Question #31Topic 1

A company currently operates a web application backed by an Amazon RDS MySQL database. It has automated backups that are run daily and are not encrypted. A security audit requires

future backups to be encrypted and the unencrypted backups to be destroyed. The company will make at least one encrypted backup before destroying the old backups.

What should be done to enable encryption for future backups?

- A. Enable default encryption for the Amazon S3 bucket where backups are stored.
- B. Modify the backup section of the database configuration to toggle the Enable encryption check box.
- C. Create a snapshot of the database. Copy it to an encrypted snapshot. Restore the database from the encrypted snapshot.
- D. Enable an encrypted read replica on RDS for MySQL. Promote the encrypted read replica to primary. Remove the original database instance.

#### Question #32Topic 1

A company is hosting a website behind multiple Application Load Balancers. The company has different distribution rights for its content around the world. A solutions architect needs to ensure that users are served the correct content without violating distribution rights.

Which configuration should the solutions architect choose to meet these requirements?

- A. Configure Amazon CloudFront with AWS WAF.
- B. Configure Application Load Balancers with AWS WAF.
- C. Configure Amazon Route 53 with a geolocation policy.
- D. Configure Amazon Route 53 with a geoproximity routing policy.

#### Question #33Topic 1

A solutions architect has created a new AWS account and must secure AWS account root user access.

Which combination of actions will accomplish this? (Choose two.)

- A. Ensure the root user uses a strong password.
- B. Enable multi-factor authentication to the root user.
- C. Store root user access keys in an encrypted Amazon S3 bucket.
- D. Add the root user to a group containing administrative permissions.
- E. Apply the required permissions to the root user with an inline policy document.

#### Question #34Topic 1

A solutions architect at an ecommerce company wants to back up application log data to Amazon S3. The solutions architect is unsure how frequently the logs will be accessed or which

logs will be accessed the most. The company wants to keep costs as low as possible by using the appropriate S3 storage class.

Which S3 storage class should be implemented to meet these requirements?

- A. S3 Glacier
- B. S3 Intelligent-Tiering
- C. S3 Standard-Infrequent Access (S3 Standard-IA)
- D. S3 One Zone-Infrequent Access (S3 One Zone-IA)

#### Question #35Topic 1

A company's website is used to sell products to the public. The site runs on Amazon EC2 instances in an Auto Scaling group behind an Application Load Balancer

(ALB). There is also an Amazon CloudFront distribution, and AWS WAF is being used to protect against SQL injection attacks. The ALB is the origin for the

CloudFront distribution. A recent review of security logs revealed an external malicious IP that needs to be blocked from accessing the website.

What should a solutions architect do to protect the application?

- A. Modify the network ACL on the CloudFront distribution to add a deny rule for the malicious IP address.
- B. Modify the configuration of AWS WAF to add an IP match condition to block the malicious IP address.
- C. Modify the network ACL for the EC2 instances in the target groups behind the ALB to deny the malicious IP address.
- D. Modify the security groups for the EC2 instances in the target groups behind the ALB to deny the malicious IP address.

#### Question #36Topic 1

A solutions architect is designing an application for a two-step order process. The first step is synchronous and must return to the user with little latency. The second step takes longer, so it will be implemented in a separate component. Orders must be processed exactly once and in the order in which they are received.

How should the solutions architect integrate these components?

- A. Use Amazon SQS FIFO queues.
- B. Use an AWS Lambda function along with Amazon SQS standard queues.
- C. Create an SNS topic and subscribe an Amazon SQS FIFO queue to that topic.
- D. Create an SNS topic and subscribe an Amazon SQS Standard queue to that topic.

Question #37Topic 1

A web application is deployed in the AWS Cloud. It consists of a two-tier architecture that includes a web layer and a database layer. The web server is vulnerable to cross-site scripting (XSS) attacks.

What should a solutions architect do to remediate the vulnerability?

- A. Create a Classic Load Balancer. Put the web layer behind the load balancer and enable AWS WAF.
- B. Create a Network Load Balancer. Put the web layer behind the load balancer and enable AWS WAF.
- C. Create an Application Load Balancer. Put the web layer behind the load balancer and enable AWS WAF.
- D. Create an Application Load Balancer. Put the web layer behind the load balancer and use AWS Shield Standard.

Question #38Topic 1

A company's website is using an Amazon RDS MySQL Multi-AZ DB instance for its transactional data storage. There are other internal systems that query this DB instance to fetch data for internal batch processing. The RDS DB instance slows down significantly when the internal systems fetch data. This impacts the website's read and write performance, and the users experience slow response times.

Which solution will improve the website's performance?

- A. Use an RDS PostgreSQL DB instance instead of a MySQL database.
- B. Use Amazon ElastiCache to cache the query responses for the website.
- C. Add an additional Availability Zone to the current RDS MySQL Multi-AZ DB instance.
- D. Add a read replica to the RDS DB instance and configure the internal systems to query the read replica.

Question #39Topic 1

An application runs on Amazon EC2 instances across multiple Availability Zones. The instances run in an Amazon EC2 Auto Scaling group behind an Application

Load Balancer. The application performs best when the CPU utilization of the EC2 instances is at or near 40%.

What should a solutions architect do to maintain the desired performance across all instances in the group?

- A. Use a simple scaling policy to dynamically scale the Auto Scaling group.
- B. Use a target tracking policy to dynamically scale the Auto Scaling group.

- C. Use an AWS Lambda function to update the desired Auto Scaling group capacity.
- D. Use scheduled scaling actions to scale up and scale down the Auto Scaling group.

#### Question #40Topic 1

A company runs an internal browser-based application. The application runs on Amazon EC2 instances behind an Application Load Balancer. The instances run in an Amazon EC2 Auto Scaling group across multiple Availability Zones. The Auto Scaling group scales up to 20 instances during work hours, but scales down to

2 instances overnight. Staff are complaining that the application is very slow when the day begins, although it runs well by mid-morning.

How should the scaling be changed to address the staff complaints and keep costs to a minimum?

- A. Implement a scheduled action that sets the desired capacity to 20 shortly before the office opens.
- B. Implement a step scaling action triggered at a lower CPU threshold, and decrease the cooldown period.
- C. Implement a target tracking action triggered at a lower CPU threshold, and decrease the cooldown period.
- D. Implement a scheduled action that sets the minimum and maximum capacity to 20 shortly before the office opens.

#### Question #41Topic 1

A financial services company has a web application that serves users in the United States and Europe. The application consists of a database tier and a web server tier. The database tier consists of a MySQL database hosted in us-east-1. Amazon Route 53 geoproximity routing is used to direct traffic to instances in the closest Region. A performance review of the system reveals that European users are not receiving the same level of query performance as those in the United

States.

Which changes should be made to the database tier to improve performance?

- A. Migrate the database to Amazon RDS for MySQL. Configure Multi-AZ in one of the European Regions.
- B. Migrate the database to Amazon DynamoDB. Use DynamoDB global tables to enable replication to additional Regions.
- C. Deploy MySQL instances in each Region. Deploy an Application Load Balancer in front of MySQL to reduce the load on the primary instance.

D. Migrate the database to an Amazon Aurora global database in MySQL compatibility mode. Configure read replicas in one of the European Regions.

#### Question #42Topic 1

A company hosts a static website on-premises and wants to migrate the website to AWS. The website should load as quickly as possible for users around the world. The company also wants the most cost-effective solution.

What should a solutions architect do to accomplish this?

A. Copy the website content to an Amazon S3 bucket. Configure the bucket to serve static webpage content. Replicate the S3 bucket to multiple AWS Regions.

B. Copy the website content to an Amazon S3 bucket. Configure the bucket to serve static webpage content. Configure Amazon CloudFront with the S3 bucket as the origin.

C. Copy the website content to an Amazon EBS-backed Amazon EC2 instance running Apache HTTP Server. Configure Amazon Route 53 geolocation routing policies to select the closest origin.

D. Copy the website content to multiple Amazon EBS-backed Amazon EC2 instances running Apache HTTP Server in multiple AWS Regions. Configure Amazon CloudFront geolocation routing policies to select the closest origin.

#### Question #43Topic 1

A solutions architect is designing storage for a high performance computing (HPC) environment based on Amazon Linux. The workload stores and processes a large amount of engineering drawings that require shared storage and heavy computing.

Which storage option would be the optimal solution?

A. Amazon Elastic File System (Amazon EFS)

B. Amazon FSx for Lustre

C. Amazon EC2 instance store

D. Amazon Elastic Block Store (Amazon EBS) Provisioned IOPS SSD (io1)

#### Question #44Topic 1

A company is performing an AWS Well-Architected Framework review of an existing workload deployed on AWS. The review identified a public-facing website running on the same Amazon EC2 instance as a Microsoft Active Directory domain controller that was install recently to support other AWS services. A solutions architect needs to recommend a new design that would improve the security of the architecture and minimize the administrative demand on IT staff.

What should the solutions architect recommend?



- A. Use AWS Directory Service to create a managed Active Directory. Uninstall Active Directory on the current EC2 instance.
- B. Create another EC2 instance in the same subnet and reinstall Active Directory on it. Uninstall Active Directory.
- C. Use AWS Directory Service to create an Active Directory connector. Proxy Active Directory requests to the Active domain controller running on the current EC2 instance.
- D. Enable AWS Single Sign-On (AWS SSO) with Security Assertion Markup Language (SAML) 2.0 federation with the current Active Directory controller. Modify the EC2 instance's security group to deny public access to Active Directory.

Question #45Topic 1

A company hosts a static website within an Amazon S3 bucket. A solutions architect needs to ensure that data can be recovered in case of accidental deletion.

Which action will accomplish this?

- A. Enable Amazon S3 versioning.
- B. Enable Amazon S3 Intelligent-Tiering.
- C. Enable an Amazon S3 lifecycle policy.
- D. Enable Amazon S3 cross-Region replication.

Question #46Topic 1

A company's production application runs online transaction processing (OLTP) transactions on an Amazon RDS MySQL DB instance. The company is launching a new reporting tool that will access the same data. The reporting tool must be highly available and not impact the performance of the production application.

How can this be achieved?

- A. Create hourly snapshots of the production RDS DB instance.
- B. Create a Multi-AZ RDS Read Replica of the production RDS DB instance.
- C. Create multiple RDS Read Replicas of the production RDS DB instance. Place the Read Replicas in an Auto Scaling group.
- D. Create a Single-AZ RDS Read Replica of the production RDS DB instance. Create a second Single-AZ RDS Read Replica from the replica.

Question #47Topic 1

A company runs an application in a branch office within a small data closet with no virtualized compute resources. The application data is stored on an NFS volume. Compliance standards require a daily offsite backup of the NFS volume.

Which solution meets these requirements?

- A. Install an AWS Storage Gateway file gateway on premises to replicate the data to Amazon S3.
- B. Install an AWS Storage Gateway file gateway hardware appliance on premises to replicate the data to Amazon S3.
- C. Install an AWS Storage Gateway volume gateway with stored volumes on premises to replicate the data to Amazon S3.
- D. Install an AWS Storage Gateway volume gateway with cached volumes on premises to replicate the data to Amazon S3.

Question #48Topic 1

A company's web application is using multiple Linux Amazon EC2 instances and storing data on Amazon Elastic Block Store (Amazon EBS) volumes. The company is looking for a solution to increase the resiliency of the application in case of a failure and to provide storage that complies with atomicity, consistency, isolation, and durability (ACID).

What should a solutions architect do to meet these requirements?

- A. Launch the application on EC2 instances in each Availability Zone. Attach EBS volumes to each EC2 instance.
- B. Create an Application Load Balancer with Auto Scaling groups across multiple Availability Zones. Mount an instance store on each EC2 instance.
- C. Create an Application Load Balancer with Auto Scaling groups across multiple Availability Zones. Store data on Amazon Elastic File System (Amazon EFS) and mount a target on each instance.
- D. Create an Application Load Balancer with Auto Scaling groups across multiple Availability Zones. Store data using Amazon S3 One Zone-Infrequent Access (S3 One Zone-IA).

Question #49Topic 1

A security team to limit access to specific services or actions in all of the team's AWS accounts. All accounts belong to a large organization in AWS Organizations.

The solution must be scalable and there must be a single point where permissions can be maintained.

What should a solutions architect do to accomplish this?

- A. Create an ACL to provide access to the services or actions.
- B. Create a security group to allow accounts and attach it to user groups.
- C. Create cross-account roles in each account to deny access to the services or actions.
- D. Create a service control policy in the root organizational unit to deny access to the services or actions.

Question #50Topic 1

A data science team requires storage for nightly log processing. The size and number of logs is unknown and will persist for 24 hours only.

What is the MOST cost-effective solution?

- A. Amazon S3 Glacier
- B. Amazon S3 Standard
- C. Amazon S3 Intelligent-Tiering
- D. Amazon S3 One Zone-Infrequent Access (S3 One Zone-IA)

Question #51Topic 1

A company is hosting a web application on AWS using a single Amazon EC2 instance that stores user-uploaded documents in an Amazon Elastic Block Store

(Amazon EBS) volume. For better scalability and availability, the company duplicated the architecture and created a second EC2 instance and EBS volume in another Availability Zone, placing both behind an Application Load Balancer. After completing this change, users reported that each time they refreshed the website, they could see one subset of their documents or the other, but never all of the documents at the same time.

What should a solutions architect propose to ensure users see all of their documents at once?

- A. Copy the data so both EBS volumes contain all the documents.
- B. Configure the Application Load Balancer to direct a user to the server with the documents.
- C. Copy the data from both EBS volumes to Amazon Elastic File System (Amazon EFS). Modify the application to save new documents to Amazon Elastic File System (Amazon EFS).
- D. Configure the Application Load Balancer to send the request to both servers. Return each document from the correct server.

Question #52Topic 1

A company is planning to use Amazon S3 to store images uploaded by its users. The images must be encrypted at rest in Amazon S3. The company does not want to spend time managing and rotating the keys, but it does want to control who can access those keys.

What should a solutions architect use to accomplish this?

- A. Server-Side Encryption with keys stored in an S3 bucket
- B. Server-Side Encryption with Customer-Provided Keys (SSE-C)
- C. Server-Side Encryption with Amazon S3-Managed Keys (SSE-S3)

#### D. Server-Side Encryption with AWS KMS-Managed Keys (SSE-KMS)

#### Question #53Topic 1

A company is running an ecommerce application on Amazon EC2. The application consists of a stateless web tier that requires a minimum of 10 instances, and a peak of 250 instances to support the application's usage. The application requires 50 instances 80% of the time.

Which solution should be used to minimize costs?

- A. Purchase Reserved Instances to cover 250 instances.
- B. Purchase Reserved Instances to cover 80 instances. Use Spot Instances to cover the remaining instances.
- C. Purchase On-Demand Instances to cover 40 instances. Use Spot Instances to cover the remaining instances.
- D. Purchase Reserved Instances to cover 50 instances. Use On-Demand and Spot Instances to cover the remaining instances.

#### Question #54Topic 1

A company has deployed an API in a VPC behind an internet-facing Application Load Balancer (ALB). An application that consumes the API as a client is deployed in a second account in private subnets behind a NAT gateway. When requests to the client application increase, the NAT gateway costs are higher than expected. A solutions architect has configured the ALB to be internal.

Which combination of architectural changes will reduce the NAT gateway costs? (Choose two.)

- A. Configure a VPC peering connection between the two VPCs. Access the API using the private address.
- B. Configure an AWS Direct Connect connection between the two VPCs. Access the API using the private address.
- C. Configure a ClassicLink connection for the API into the client VPC. Access the API using the ClassicLink address.
- D. Configure a PrivateLink connection for the API into the client VPC. Access the API using the PrivateLink address.
- E. Configure an AWS Resource Access Manager connection between the two accounts. Access the API using the private address.

#### Question #55Topic 1

A solutions architect is tasked with transferring 750 TB of data from an on-premises network-attached file system located at a branch office Amazon S3 Glacier.

The migration must not saturate the on-premises 1 Mbps internet connection.

Which solution will meet these requirements?

- A. Create an AWS site-to-site VPN tunnel to an Amazon S3 bucket and transfer the files directly. Transfer the files directly by using the AWS CLI.
- B. Order 10 AWS Snowball Edge Storage Optimized devices, and select an S3 Glacier vault as the destination.
- C. Mount the network-attached file system to an S3 bucket, and copy the files directly. Create a lifecycle policy to transition the S3 objects to Amazon S3 Glacier.
- D. Order 10 AWS Snowball Edge Storage Optimized devices, and select an Amazon S3 bucket as the destination. Create a lifecycle policy to transition the S3 objects to Amazon S3 Glacier.

Question #56Topic 1

A company has a two-tier application architecture that runs in public and private subnets. Amazon EC2 instances running the web application are in the public subnet and a database runs on the private subnet. The web application instances and the database are running in a single Availability Zone (AZ).

Which combination of steps should a solutions architect take to provide high availability for this architecture? (Choose two.)

- A. Create new public and private subnets in the same AZ for high availability.
- B. Create an Amazon EC2 Auto Scaling group and Application Load Balancer spanning multiple AZs.
- C. Add the existing web application instances to an Auto Scaling group behind an Application Load Balancer.
- D. Create new public and private subnets in a new AZ. Create a database using Amazon EC2 in one AZ.
- E. Create new public and private subnets in the same VPC, each in a new AZ. Migrate the database to an Amazon RDS multi-AZ deployment.

Question #57Topic 1

A solutions architect is implementing a document review application using an Amazon S3 bucket for storage. The solution must prevent an accidental deletion of the documents and ensure that all versions of the documents are available. Users must be able to download, modify, and upload documents.

Which combination of actions should be taken to meet these requirements? (Choose two.)

- A. Enable a read-only bucket ACL.
- B. Enable versioning on the bucket.
- C. Attach an IAM policy to the bucket.

- D. Enable MFA Delete on the bucket.
- E. Encrypt the bucket using AWS KMS.

#### Question #58Topic 1

An application hosted on AWS is experiencing performance problems, and the application vendor wants to perform an analysis of the log file to troubleshoot further. The log file is stored on Amazon S3 and is 10 GB in size. The application owner will make the log file available to the vendor for a limited time.

What is the MOST secure way to do this?

- A. Enable public read on the S3 object and provide the link to the vendor.
- B. Upload the file to Amazon WorkDocs and share the public link with the vendor.
- C. Generate a presigned URL and have the vendor download the log file before it expires.
- D. Create an IAM user for the vendor to provide access to the S3 bucket and the application. Enforce multi-factor authentication.

#### Question #59Topic 1

A solutions architect is designing a two-tier web application. The application consists of a public-facing web tier hosted on Amazon EC2 in public subnets. The database tier consists of Microsoft SQL Server running on Amazon EC2 in a private subnet. Security is a high priority for the company.

How should security groups be configured in this situation? (Choose two.)

- A. Configure the security group for the web tier to allow inbound traffic on port 443 from 0.0.0.0/0.
- B. Configure the security group for the web tier to allow outbound traffic on port 443 from 0.0.0.0/0.
- C. Configure the security group for the database tier to allow inbound traffic on port 1433 from the security group for the web tier.
- D. Configure the security group for the database tier to allow outbound traffic on ports 443 and 1433 to the security group for the web tier.
- E. Configure the security group for the database tier to allow inbound traffic on ports 443 and 1433 from the security group for the web tier.

#### Question #60Topic 1

A company allows its developers to attach existing IAM policies to existing IAM roles to enable faster experimentation and agility. However, the security operations team is concerned that the

developers could attach the existing administrator policy, which would allow the developers to circumvent any other security policies.

How should a solutions architect address this issue?

- A. Create an Amazon SNS topic to send an alert every time a developer creates a new policy.
- B. Use service control policies to disable IAM activity across all accounts in the organizational unit.
- C. Prevent the developers from attaching any policies and assign all IAM duties to the security operations team.
- D. Set an IAM permissions boundary on the developer IAM role that explicitly denies attaching the administrator policy.

#### Question #61Topic 1

A company has a multi-tier application that runs six front-end web servers in an Amazon EC2 Auto Scaling group in a single Availability Zone behind an

Application Load Balancer (ALB). A solutions architect needs to modify the infrastructure to be highly available without modifying the application.

Which architecture should the solutions architect choose that provides high availability?

- A. Create an Auto Scaling group that uses three instances across each of two Regions.
- B. Modify the Auto Scaling group to use three instances across each of two Availability Zones.
- C. Create an Auto Scaling template that can be used to quickly create more instances in another Region.
- D. Change the ALB in front of the Amazon EC2 instances in a round-robin configuration to balance traffic to the web tier.

#### Question #62Topic 1

A company runs an application on a group of Amazon Linux EC2 instances. For compliance reasons, the company must retain all application log files for 7 years.

The log files will be analyzed by a reporting tool that must access all files concurrently.

Which storage solution meets these requirements MOST cost-effectively?

- A. Amazon Elastic Block Store (Amazon EBS)
- B. Amazon Elastic File System (Amazon EFS)
- C. Amazon EC2 instance store
- D. Amazon S3

#### Question #63Topic 1

A media streaming company collects real-time data and stores it in a disk-optimized database system. The company is not getting the expected throughput and wants an in-memory database storage solution that performs faster and provides high availability using data replication.

Which database should a solutions architect recommend?

- A. Amazon RDS for MySQL
- B. Amazon RDS for PostgreSQL.
- C. Amazon ElastiCache for Redis
- D. Amazon ElastiCache for Memcached

#### Question #64Topic 1

A company hosts its product information webpages on AWS. The existing solution uses multiple Amazon C2 instances behind an Application Load Balancer in an

Auto Scaling group. The website also uses a custom DNS name and communicates with HTTPS only using a dedicated SSL certificate. The company is planning a new product launch and wants to be sure that users from around the world have the best possible experience on the new website.

What should a solutions architect do to meet these requirements?

- A. Redesign the application to use Amazon CloudFront.
- B. Redesign the application to use AWS Elastic Beanstalk.
- C. Redesign the application to use a Network Load Balancer.
- D. Redesign the application to use Amazon S3 static website hosting.

#### Question #65Topic 1

A solutions architect is designing the cloud architecture for a new application being deployed on AWS. The process should run in parallel while adding and removing application nodes as needed based on the number of jobs to be processed. The processor application is stateless. The solutions architect must ensure that the application is loosely coupled and the job items are durably stored.

Which design should the solutions architect use?

- A. Create an Amazon SNS topic to send the jobs that need to be processed. Create an Amazon Machine Image (AMI) that consists of the processor application. Create a launch configuration that uses the AMI. Create an Auto Scaling group using the launch configuration. Set the scaling policy for the Auto Scaling group to add and remove nodes based on CPU usage.
- B. Create an Amazon SQS queue to hold the jobs that need to be processed. Create an Amazon Machine Image (AMI) that consists of the processor application. Create a launch configuration that uses the AMI. Create an Auto Scaling group using the launch configuration. Set the scaling policy for the Auto Scaling group to add and remove nodes based on network usage.



C. Create an Amazon SQS queue to hold the jobs that need to be processed. Create an Amazon Machine Image (AMI) that consists of the processor application. Create a launch template that uses the AMI. Create an Auto Scaling group using the launch template. Set the scaling policy for the Auto Scaling group to add and remove nodes based on the number of items in the SQS queue.

D. Create an Amazon SNS topic to send the jobs that need to be processed. Create an Amazon Machine Image (AMI) that consists of the processor application. Create a launch template that uses the AMI. Create an Auto Scaling group using the launch template. Set the scaling policy for the Auto Scaling group to add and remove nodes based on the number of messages published to the SNS topic.

#### Question #66Topic 1

A marketing company is storing CSV files in an Amazon S3 bucket for statistical analysis. An application on an Amazon EC2 instance needs permission to efficiently process the CSV data stored in the S3 bucket.

Which action will MOST securely grant the EC2 instance access to the S3 bucket?

- A. Attach a resource-based policy to the S3 bucket.
- B. Create an IAM user for the application with specific permissions to the S3 bucket.
- C. Associate an IAM role with least privilege permissions to the EC2 instance profile.
- D. Store AWS credentials directly on the EC2 instance for applications on the instance to use for API calls.

#### Question #67Topic 1

A company has on-premises servers that run a relational database. The database serves high-read traffic for users in different locations. The company wants to migrate the database to AWS with the least amount of effort. The database solution must support high availability and must not affect the company's current traffic flow.

Which solution meets these requirements?

- A. Use a database in Amazon RDS with Multi-AZ and at least one read replica.
- B. Use a database in Amazon RDS with Multi-AZ and at least one standby replica.
- C. Use databases that are hosted on multiple Amazon EC2 instances in different AWS Regions.
- D. Use databases that are hosted on Amazon EC2 instances behind an Application Load Balancer in different Availability Zones.

#### Question #68Topic 1

A company's application is running on Amazon EC2 instances within an Auto Scaling group behind an Elastic Load Balancer. Based on the application's history, the company anticipates a

spike in traffic during a holiday each year. A solutions architect must design a strategy to ensure that the Auto Scaling group proactively increases capacity to minimize any performance impact on application users.

Which solution will meet these requirements?

- A. Create an Amazon CloudWatch alarm to scale up the EC2 instances when CPU utilization exceeds 90%.
- B. Create a recurring scheduled action to scale up the Auto Scaling group before the expected period of peak demand.
- C. Increase the minimum and maximum number of EC2 instances in the Auto Scaling group during the peak demand period.
- D. Configure an Amazon Simple Notification Service (Amazon SNS) notification to send alerts when there are autoscaling:EC2\_INSTANCE\_LAUNCH events.

Question #69Topic 1

A company hosts an application on multiple Amazon EC2 instances. The application processes messages from an Amazon SQS queue, writes for an Amazon

RDS table, and deletes -

the message from the queue. Occasional duplicate records are found in the RDS table. The SQS queue does not contain any duplicate messages.

What should a solutions architect do to ensure messages are being processed once only?

- A. Use the CreateQueue API call to create a new queue.
- B. Use the AddPermission API call to add appropriate permissions.
- C. Use the ReceiveMessage API call to set an appropriate wait time.
- D. Use the ChangeMessageVisibility API call to increase the visibility timeout.

Question #70Topic 1

An Amazon EC2 administrator created the following policy associated with an IAM group containing several users:

```

{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Allow",
      "Action": "ec2:TerminateInstances",
      "Resource": "*",
      "Condition": {
        "IpAddress": {
          "aws:SourceIp": "10.100.100.0/24"
        }
      }
    },
    {
      "Effect": "Deny",
      "Action": "ec2:*",
      "Resource": "*",
      "Condition": {
        "StringNotEquals": {
          "ec2:Region": "us-east-1"
        }
      }
    }
  ]
}

```

What is the effect of this policy?

- A. Users can terminate an EC2 instance in any AWS Region except us-east-1.
- B. Users can terminate an EC2 instance with the IP address 10.100.100.1 in the us-east-1 Region.
- C. Users can terminate an EC2 instance in the us-east-1 Region when the user's source IP is 10.100.100.254.
- D. Users cannot terminate an EC2 instance in the us-east-1 Region when the user's source IP is 10.100.100.254.

Question #71Topic 1

A solutions architect is optimizing a website for an upcoming musical event. Videos of the performances will be streamed in real time and then will be available on demand. The event is expected to attract a global online audience.

Which service will improve the performance of both the real-time and on-demand steaming?

- A. Amazon CloudFront
- B. AWS Global Accelerator
- C. Amazon Route S3

## D. Amazon S3 Transfer Acceleration

### Question #72Topic 1

A company has a three-tier image-sharing application. It uses an Amazon EC2 instance for the front-end layer, another for the backend tier, and a third for the

MySQL database. A solutions architect has been tasked with designing a solution that is highly available, and requires the least amount of changes to the application

Which solution meets these requirements?

- A. Use Amazon S3 to host the front-end layer and AWS Lambda functions for the backend layer. Move the database to an Amazon DynamoDB table and use Amazon S3 to store and serve users' images.
- B. Use load-balanced Multi-AZ AWS Elastic Beanstalk environments for the front-end and backend layers. Move the database to an Amazon RDS instance with multiple read replicas to store and serve users' images.
- C. Use Amazon S3 to host the front-end layer and a fleet of Amazon EC2 instances in an Auto Scaling group for the backend layer. Move the database to a memory optimized instance type to store and serve users' images.
- D. Use load-balanced Multi-AZ AWS Elastic Beanstalk environments for the front-end and backend layers. Move the database to an Amazon RDS instance with a Multi-AZ deployment. Use Amazon S3 to store and serve users' images.

### Question #73Topic 1

A solutions architect is designing a system to analyze the performance of financial markets while the markets are closed. The system will run a series of compute- intensive jobs for 4 hours every night. The time to complete the compute jobs is expected to remain constant, and jobs cannot be interrupted once started. Once completed, the system is expected to run for a minimum of 1 year.

Which type of Amazon EC2 instances should be used to reduce the cost of the system?

- A. Spot Instances
- B. On-Demand Instances
- C. Standard Reserved Instances
- D. Scheduled Reserved Instances

### Question #74Topic 1

A company built a food ordering application that captures user data and stores it for future analysis. The application's static front end is deployed on an Amazon

EC2 instance. The front-end application sends the requests to the backend application running on separate EC2 instance. The backend application then stores the data in Amazon RDS.

What should a solutions architect do to decouple the architecture and make it scalable?

A. Use Amazon S3 to serve the front-end application, which sends requests to Amazon EC2 to execute the backend application. The backend application will process and store the data in Amazon RDS.

B. Use Amazon S3 to serve the front-end application and write requests to an Amazon Simple Notification Service (Amazon SNS) topic. Subscribe Amazon EC2 instances to the HTTP/HTTPS endpoint of the topic, and process and store the data in Amazon RDS.

C. Use an EC2 instance to serve the front end and write requests to an Amazon SQS queue. Place the backend instance in an Auto Scaling group, and scale based on the queue depth to process and store the data in Amazon RDS.

D. Use Amazon S3 to serve the static front-end application and send requests to Amazon API Gateway, which writes the requests to an Amazon SQS queue. Place the backend instances in an Auto Scaling group, and scale based on the queue depth to process and store the data in Amazon RDS.

Question #75Topic 1

A solutions architect needs to design a managed storage solution for a company's application that includes high-performance machine learning functionality. This application runs on AWS Fargate and the connected storage needs to have concurrent access to files and deliver high performance.

Which storage option should the solutions architect recommend?

A. Create an Amazon S3 bucket for the application and establish an IAM role for Fargate to communicate with Amazon S3.

B. Create an Amazon FSx for Lustre file share and establish an IAM role that allows Fargate to communicate with FSx for Lustre.

C. Create an Amazon Elastic File System (Amazon EFS) file share and establish an IAM role that allows Fargate to communicate with Amazon Elastic File System (Amazon EFS).

D. Create an Amazon Elastic Block Store (Amazon EBS) volume for the application and establish an IAM role that allows Fargate to communicate with Amazon Elastic Block Store (Amazon EBS).

Question #76Topic 1

A bicycle sharing company is developing a multi-tier architecture to track the location of its bicycles during peak operating hours. The company wants to use these data points in its existing analytics platform. A solutions architect must determine the most viable multi-tier option to support this architecture. The data points must be accessible from the REST API.

Which action meets these requirements for storing and retrieving location data?

A. Use Amazon Athena with Amazon S3.

- B. Use Amazon API Gateway with AWS Lambda.
- C. Use Amazon QuickSight with Amazon Redshift.
- D. Use Amazon API Gateway with Amazon Kinesis Data Analytics.

Question #77Topic 1

A solutions architect is designing a web application that will run on Amazon EC2 instances behind an Application Load Balancer (ALB). The company strictly requires that the application be resilient against malicious internet activity and attacks, and protect against new common vulnerabilities and exposures.

What should the solutions architect recommend?

- A. Leverage Amazon CloudFront with the ALB endpoint as the origin.
- B. Deploy an appropriate managed rule for AWS WAF and associate it with the ALB.
- C. Subscribe to AWS Shield Advanced and ensure common vulnerabilities and exposures are blocked.
- D. Configure network ACLs and security groups to allow only ports 80 and 443 to access the EC2 instances.

Question #78Topic 1

A company has an application that calls AWS Lambda functions. A code review shows that database credentials are stored in a Lambda function's source code, which violates the company's security policy. The credentials must be securely stored and must be automatically rotated on an ongoing basis to meet security policy requirements.

What should a solutions architect recommend to meet these requirements in the MOST secure manner?

- A. Store the password in AWS CloudHSM. Associate the Lambda function with a role that can use the key ID to retrieve the password from CloudHSM. Use CloudHSM to automatically rotate the password.
- B. Store the password in AWS Secrets Manager. Associate the Lambda function with a role that can use the secret ID to retrieve the password from Secrets Manager. Use Secrets Manager to automatically rotate the password.
- C. Store the password in AWS Key Management Service (AWS KMS). Associate the Lambda function with a role that can use the key ID to retrieve the password from AWS KMS. Use AWS KMS to automatically rotate the uploaded password.
- D. Move the database password to an environment variable that is associated with the Lambda function. Retrieve the password from the environment variable by invoking the function. Create a deployment script to automatically rotate the password.

#### Question #79Topic 1

A company is managing health records on-premises. The company must keep these records indefinitely, disable any modifications to the records once they are stored, and granularly audit access at all levels. The chief technology officer (CTO) is concerned because there are already millions of records not being used by any application, and the current infrastructure is running out of space. The CTO has requested a solutions architect design a solution to move existing data and support future records.

Which services can the solutions architect recommend to meet these requirements?

- A. Use AWS DataSync to move existing data to AWS. Use Amazon S3 to store existing and new data. Enable Amazon S3 object lock and enable AWS CloudTrail with data events.
- B. Use AWS Storage Gateway to move existing data to AWS. Use Amazon S3 to store existing and new data. Enable Amazon S3 object lock and enable AWS CloudTrail with management events.
- C. Use AWS DataSync to move existing data to AWS. Use Amazon S3 to store existing and new data. Enable Amazon S3 object lock and enable AWS CloudTrail with management events.
- D. Use AWS Storage Gateway to move existing data to AWS. Use Amazon Elastic Block Store (Amazon EBS) to store existing and new data. Enable Amazon S3 object lock and enable Amazon S3 server access logging.

#### Question #80Topic 1

A company wants to use Amazon S3 for the secondary copy of its on-premises dataset. The company would rarely need to access this copy. The storage solution's cost should be minimal.

Which storage solution meets these requirements?

- A. S3 Standard
- B. S3 Intelligent-Tiering
- C. S3 Standard-Infrequent Access (S3 Standard-IA)
- D. S3 One Zone-Infrequent Access (S3 One Zone-IA)

#### Question #81Topic 1

A company's operations team has an existing Amazon S3 bucket configured to notify an Amazon SQS queue when new objects are created within the bucket. The development team also wants to receive events when new objects are created. The existing operations team workflow must remain intact.

Which solution would satisfy these requirements?

- A. Create another SQS queue. Update the S3 events in the bucket to also update the new queue when a new object is created.
- B. Create a new SQS queue that only allows Amazon S3 to access the queue. Update Amazon S3 to update this queue when a new object is created.

- C. Create an Amazon SNS topic and SQS queue for the bucket updates. Update the bucket to send events to the new topic. Updates both queues to poll Amazon SNS.
- D. Create an Amazon SNS topic and SQS queue for the bucket updates. Update the bucket to send events to the new topic. Add subscriptions for both queues in the topic.

Question #82Topic 1

An application runs on Amazon EC2 instances in private subnets. The application needs to access an Amazon DynamoDB table. What is the MOST secure way to access the table while ensuring that the traffic does not leave the AWS network?

- A. Use a VPC endpoint for DynamoDB.
- B. Use a NAT gateway in a public subnet.
- C. Use a NAT instance in a private subnet.
- D. Use the internet gateway attached to the VPC.

Question #83Topic 1

A company built an application that lets users check in to places they visit, rank the places, and add reviews about their experiences. The application is successful with a rapid increase in the number of users every month.

The chief technology officer fears the database supporting the current Infrastructure may not handle the new load the following month because the single Amazon

RDS for MySQL instance has triggered alarms related to resource exhaustion due to read requests.

What can a solutions architect recommend to prevent service Interruptions at the database layer with minimal changes to code?

- A. Create RDS read replicas and redirect read-only traffic to the read replica endpoints. Enable a Multi-AZ deployment.
- B. Create an Amazon EMR cluster and migrate the data to a Hadoop Distributed File System (HDFS) with a replication factor of 3.
- C. Create an Amazon ElastiCache cluster and redirect all read-only traffic to the cluster. Set up the cluster to be deployed in three Availability Zones.
- D. Create an Amazon DynamoDB table to replace the RDS instance and redirect all read-only traffic to the DynamoDB table. Enable DynamoDB Accelerator to offload traffic from the main table.

Question #84Topic 1



A company is looking for a solution that can store video archives in AWS from old news footage. The company needs to minimize costs and will rarely need to restore these files. When the files are needed, they must be available in a maximum of five minutes.

What is the MOST cost-effective solution?

- A. Store the video archives in Amazon S3 Glacier and use Expedited retrievals.
- B. Store the video archives in Amazon S3 Glacier and use Standard retrievals.
- C. Store the video archives in Amazon S3 Standard-Infrequent Access (S3 Standard-IA).
- D. Store the video archives in Amazon S3 One Zone-Infrequent Access (S3 One Zone-IA).

Question #85Topic 1

A company has created a VPC with multiple private subnets in multiple Availability Zones (AZs) and one public subnet in one of the AZs. The public subnet is used to launch a NAT gateway. There are instances in the private subnets that use a NAT gateway to connect to the internet. In case of an AZ failure, the company wants to ensure that the instances are not all experiencing internet connectivity issues and that there is a backup plan ready.

Which solution should a solutions architect recommend that is MOST highly available?

- A. Create a new public subnet with a NAT gateway in the same AZ. Distribute the traffic between the two NAT gateways.
- B. Create an Amazon EC2 NAT instance in a new public subnet. Distribute the traffic between the NAT gateway and the NAT instance.
- C. Create public subnets in each AZ and launch a NAT gateway in each subnet. Configure the traffic from the private subnets in each AZ to the respective NAT gateway.
- D. Create an Amazon EC2 NAT instance in the same public subnet. Replace the NAT gateway with the NAT instance and associate the instance with an Auto Scaling group with an appropriate scaling policy.

Question #86Topic 1

A healthcare company stores highly sensitive patient records. Compliance requires that multiple copies be stored in different locations. Each record must be stored for 7 years. The company has a service level agreement (SLA) to provide records to government agencies immediately for the first 30 days and then within

4 hours of a request thereafter.

What should a solutions architect recommend?

- A. Use Amazon S3 with cross-Region replication enabled. After 30 days, transition the data to Amazon S3 Glacier using lifecycle policy.
- B. Use Amazon S3 with cross-origin resource sharing (CORS) enabled. After 30 days, transition the data to Amazon S3 Glacier using a lifecycle policy.

C. Use Amazon S3 with cross-Region replication enabled. After 30 days, transition the data to Amazon S3 Glacier Deep Archive using a lifecycle policy.

D. Use Amazon S3 with cross-origin resource sharing (CORS) enabled. After 30 days, transition the data to Amazon S3 Glacier Deep Archive using a lifecycle policy.

#### Question #87Topic 1

A company recently deployed a new auditing system to centralize information about operating system versions, patching, and installed software for Amazon EC2 instances. A solutions architect must ensure all instances provisioned through EC2 Auto Scaling groups successfully send reports to the auditing system as soon as they are launched and terminated.

Which solution achieves these goals MOST efficiently?

A. Use a scheduled AWS Lambda function and run a script remotely on all EC2 instances to send data to the audit system.

B. Use EC2 Auto Scaling lifecycle hooks to run a custom script to send data to the audit system when instances are launched and terminated.

C. Use an EC2 Auto Scaling launch configuration to run a custom script through user data to send data to the audit system when instances are launched and terminated.

D. Run a custom script on the instance operating system to send data to the audit system. Configure the script to be executed by the EC2 Auto Scaling group when the instance starts and is terminated.

#### Question #88Topic 1

A company recently implemented hybrid cloud connectivity using AWS Direct Connect and is migrating data to Amazon S3. The company is looking for a fully managed solution that will automate and accelerate the replication of data between the on-premises storage systems and AWS storage services.

Which solution should a solutions architect recommend to keep the data private?

A. Deploy an AWS DataSync agent for the on-premises environment. Configure a sync job to replicate the data and connect it with an AWS service endpoint.

B. Deploy an AWS DataSync agent for the on-premises environment. Schedule a batch job to replicate point-in-time snapshots to AWS.

C. Deploy an AWS Storage Gateway volume gateway for the on-premises environment. Configure it to store data locally, and asynchronously back up point-in-time snapshots to AWS.

D. Deploy an AWS Storage Gateway file gateway for the on-premises environment. Configure it to store data locally, and asynchronously back up point-in-time snapshots to AWS.

#### Question #89Topic 1

A company has 150 TB of archived image data stored on-premises that needs to be moved to the AWS Cloud within the next month. The company's current network connection allows up to 100 Mbps uploads for this purpose during the night only.

What is the MOST cost-effective mechanism to move this data and meet the migration deadline?

- A. Use AWS Snowmobile to ship the data to AWS.
- B. Order multiple AWS Snowball devices to ship the data to AWS.
- C. Enable Amazon S3 Transfer Acceleration and securely upload the data.
- D. Create an Amazon S3 VPC endpoint and establish a VPN to upload the data.

#### Question #90Topic 1

A public-facing web application queries a database hosted on an Amazon EC2 instance in a private subnet. A large number of queries involve multiple table joins, and the application performance has been degrading due to an increase in complex queries. The application team will be performing updates to improve performance.

What should a solutions architect recommend to the application team? (Choose two.)

- A. Cache query data in Amazon SQS
- B. Create a read replica to offload queries
- C. Migrate the database to Amazon Athena
- D. Implement Amazon DynamoDB Accelerator to cache data.
- E. Migrate the database to Amazon RDS

#### Question #91Topic 1

A company is seeing access requests by some suspicious IP addresses. The security team discovers the requests are from different IP addresses under the same CIDR range.

What should a solutions architect recommend to the team?

- A. Add a rule in the inbound table of the security to deny the traffic from that CIDR range.
- B. Add a rule in the outbound table of the security group to deny the traffic from that CIDR range.
- C. Add a deny rule in the inbound table of the network ACL with a lower number than other rules.
- D. Add a deny rule in the outbound table of the network ACL with a lower rule number than other rules.

#### Question #92Topic 1

A company recently expanded globally and wants to make its application accessible to users in those geographic locations. The application is deployed on

Amazon EC2 instances behind an Application Load Balancer in an Auto Scaling group. The company needs the ability to shift traffic from resources in one region to another.

What should a solutions architect recommend?

- A. Configure an Amazon Route 53 latency routing policy.
- B. Configure an Amazon Route 53 geolocation routing policy.
- C. Configure an Amazon Route 53 geoproximity routing policy.
- D. Configure an Amazon Route 53 multivalue answer routing policy.

#### Question #93Topic 1

A company wants to replicate its data to AWS to recover in the event of a disaster. Today, a system administrator has scripts that copy data to a NFS share.

Individual backup files need to be accessed with low latency by application administrators to deal with errors in processing.

What should a solutions architect recommend to meet these requirements?

- A. Modify the script to copy data to an Amazon S3 bucket instead of the on-premises NFS share.
- B. Modify the script to copy data to an Amazon S3 Glacier Archive instead of the on-premises NFS share.
- C. Modify the script to copy data to an Amazon Elastic File System (Amazon EFS) volume instead of the on-premises NFS share.
- D. Modify the script to copy data to an AWS Storage Gateway for File Gateway virtual appliance instead of the on-premises NFS share.

#### Question #94Topic 1

An application requires a development environment (DEV) and production environment (PROD) for several years. The DEV instances will run for 10 hours each day during normal business hours, while the PROD instances will run 24 hours each day. A solutions architect needs to determine a compute instance purchase strategy to minimize costs.

Which solution is the MOST cost-effective?

- A. DEV with Spot Instances and PROD with On-Demand Instances
- B. DEV with On-Demand Instances and PROD with Spot Instances
- C. DEV with Scheduled Reserved Instances and PROD with Reserved Instances
- D. DEV with On-Demand Instances and PROD with Scheduled Reserved Instances

Question #95Topic 1

A company runs multiple Amazon EC2 Linux instances in a VPC across two Availability Zones. The instances host applications that use a hierarchical directory structure. The applications need to read and write rapidly and concurrently to shared storage.

What should a solutions architect do to meet these requirements?

- A. Create an Amazon Elastic File System (Amazon EFS) file system. Mount the EFS file system from each EC2 instance.
- B. Create an Amazon S3 bucket. Allow access from all the EC2 instances in the VPC.
- C. Create a file system on a Provisioned IOPS SSD (io2) Amazon Elastic Block Store (Amazon EBS) volume. Attach the EBS volume to all the EC2 instances.
- D. Create file systems on Amazon Elastic Block Store (Amazon EBS) volumes that are attached to each EC2 instance. Synchronize the EBS volumes across the different EC2 instances.

Question #96Topic 1

A solutions architect observes that a nightly batch processing job is automatically scaled up for 1 hour before the desired Amazon EC2 capacity is reached. The peak capacity is the same every night and the batch jobs always start at 1 AM. The solutions architect needs to find a cost-effective solution that will allow for the desired EC2 capacity to be reached quickly and allow the Auto Scaling group to scale down after the batch jobs are complete.

What should the solutions architect do to meet these requirements?

- A. Increase the minimum capacity for the Auto Scaling group.
- B. Increase the maximum capacity for the Auto Scaling group.
- C. Configure scheduled scaling to scale up to the desired compute level.
- D. Change the scaling policy to add more EC2 instances during each scaling operation.

Question #97Topic 1

A Solutions Architect must design a web application that will be hosted on AWS, allowing users to purchase access to premium, shared content that is stored in an

S3 bucket. Upon payment, content will be available for download for 14 days before the user is denied access.

Which of the following would be the LEAST complicated implementation?

- A. Use an Amazon CloudFront distribution with an origin access identity (OAI). Configure the distribution with an Amazon S3 origin to provide access to the file through signed URLs. Design a Lambda function to remove data that is older than 14 days.

B. Use an S3 bucket and provide direct access to the file. Design the application to track purchases in a DynamoDB table. Configure a Lambda function to remove data that is older than 14 days based on a query to Amazon DynamoDB.

C. Use an Amazon CloudFront distribution with an OAI. Configure the distribution with an Amazon S3 origin to provide access to the file through signed URLs. Design the application to set an expiration of 14 days for the URL.

D. Use an Amazon CloudFront distribution with an OAI. Configure the distribution with an Amazon S3 origin to provide access to the file through signed URLs. Design the application to set an expiration of 60 minutes for the URL and recreate the URL as necessary.

#### Question #98Topic 1

A solutions architect is designing a mission-critical web application. It will consist of Amazon EC2 instances behind an Application Load Balancer and a relational database. The database should be highly available and fault tolerant.

Which database implementations will meet these requirements? (Choose two.)

- A. Amazon Redshift
- B. Amazon DynamoDB
- C. Amazon RDS for MySQL
- D. MySQL-compatible Amazon Aurora Multi-AZ
- E. Amazon RDS for SQL Server Standard Edition Multi-AZ

#### Question #99Topic 1

A company's web application is running on Amazon EC2 instances behind an Application Load Balancer. The company recently changed its policy, which now requires the application to be accessed from one specific country only.

Which configuration will meet this requirement?

- A. Configure the security group for the EC2 instances.
- B. Configure the security group on the Application Load Balancer.
- C. Configure AWS WAF on the Application Load Balancer in a VPC.
- D. Configure the network ACL for the subnet that contains the EC2 instances.

#### Question #100Topic 1

A solutions architect has created two IAM policies: Policy1 and Policy2. Both policies are attached to an IAM group.

### Policy1

```
{
  "Version": "2012-10-17", "Statement": [
    {
      "Effect": "Allow",
      "Action": [
        "iam:Get*",
        "iam:List*",
        "kms:List*",
        "ec2:*",
        "ds:*",
        "logs:Get*",
        "logs:Describe*"
      ],
      "Resource": "*"
    }
  ]
}
```

### Policy2

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Deny",
      "Action": "ds:Delete*",
      "Resource": "*"
    }
  ]
}
```

A cloud engineer is added as an IAM user to the IAM group. Which action will the cloud engineer be able to perform?

- A. Deleting IAM users
- B. Deleting directories
- C. Deleting Amazon EC2 instances
- D. Deleting logs from Amazon CloudWatch Logs

A company has an Amazon EC2 instance running on a private subnet that needs to access a public website to download patches and updates. The company does not want external websites to see the EC2 instance IP address or initiate connections to it.

How can a solutions architect achieve this objective?

A. Create a site-to-site VPN connection between the private subnet and the network in which the public site is deployed.

B. Create a NAT gateway in a public subnet. Route outbound traffic from the private subnet through the NAT gateway.

C. Create a network ACL for the private subnet where the EC2 instance deployed only allows access from the IP address range of the public website.

D. Create a security group that only allows connections from the IP address range of the public website. Attach the security group to the EC2 instance.

#### Question #102Topic 1

A company must migrate 20 TB of data from a data center to the AWS Cloud within 30 days. The company's network bandwidth is limited to 15 Mbps and cannot exceed 70% utilization. What should a solutions architect do to meet these requirements?

A. Use AWS Snowball.

B. Use AWS DataSync.

C. Use a secure VPN connection.

D. Use Amazon S3 Transfer Acceleration.

#### Question #103Topic 1

A company has a website running on Amazon EC2 instances across two Availability Zones. The company is expecting spikes in traffic on specific holidays, and wants to provide a consistent user experience. How can a solutions architect meet this requirement?

A. Use step scaling.

B. Use simple scaling.

C. Use lifecycle hooks.

D. Use scheduled scaling.

#### Question #104Topic 1

An ecommerce company is running a multi-tier application on AWS. The front-end and backend tiers both run on Amazon EC2, and the database runs on Amazon



RDS for MySQL. The backend tier communicates with the RDS instance. There are frequent calls to return identical datasets from the database that are causing performance slowdowns.

Which action should be taken to improve the performance of the backend?

- A. Implement Amazon SNS to store the database calls.
- B. Implement Amazon ElastiCache to cache the large datasets.
- C. Implement an RDS for MySQL read replica to cache database calls.
- D. Implement Amazon Kinesis Data Firehose to stream the calls to the database.

#### Question #105Topic 1

A company has an on-premises data center that is running out of storage capacity. The company wants to migrate its storage infrastructure to AWS while minimizing bandwidth costs. The solution must allow for immediate retrieval of data at no additional cost.

How can these requirements be met?

- A. Deploy Amazon S3 Glacier Vault and enable expedited retrieval. Enable provisioned retrieval capacity for the workload.
- B. Deploy AWS Storage Gateway using cached volumes. Use Storage Gateway to store data in Amazon S3 while retaining copies of frequently accessed data subsets locally.
- C. Deploy AWS Storage Gateway using stored volumes to store data locally. Use Storage Gateway to asynchronously back up point-in-time snapshots of the data to Amazon S3.
- D. Deploy AWS Direct Connect to connect with the on-premises data center. Configure AWS Storage Gateway to store data locally. Use Storage Gateway to asynchronously back up point-in-time snapshots of the data to Amazon S3.

#### Question #106Topic 1

A company is processing data on a daily basis. The results of the operations are stored in an Amazon S3 bucket, analyzed daily for one week, and then must remain immediately accessible for occasional analysis.

What is the MOST cost-effective storage solution alternative to the current configuration?

- A. Configure a lifecycle policy to delete the objects after 30 days.
- B. Configure a lifecycle policy to transition the objects to Amazon S3 Glacier after 30 days.
- C. Configure a lifecycle policy to transition the objects to Amazon S3 Standard-Infrequent Access (S3 Standard-IA) after 30 days.
- D. Configure a lifecycle policy to transition the objects to Amazon S3 One Zone-Infrequent Access (S3 One Zone-IA) after 30 days.

#### Question #107Topic 1

A company delivers files in Amazon S3 to certain users who do not have AWS credentials. These users must be given access for a limited time. What should a solutions architect do to securely meet these requirements?

- A. Enable public access on an Amazon S3 bucket.
- B. Generate a presigned URL to share with the users.
- C. Encrypt files using AWS KMS and provide keys to the users.
- D. Create and assign IAM roles that will grant GetObject permissions to the users.

#### Question #108Topic 1

A company wants to run a hybrid workload for data processing. The data needs to be accessed by on-premises applications for local data processing using an

NFS protocol, and must also be accessible from the AWS Cloud for further analytics and batch processing.

Which solution will meet these requirements?

- A. Use an AWS Storage Gateway file gateway to provide file storage to AWS, then perform analytics on this data in the AWS Cloud.
- B. Use an AWS Storage Gateway tape gateway to copy the backup of the local data to AWS, then perform analytics on this data in the AWS cloud.
- C. Use an AWS Storage Gateway volume gateway in a stored volume configuration to regularly take snapshots of the local data, then copy the data to AWS.
- D. Use an AWS Storage Gateway volume gateway in a cached volume configuration to back up all the local storage in the AWS cloud, then perform analytics on this data in the cloud.

#### Question #109Topic 1

A company plans to store sensitive user data on Amazon S3. Internal security compliance requirement mandate encryption of data before sending it to Amazon

S3.

What should a solutions architect recommend to satisfy these requirements?

- A. Server-side encryption with customer-provided encryption keys
- B. Client-side encryption with Amazon S3 managed encryption keys
- C. Server-side encryption with keys stored in AWS Key Management Service (AWS KMS)
- D. Client-side encryption with a master key stored in AWS Key Management Service (AWS KMS)

#### Question #110Topic 1

A solutions architect is moving the static content from a public website hosted on Amazon EC2 instances to an Amazon S3 bucket. An Amazon CloudFront distribution will be used to deliver the static assets. The security group used by the EC2 instances restricts access to a limited set of IP ranges. Access to the static content should be similarly restricted.

Which combination of steps will meet these requirements? (Choose two.)

- A. Create an origin access identity (OAI) and associate it with the distribution. Change the permissions in the bucket policy so that only the OAI can read the objects.
- B. Create an AWS WAF web ACL that includes the same IP restrictions that exist in the EC2 security group. Associate this new web ACL with the CloudFront distribution.
- C. Create a new security group that includes the same IP restrictions that exist in the current EC2 security group. Associate this new security group with the CloudFront distribution.
- D. Create a new security group that includes the same IP restrictions that exist in the current EC2 security group. Associate this new security group with the S3 bucket hosting the static content.
- E. Create a new IAM role and associate the role with the distribution. Change the permissions either on the S3 bucket or on the files within the S3 bucket so that only the newly created IAM role has read and download permissions.

#### Question #111Topic 1

A company is investigating potential solutions that would collect, process, and store users' service usage data. The business objective is to create an analytics capability that will enable the company to gather operational insights quickly using standard SQL queries. The solution should be highly available and ensure

Atomicity, Consistency, Isolation, and Durability (ACID) compliance in the data tier.

Which solution should a solutions architect recommend?

- A. Use an Amazon Timestream database.
- B. Use an Amazon Neptune database in a Multi-AZ design.
- C. Use a fully managed Amazon RDS for MySQL database in a Multi-AZ design.
- D. Deploy PostgreSQL on an Amazon EC2 instance that uses Amazon Elastic Block Store (Amazon EBS) Throughput Optimized HDD (st1) storage.

#### Question #112Topic 1

A company recently launched its website to serve content to its global user base. The company wants to store and accelerate the delivery of static content to its users by leveraging Amazon CloudFront with an Amazon EC2 instance attached as its origin.

How should a solutions architect optimize high availability for the application?

- A. Use Lambda@Edge for CloudFront.

- B. Use Amazon S3 Transfer Acceleration for CloudFront.
- C. Configure another EC2 instance in a different Availability Zone as part of the origin group.
- D. Configure another EC2 instance as part of the origin server cluster in the same Availability Zone.

Question #113Topic 1

An application running on an Amazon EC2 instance in VPC-A needs to access files in another EC2 instance in VPC-B. Both are in separate AWS accounts. The network administrator needs to design a solution to configure secure access to EC2 instance in VPC-B from VPC-A. The connectivity should not have a single point of failure or bandwidth concerns.

Which solution will meet these requirements?

- A. Set up a VPC peering connection between VPC-A and VPC-B.
- B. Set up VPC gateway endpoints for the EC2 instance running in VPC-B.
- C. Attach a virtual private gateway to VPC-B and set up routing from VPC-A.
- D. Create a private virtual interface (VIF) for the EC2 instance running in VPC-B and add appropriate routes from VPC-A.

Question #114Topic 1

A company currently stores symmetric encryption keys in a hardware security module (HSM). A solutions architect must design a solution to migrate key management to AWS. The solution should allow for key rotation and support the use of customer provided keys.

Where should the key material be stored to meet these requirements?

- A. Amazon S3
- B. AWS Secrets Manager
- C. AWS Systems Manager Parameter store
- D. AWS Key Management Service (AWS KMS)

Question #115Topic 1

A recent analysis of a company's IT expenses highlights the need to reduce backup costs. The company's chief information officer wants to simplify the on- premises backup infrastructure and reduce costs by eliminating the use of physical backup tapes. The company must preserve the existing investment in the on- premises backup applications and workflows.

What should a solutions architect recommend?

- A. Set up AWS Storage Gateway to connect with the backup applications using the NFS interface.

- B. Set up an Amazon EFS file system that connects with the backup applications using the NFS interface.
- C. Set up an Amazon EFS file system that connects with the backup applications using the iSCSI interface.
- D. Set up AWS Storage Gateway to connect with the backup applications using the iSCSI-virtual tape library (VTL) interface.

Question #116Topic 1

A company hosts an application on an Amazon EC2 instance that requires a maximum of 200 GB storage space. The application is used infrequently, with peaks during mornings and evenings. Disk I/O varies, but peaks at 3,000 IOPS. The chief financial officer of the company is concerned about costs and has asked a solutions architect to recommend the most cost-effective storage option that does not sacrifice performance.

Which solution should the solutions architect recommend?

- A. Amazon Elastic Block Store (Amazon EBS) Cold HDD (sc1)
- B. Amazon Elastic Block Store (Amazon EBS) General Purpose SSD (gp2)
- C. Amazon Elastic Block Store (Amazon EBS) Provisioned IOPS SSD (io1)
- D. Amazon Elastic Block Store (Amazon EBS) Throughput Optimized HDD (st1)

Question #117Topic 1

A company's application hosted on Amazon EC2 instances needs to access an Amazon S3 bucket. Due to data sensitivity, traffic cannot traverse the internet.

How should a solutions architect configure access?

- A. Create a private hosted zone using Amazon Route 53.
- B. Configure a VPC gateway endpoint for Amazon S3 in the VPC.
- C. Configure AWS PrivateLink between the EC2 instance and the S3 bucket.
- D. Set up a site-to-site VPN connection between the VPC and the S3 bucket.

Question #118Topic 1

A company has two applications it wants to migrate to AWS. Both applications process a large set of files by accessing the same files at the same time. Both applications need to read the files with low latency.

Which architecture should a solutions architect recommend for this situation?

- A. Configure two AWS Lambda functions to run the applications. Create an Amazon EC2 instance with an instance store volume to store the data.

- B. Configure two AWS Lambda functions to run the applications. Create an Amazon EC2 instance with an Amazon Elastic Block Store (Amazon EBS) volume to store the data.
- C. Configure one memory optimized Amazon EC2 instance to run both applications simultaneously. Create an Amazon Elastic Block Store (Amazon EBS) volume with Provisioned IOPS to store the data.
- D. Configure two Amazon EC2 instances to run both applications. Configure Amazon Elastic File System (Amazon EFS) with General Purpose performance mode and Bursting Throughput mode to store the data.

Question #119Topic 1

An ecommerce company has noticed performance degradation of its Amazon RDS based web application. The performance degradation is attributed to an increase in the number of read-only SQL queries triggered by business analysts. A solutions architect needs to solve the problem with minimal changes to the existing web application.

What should the solutions architect recommend?

- A. Export the data to Amazon DynamoDB and have the business analysts run their queries.
- B. Load the data into Amazon ElastiCache and have the business analysts run their queries.
- C. Create a read replica of the primary database and have the business analysts run their queries.
- D. Copy the data into an Amazon Redshift cluster and have the business analysts run their queries.

Question #120Topic 1

A company is running a highly sensitive application on Amazon EC2 backed by an Amazon RDS database. Compliance regulations mandate that all personally identifiable information (PII) be encrypted at rest.

Which solution should a solutions architect recommend to meet this requirement with the LEAST amount of changes to the infrastructure?

- A. Deploy AWS Certificate Manager to generate certificates. Use the certificates to encrypt the database volume.
- B. Deploy AWS CloudHSM, generate encryption keys, and use the keys to encrypt database volumes.
- C. Configure SSL encryption using AWS Key Management Service (AWS KMS) to encrypt database volumes.
- D. Configure Amazon Elastic Block Store (Amazon EBS) encryption and Amazon RDS encryption with AWS Key Management Service (AWS KMS) keys to encrypt instance and database volumes.

Question #121Topic 1

A company running an on-premises application is migrating the application to AWS to increase its elasticity and availability. The current architecture uses a

Microsoft SQL Server database with heavy read activity. The company wants to explore alternate database options and migrate database engines, if needed.

Every 4 hours, the development team does a full copy of the production database to populate a test database. During this period, users experience latency.

What should a solutions architect recommend as replacement database?

A. Use Amazon Aurora with Multi-AZ Aurora Replicas and restore from mysqldump for the test database.

B. Use Amazon Aurora with Multi-AZ Aurora Replicas and restore snapshots from Amazon RDS for the test database.

C. Use Amazon RDS for MySQL with a Multi-AZ deployment and read replicas, and use the standby instance for the test database.

D. Use Amazon RDS for SQL Server with a Multi-AZ deployment and read replicas, and restore snapshots from RDS for the test database.

Question #122Topic 1

A company has enabled AWS CloudTrail logs to deliver log files to an Amazon S3 bucket for each of its developer accounts. The company has created a central

AWS account for streamlining management and audit reviews. An internal auditor needs to access the CloudTrail logs, yet access needs to be restricted for all developer account users. The solution must be secure and optimized.

How should a solutions architect meet these requirements?

A. Configure an AWS Lambda function in each developer account to copy the log files to the central account. Create an IAM role in the central account for the auditor. Attach an IAM policy providing read-only permissions to the bucket.

B. Configure CloudTrail from each developer account to deliver the log files to an S3 bucket in the central account. Create an IAM user in the central account for the auditor. Attach an IAM policy providing full permissions to the bucket.

C. Configure CloudTrail from each developer account to deliver the log files to an S3 bucket in the central account. Create an IAM role in the central account for the auditor. Attach an IAM policy providing read-only permissions to the bucket.

D. Configure an AWS Lambda function in the central account to copy the log files from the S3 bucket in each developer account. Create an IAM user in the central account for the auditor. Attach an IAM policy providing full permissions to the bucket.

Question #123Topic 1

A company has several business systems that require access to data stored in a file share. The business systems will access the file share using the Server

Message Block (SMB) protocol. The file share solution should be accessible from both of the company's legacy on-premises environments and with AWS.

Which services meet the business requirements? (Choose two.)

- A. Amazon Elastic Block Store (Amazon EBS)
- B. Amazon Elastic File System (Amazon EFS)
- C. Amazon FSx for Windows
- D. Amazon S3
- E. AWS Storage Gateway file gateway

#### Question #124Topic 1

A company is using Amazon EC2 to run its big data analytics workloads. These variable workloads run each night, and it is critical they finish by the start of business the following day. A solutions architect has been tasked with designing the MOST cost-effective solution.

Which solution will accomplish this?

- A. Spot Fleet
- B. Spot Instances
- C. Reserved Instances
- D. On-Demand Instances

#### Question #125Topic 1

A company has a Microsoft Windows-based application that must be migrated to AWS. This application requires the use of a shared Windows file system attached to multiple Amazon EC2 Windows instances.

What should a solutions architect do to accomplish this?

- A. Configure a volume using Amazon Elastic File System (Amazon EFS). Mount the EFS volume to each Windows instance.
- B. Configure AWS Storage Gateway in Volume Gateway mode. Mount the volume to each Windows instance.
- C. Configure Amazon FSx for Windows File Server. Mount the Amazon FSx volume to each Windows instance.
- D. Configure an Amazon Elastic Block Store (Amazon EBS) volume with the required size. Attach each EC2 instance to the volume. Mount the file system within the volume to each Windows instance.



Question #126Topic 1

A company has created an isolated backup of its environment in another Region. The application is running in warm standby mode and is fronted by an

Application Load Balancer (ALB). The current failover process is manual and requires updating a DNS alias record to point to the secondary ALB in another

Region.

What should a solutions architect do to automate the failover process?

- A. Enable an ALB health check
- B. Enable an Amazon Route 53 health check.
- C. Create a CNAME record on Amazon Route 53 pointing to the ALB endpoint.
- D. Create conditional forwarding rules on Amazon Route 53 pointing to an internal BIND DNS server.

Question #127Topic 1

A company has a mobile chat application with a data store based in Amazon DynamoDB. Users would like new messages to be read with as little latency as possible. A solutions architect needs to design an optimal solution that requires minimal application changes.

Which method should the solutions architect select?

- A. Configure Amazon DynamoDB Accelerator (DAX) for the new messages table. Update the code to use the DAX endpoint.
- B. Add DynamoDB read replicas to handle the increased read load. Update the application to point to the read endpoint for the read replicas.
- C. Double the number of read capacity units for the new messages table in DynamoDB. Continue to use the existing DynamoDB endpoint.
- D. Add an Amazon ElastiCache for Redis cache to the application stack. Update the application to point to the Redis cache endpoint instead of DynamoDB.

Question #128Topic 1

A company is creating an architecture for a mobile app that requires minimal latency for its users. The company's architecture consists of Amazon EC2 instances behind an Application Load Balancer running in an Auto Scaling group. The EC2 instances connect to Amazon RDS. Application beta testing showed there was a slowdown when reading the data. However, the metrics indicate that the EC2 instances do not cross any CPU utilization thresholds.

How can this issue be addressed?

- A. Reduce the threshold for CPU utilization in the Auto Scaling group.
- B. Replace the Application Load Balancer with a Network Load Balancer.

- C. Add read replicas for the RDS instances and direct read traffic to the replica.
- D. Add Multi-AZ support to the RDS instances and direct read traffic to the new EC2 instance.

Question #129Topic 1

A company has implemented one of its microservices on AWS Lambda that accesses an Amazon DynamoDB table named Books. A solutions architect is designing an IAM policy to be attached to the Lambda function's IAM role, giving it access to put, update, and delete items in the Books table. The IAM policy must prevent function from performing any other actions on the Books table or any other.

Which IAM policy would fulfill these needs and provide the LEAST privileged access?

A.

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Sid": "PutUpdateDeleteOnBooks",
      "Effect": "Allow",
      "Action": [
        "dynamodb: PutItem",
        "dynamodb: UpdateItem",
        "dynamodb: DeleteItem"
      ],
      "Resource": "arn:aws:dynamodb:us-west-2:123456789012:table/"
    }
  ]
}
```

B.

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Sid": "PutUpdateDeleteOnBooks",
      "Effect": "Allow",
      "Action": [
        "dynamodb: PutItem",
        "dynamodb: UpdateItem",
        "dynamodb: DeleteItem"
      ],
      "Resource": "arn:aws:dynamodb:us-west-2:123456789012:table/"
    }
  ]
}
```

C.

```

{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Sid": "PutUpdateDeleteOnBooks",
      "Effect": "Allow",
      "Action": [
        "dynamodb: PutItem",
        "dynamodb: UpdateItem",
        "dynamodb: DeleteItem"
      ],
      "Resource": "arn:aws:dynamodb:us-west-2:123456789012:table/"
    }
  ]
}

```

D.

```

{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Sid": "PutUpdateDeleteOnBooks",
      "Effect": "Allow",
      "Action": "dynamodb:*",
      "Resource": "arn:aws:dynamodb:us-west-2:123456789012:table/Books"
    },
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      "Action": "dynamodb:*:* ",
      "Resource": "arn:aws:dynamodb:us-west-2:123456789012:table/Books"
    }
  ]
}

```

#### Question #130Topic 1

A company hosts its website on Amazon S3. The website serves petabytes of outbound traffic monthly, which accounts for most of the company's AWS costs.

What should a solutions architect do to reduce costs?

- A. Configure Amazon CloudFront with the existing website as the origin.
- B. Move the website to Amazon EC2 with Amazon Elastic Block Store (Amazon EBS) volumes for storage.

- C. Use AWS Global Accelerator and specify the existing website as the endpoint.
- D. Rearchitect the website to run on a combination of Amazon API Gateway and AWS Lambda.

Question #131Topic 1

A company runs a website on Amazon EC2 instances behind an ELB Application Load Balancer. Amazon Route 53 is used for the DNS. The company wants to set up a backup website with a message including a phone number and email address that users can reach if the primary website is down.

How should the company deploy this solution?

- A. Use Amazon S3 website hosting for the backup website and Route 53 failover routing policy.
- B. Use Amazon S3 website hosting for the backup website and Route 53 latency routing policy.
- C. Deploy the application in another AWS Region and use ELB health checks for failover routing.
- D. Deploy the application in another AWS Region and use server-side redirection on the primary website.

Question #132Topic 1

A media company is evaluating the possibility of moving its systems to the AWS Cloud. The company needs at least 10 TB of storage with the maximum possible

I/O performance for video processing, 300 TB of very durable storage for storing media content, and 900 TB of storage to meet requirements for archival media that is not in use anymore.

Which set of services should a solutions architect recommend to meet these requirements?

- A. Amazon Elastic Block Store (Amazon EBS) for maximum performance, Amazon S3 for durable data storage, and Amazon S3 Glacier for archival storage
- B. Amazon Elastic Block Store (Amazon EBS) for maximum performance, Amazon Elastic File System (Amazon EFS) for durable data storage, and Amazon S3 Glacier for archival storage
- C. Amazon EC2 instance store for maximum performance, Amazon Elastic File System (Amazon EFS) for durable data storage, and Amazon S3 for archival storage
- D. Amazon EC2 instance store for maximum performance, Amazon S3 for durable data storage, and Amazon S3 Glacier for archival storage

Question #133Topic 1

A company uses Amazon S3 as its object storage solution. The company has thousands of S3 buckets it uses to store data. Some of the S3 buckets have data that is accessed less frequently than others. A solutions architect found that lifecycle policies are not consistently implemented or are implemented partially, resulting in data being stored in high-cost storage.

Which solution will lower costs without compromising the availability of objects?

- A. Use S3 ACLs.

- B. Use Amazon Elastic Block Store (Amazon EBS) automated snapshots.
- C. Use S3 Intelligent-Tiering storage.
- D. Use S3 One Zone-Infrequent Access (S3 One Zone-IA).

Question #134Topic 1

An application is running on Amazon EC2 instances. Sensitive information required for the application is stored in an Amazon S3 bucket. The bucket needs to be protected from internet access while only allowing services within the VPC access to the bucket.

Which combination of actions should solutions architect take to accomplish this? (Choose two.)

- A. Create a VPC endpoint for Amazon S3.
- B. Enable server access logging on the bucket.
- C. Apply a bucket policy to restrict access to the S3 endpoint.
- D. Add an S3 ACL to the bucket that has sensitive information.
- E. Restrict users using the IAM policy to use the specific bucket.

Question #135Topic 1

A web application runs on Amazon EC2 instances behind an Application Load Balancer. The application allows users to create custom reports of historical weather data. Generating a report can take up to 5 minutes. These long-running requests use many of the available incoming connections, making the system unresponsive to other users.

How can a solutions architect make the system more responsive?

- A. Use Amazon SQS with AWS Lambda to generate reports.
- B. Increase the idle timeout on the Application Load Balancer to 5 minutes.
- C. Update the client-side application code to increase its request timeout to 5 minutes.
- D. Publish the reports to Amazon S3 and use Amazon CloudFront for downloading to the user.

Question #136Topic 1

A solutions architect must create a highly available bastion host architecture. The solution needs to be resilient within a single AWS Region and should require only minimal effort to maintain.

What should the solutions architect do to meet these requirements?

- A. Create a Network Load Balancer backed by an Auto Scaling group with a UDP listener.

- B. Create a Network Load Balancer backed by a Spot Fleet with instances in a partition placement group.
- C. Create a Network Load Balancer backed by the existing servers in different Availability Zones as the target.
- D. Create a Network Load Balancer backed by an Auto Scaling group with instances in multiple Availability Zones as the target.

Question #137Topic 1

A three-tier web application processes orders from customers. The web tier consists of Amazon EC2 instances behind an Application Load Balancer, a middle tier of three EC2 instances decoupled from the web tier using Amazon SQS, and an Amazon DynamoDB backend. At peak times, customers who submit orders using the site have to wait much longer than normal to receive confirmations due to lengthy processing times. A solutions architect needs to reduce these processing times.

Which action will be MOST effective in accomplishing this?

- A. Replace the SQS queue with Amazon Kinesis Data Firehose.
- B. Use Amazon ElastiCache for Redis in front of the DynamoDB backend tier.
- C. Add an Amazon CloudFront distribution to cache the responses for the web tier.
- D. Use Amazon EC2 Auto Scaling to scale out the middle tier instances based on the SQS queue depth.

Question #138Topic 1

A company relies on an application that needs at least 4 Amazon EC2 instances during regular traffic and must scale up to 12 EC2 instances during peak loads.

The application is critical to the business and must be highly available.

Which solution will meet these requirements?

- A. Deploy the EC2 instances in an Auto Scaling group. Set the minimum to 4 and the maximum to 12, with 2 in Availability Zone A and 2 in Availability Zone B.
- B. Deploy the EC2 instances in an Auto Scaling group. Set the minimum to 4 and the maximum to 12, with all 4 in Availability Zone A.
- C. Deploy the EC2 instances in an Auto Scaling group. Set the minimum to 8 and the maximum to 12, with 4 in Availability Zone A and 4 in Availability Zone B.
- D. Deploy the EC2 instances in an Auto Scaling group. Set the minimum to 8 and the maximum to 12, with all 8 in Availability Zone A.

Question #139Topic 1

A solutions architect must design a solution for a persistent database that is being migrated from on-premises to AWS. The database requires 64,000 IOPS according to the database administrator. If possible, the database administrator wants to use a single Amazon Elastic Block Store (Amazon EBS) volume to host the database instance.

Which solution effectively meets the database administrator's criteria?

- A. Use an instance from the I3 I/O optimized family and leverage local ephemeral storage to achieve the IOPS requirement.
- B. Create a Nitro-based Amazon EC2 instance with an Amazon Elastic Block Store (Amazon EBS) Provisioned IOPS SSD (io1) volume attached. Configure the volume to have 64,000 IOPS.
- C. Create and map an Amazon Elastic File System (Amazon EFS) volume to the database instance and use the volume to achieve the required IOPS for the database.
- D. Provision two volumes and assign 32,000 IOPS to each. Create a logical volume at the operating system level that aggregates both volumes to achieve the IOPS requirements.

#### Question #140Topic 1

A solutions architect is designing an architecture for a new application that requires low network latency and high network throughput between Amazon EC2 instances. Which component should be included in the architectural design?

- A. An Auto Scaling group with Spot Instance types.
- B. A placement group using a cluster placement strategy.
- C. A placement group using a partition placement strategy.
- D. An Auto Scaling group with On-Demand instance types.

#### Question #141Topic 1

A company has global users accessing an application deployed in different AWS Regions, exposing public static IP addresses. The users are experiencing poor performance when accessing the application over the internet.

What should a solutions architect recommend to reduce internet latency?

- A. Set up AWS Global Accelerator and add endpoints.
- B. Set up AWS Direct Connect locations in multiple Regions.
- C. Set up an Amazon CloudFront distribution to access an application.
- D. Set up an Amazon Route 53 geoproximity routing policy to route traffic.

#### Question #142Topic 1

A company wants to migrate a workload to AWS. The chief information security officer requires that all data be encrypted at rest when stored in the cloud. The company wants complete control of encryption key lifecycle management.

The company must be able to immediately remove the key material and audit key usage independently of AWS CloudTrail. The chosen services should integrate with other storage services that will be used on AWS.

Which services satisfies these security requirements?

- A. AWS CloudHSM with the CloudHSM client
- B. AWS Key Management Service (AWS KMS) with AWS CloudHSM
- C. AWS Key Management Service (AWS KMS) with an external key material origin
- D. AWS Key Management Service (AWS KMS) with AWS managed customer master keys (CMKs)

Question #143Topic 1

A company recently deployed a two-tier application in two Availability Zones in the us-east-1 Region. The databases are deployed in a private subnet while the web servers are deployed in a public subnet. An internet gateway is attached to the VPC. The application and database run on Amazon EC2 instances. The database servers are unable to access patches on the internet. A solutions architect needs to design a solution that maintains database security with the least operational overhead.

Which solution meets these requirements?

- A. Deploy a NAT gateway inside the public subnet for each Availability Zone and associate it with an Elastic IP address. Update the routing table of the private subnet to use it as the default route.
- B. Deploy a NAT gateway inside the private subnet for each Availability Zone and associate it with an Elastic IP address. Update the routing table of the private subnet to use it as the default route.
- C. Deploy two NAT instances inside the public subnet for each Availability Zone and associate them with Elastic IP addresses. Update the routing table of the private subnet to use it as the default route.
- D. Deploy two NAT instances inside the private subnet for each Availability Zone and associate them with Elastic IP addresses. Update the routing table of the private subnet to use it as the default route.

Question #144Topic 1

A company has an application with a REST-based interface that allows data to be received in near-real time from a third-party vendor. Once received, the application processes and stores the data for further analysis. The application is running on Amazon EC2 instances.



The third-party vendor has received many 503 Service Unavailable Errors when sending data to the application. When the data volume spikes, the compute capacity reaches its maximum limit and the application is unable to process all requests.

Which design should a solutions architect recommend to provide a more scalable solution?

- A. Use Amazon Kinesis Data Streams to ingest the data. Process the data using AWS Lambda functions.
- B. Use Amazon API Gateway on top of the existing application. Create a usage plan with a quota limit for the third-party vendor.
- C. Use Amazon Simple Notification Service (Amazon SNS) to ingest the data. Put the EC2 instances in an Auto Scaling group behind an Application Load Balancer.
- D. Repackage the application as a container. Deploy the application using Amazon Elastic Container Service (Amazon ECS) using the EC2 launch type with an Auto Scaling group.

Question #145Topic 1

A solutions architect needs to design a low-latency solution for a static single-page application accessed by users utilizing a custom domain name. The solution must be serverless, encrypted in transit, and cost-effective.

Which combination of AWS services and features should the solutions architect use? (Choose two.)

- A. Amazon S3
- B. Amazon EC2
- C. AWS Fargate
- D. Amazon CloudFront
- E. Elastic Load Balancer

Question #146Topic 1

A company is migrating to the AWS Cloud. A file server is the first workload to migrate. Users must be able to access the file share using the Server Message

Block (SMB) protocol. Which AWS managed service meets these requirements?

- A. Amazon Elastic Block Store (Amazon EBS)
- B. Amazon EC2
- C. Amazon FSx
- D. Amazon S3

Question #147Topic 1

A solutions architect is designing a customer-facing application. The application is expected to have a variable amount of reads and writes depending on the time of year and clearly defined access patterns throughout the year. Management requires that database auditing and scaling be managed in the AWS Cloud. The

Recovery Point Objective (RPO) must be less than 5 hours.

Which solutions can accomplish this? (Choose two.)

- A. Use Amazon DynamoDB with auto scaling. Use on-demand backups and AWS CloudTrail.
- B. Use Amazon DynamoDB with auto scaling. Use on-demand backups and Amazon DynamoDB Streams.
- C. Use Amazon Redshift Configure concurrency scaling. Enable audit logging. Perform database snapshots every 4 hours.
- D. Use Amazon RDS with Provisioned IOPS. Enable the database auditing parameter. Perform database snapshots every 5 hours.
- E. Use Amazon RDS with auto scaling. Enable the database auditing parameter. Configure the backup retention period to at least 1 day.

Question #148Topic 1

A company has migrated an on-premises Oracle database to an Amazon RDS for Oracle Multi-AZ DB instance in the us-east-1 Region. A solutions architect is designing a disaster recovery strategy to have the database provisioned in the us-west-2 Region in case the database becomes unavailable in the us-east-1

Region. The design must ensure the database is provisioned in the us-west-2 Region in a maximum of 2 hours, with a data loss window of no more than 3 hours.

How can these requirements be met?

- A. Edit the DB instance and create a read replica in us-west-2. Promote the read replica to master in us-west-2 in case the disaster recovery environment needs to be activated.
- B. Select the multi-Region option to provision a standby instance in us-west-2. The standby instance will be automatically promoted to master in us-west-2 in case the disaster recovery environment needs to be created.
- C. Take automated snapshots of the database instance and copy them to us-west-2 every 3 hours. Restore the latest snapshot to provision another database instance in us-west-2 in case the disaster recovery environment needs to be activated.
- D. Create a multimaster read/write instances across multiple AWS Regions. Select VPCs in us-east-1 and us-west-2 to make that deployment. Keep the master read/write instance in us-west-2 available to avoid having to activate a disaster recovery environment.

#### Question #149Topic 1

A monolithic application was recently migrated to AWS and is now running on a single Amazon EC2 instance. Due to application limitations, it is not possible to use automatic scaling to scale out the application. The chief technology officer (CTO) wants an automated solution to restore the EC2 instance in the unlikely event the underlying hardware fails.

What would allow for automatic recovery of the EC2 instance as quickly as possible?

- A. Configure an Amazon CloudWatch alarm that triggers the recovery of the EC2 instance if it becomes impaired.
- B. Configure an Amazon CloudWatch alarm to trigger an SNS message that alerts the CTO when the EC2 instance is impaired.
- C. Configure AWS CloudTrail to monitor the health of the EC2 instance, and if it becomes impaired, trigger instance recovery.
- D. Configure an Amazon EventBridge event to trigger an AWS Lambda function once an hour that checks the health of the EC2 instance and triggers instance recovery if the EC2 instance is unhealthy.

#### Question #150Topic 1

A solutions architect is working on optimizing a legacy document management application running on Microsoft Windows Server in an on-premises data center.

The application stores a large number of files on a network file share. The chief information officer wants to reduce the on-premises data center footprint and minimize storage costs by moving on-premises storage to AWS.

What should the solutions architect do to meet these requirements?

- A. Set up an AWS Storage Gateway file gateway.
- B. Set up Amazon Elastic File System (Amazon EFS)
- C. Set up AWS Storage Gateway as a volume gateway
- D. Set up an Amazon Elastic Block Store (Amazon EBS) volume.

#### Question #151Topic 1

A solutions architect is designing a hybrid application using the AWS cloud. The network between the on-premises data center and AWS will use an AWS Direct

Connect (DX) connection. The application connectivity between AWS and the on-premises data center must be highly resilient.

Which DX configuration should be implemented to meet these requirements?

- A. Configure a DX connection with a VPN on top of it.
- B. Configure DX connections at multiple DX locations.

- C. Configure a DX connection using the most reliable DX partner.
- D. Configure multiple virtual interfaces on top of a DX connection.

Question #152Topic 1

A company runs an application on Amazon EC2 instances. The application is deployed in private subnets in three Availability Zones of the us-east-1 Region. The instances must be able to connect to the internet to download files. The company wants a design that is highly available across the Region.

Which solution should be implemented to ensure that there are no disruptions to internet connectivity?

- A. Deploy a NAT instance in a private subnet of each Availability Zone.
- B. Deploy a NAT gateway in a public subnet of each Availability Zone.
- C. Deploy a transit gateway in a private subnet of each Availability Zone.
- D. Deploy an internet gateway in a public subnet of each Availability Zone.

Question #153Topic 1

Application developers have noticed that a production application is very slow when business reporting users run large production reports against the Amazon

RDS instance backing the application. The CPU and memory utilization metrics for the RDS instance do not exceed 60% while the reporting queries are running.

The business reporting users must be able to generate reports without affecting the application's performance.

Which action will accomplish this?

- A. Increase the size of the RDS instance.
- B. Create a read replica and connect the application to it.
- C. Enable multiple Availability Zones on the RDS instance.
- D. Create a read replica and connect the business reports to it.

Question #154Topic 1

A company is running a two-tier ecommerce website using AWS services. The current architect uses a publish-facing Elastic Load Balancer that sends traffic to

Amazon EC2 instances in a private subnet. The static content is hosted on EC2 instances, and the dynamic content is retrieved from a MySQL database. The application is running in the United States. The company recently started selling to users in Europe and Australia. A solutions architect needs to design solution so their international users have an improved browsing experience.

Which solution is MOST cost-effective?

- A. Host the entire website on Amazon S3.
- B. Use Amazon CloudFront and Amazon S3 to host static images.
- C. Increase the number of public load balancers and EC2 instances.
- D. Deploy the two-tier website in AWS Regions in Europe and Australia.

Question #155Topic 1

A company's website provides users with downloadable historical performance reports. The website needs a solution that will scale to meet the company's website demands globally. The solution should be cost-effective, limit the provisioning of infrastructure resources, and provide the fastest possible response time.

Which combination should a solutions architect recommend to meet these requirements?

- A. Amazon CloudFront and Amazon S3
- B. AWS Lambda and Amazon DynamoDB
- C. Application Load Balancer with Amazon EC2 Auto Scaling
- D. Amazon Route 53 with internal Application Load Balancers

Question #156Topic 1

A company wants to deploy a shared file system for its .NET application servers and Microsoft SQL Server databases running on Amazon EC2 instances with

Windows Server 2016. The solution must be able to be integrated into the corporate Active Directory domain, be highly durable, be managed by AWS, and provide high levels of throughput and IOPS.

Which solution meets these requirements?

- A. Use Amazon FSx for Windows File Server.
- B. Use Amazon Elastic File System (Amazon EFS).
- C. Use AWS Storage Gateway in file gateway mode.
- D. Deploy a Windows file server on two On Demand instances across two Availability Zones.

Question #157Topic 1

A company that develops web applications has launched hundreds of Application Load Balancers (ALBs) in multiple Regions. The company wants to create an allow list for the IPs of all the load balancers on its firewall device. A solutions architect is looking for a one-time, highly

available solution to address this request, which will also help reduce the number of IPs that need to be allowed by the firewall.

What should the solutions architect recommend to meet these requirements?

- A. Create a AWS Lambda function to keep track of the IPs for all the ALBs in different Regions. Keep refreshing this list.
- B. Set up a Network Load Balancer (NLB) with Elastic IPs. Register the private IPs of all the ALBs as targets to this NLB.
- C. Launch AWS Global Accelerator and create endpoints for all the Regions. Register all the ALBs in different Regions to the corresponding endpoints.
- D. Set up an Amazon EC2 instance, assign an Elastic IP to this EC2 instance, and configure the instance as a proxy to forward traffic to all the ALBs.

#### Question #158Topic 1

A company runs an application using Amazon ECS. The application creates resized versions of an original image and then makes Amazon S3 API calls to store the resized images in Amazon S3. How can a solutions architect ensure that the application has permission to access Amazon S3?

- A. Update the S3 role in AWS IAM to allow read/write access from Amazon ECS, and then relaunch the container.
- B. Create an IAM role with S3 permissions, and then specify that role as the taskRoleArn in the task definition.
- C. Create a security group that allows access from Amazon ECS to Amazon S3, and update the launch configuration used by the ECS cluster.
- D. Create an IAM user with S3 permissions, and then relaunch the Amazon EC2 instances for the ECS cluster while logged in as this account.

#### Question #159Topic 1

A company is planning to migrate its virtual server-based workloads to AWS. The company has internet-facing load balancers backed by application servers. The application servers rely on patches from an internet-hosted repository.

Which services should a solutions architect recommend be hosted on the public subnet?  
(Choose two.)

- A. NAT gateway
- B. Amazon RDS DB instances
- C. Application Load Balancers
- D. Amazon EC2 application servers

## E. Amazon Elastic File System (Amazon EFS) volumes

### Question #160Topic 1

A company has established a new AWS account. The account is newly provisioned and no changes have been made to the default settings. The company is concerned about the security of the AWS account root user.

What should be done to secure the root user?

- A. Create IAM users for daily administrative tasks. Disable the root user.
- B. Create IAM users for daily administrative tasks. Enable multi-factor authentication on the root user.
- C. Generate an access key for the root user. Use the access key for daily administration tasks instead of the AWS Management Console.
- D. Provide the root user credentials to the most senior solutions architect. Have the solutions architect use the root user for daily administration tasks.

### Question #161Topic 1

A company is using a tape backup solution to store its key application data offsite. The daily data volume is around 50 TB. The company needs to retain the backups for 7 years for regulatory purposes. The backups are rarely accessed, and a week's notice is typically given if a backup needs to be restored.

The company is now considering a cloud-based option to reduce the storage costs and operational burden of managing tapes. The company also wants to make sure that the transition from tape backups to the cloud minimizes disruptions.

Which storage solution is MOST cost-effective?

- A. Use Amazon Storage Gateway to back up to Amazon Glacier Deep Archive.
- B. Use AWS Snowball Edge to directly integrate the backups with Amazon S3 Glacier.
- C. Copy the backup data to Amazon S3 and create a lifecycle policy to move the data to Amazon S3 Glacier.
- D. Use Amazon Storage Gateway to back up to Amazon S3 and create a lifecycle policy to move the backup to Amazon S3 Glacier.

### Question #162Topic 1

A company requires a durable backup storage solution for its on-premises database servers while ensuring on-premises applications maintain access to these backups for quick recovery. The company will use AWS storage services as the destination for these backups. A solutions architect is designing a solution with minimal operational overhead.

Which solution should the solutions architect implement?

- A. Deploy an AWS Storage Gateway file gateway on-premises and associate it with an Amazon S3 bucket.
- B. Back up the databases to an AWS Storage Gateway volume gateway and access it using the Amazon S3 API.
- C. Transfer the database backup files to an Amazon Elastic Block Store (Amazon EBS) volume attached to an Amazon EC2 instance.
- D. Back up the database directly to an AWS Snowball device and use lifecycle rules to move the data to Amazon S3 Glacier Deep Archive.

Question #163Topic 1

A company decides to migrate its three-tier web application from on-premises to the AWS Cloud. The new database must be capable of dynamically scaling storage capacity and performing table joins.

Which AWS service meets these requirements?

- A. Amazon Aurora
- B. Amazon RDS for SqlServer
- C. Amazon DynamoDB Streams
- D. Amazon DynamoDB on-demand

Question #164Topic 1

A company mandates that an Amazon S3 gateway endpoint must allow traffic to trusted buckets only.

Which method should a solutions architect implement to meet this requirement?

- A. Create a bucket policy for each of the company's trusted S3 buckets that allows traffic only from the company's trusted VPCs.
- B. Create a bucket policy for each of the company's trusted S3 buckets that allows traffic only from the company's S3 gateway endpoint IDs.
- C. Create an S3 endpoint policy for each of the company's S3 gateway endpoints that blocks access from any VPC other than the company's trusted VPCs.
- D. Create an S3 endpoint policy for each of the company's S3 gateway endpoints that provides access to the Amazon Resource Name (ARN) of the trusted S3 buckets.

Question #165Topic 1



A company is using a VPC peering strategy to connect its VPCs in a single Region to allow for cross-communication. A recent increase in account creations and

VPCs has made it difficult to maintain the VPC peering strategy, and the company expects to grow to hundreds of VPCs. There are also new requests to create site-to-site VPNs with some of the VPCs. A solutions architect has been tasked with creating a centrally managed networking setup for multiple accounts, VPCs, and VPNs.

Which networking solution meets these requirements?

- A. Configure shared VPCs and VPNs and share to each other.
- B. Configure a hub-and-spoke VPC and route all traffic through VPC peering.
- C. Configure an AWS Direct Connect connection between all VPCs and VPNs.
- D. Configure a transit gateway with AWS Transit Gateway and connect all VPCs and VPNs.

#### Question #166Topic 1

A solutions architect is helping a developer design a new ecommerce shopping cart application using AWS services. The developer is unsure of the current database schema and expects to make changes as the ecommerce site grows. The solution needs to be highly resilient and capable of automatically scaling read and write capacity.

Which database solution meets these requirements?

- A. Amazon Aurora PostgreSQL
- B. Amazon DynamoDB with on-demand enabled
- C. Amazon DynamoDB with DynamoDB Streams enabled
- D. Amazon SQS and Amazon Aurora PostgreSQL

#### Question #167Topic 1

A solutions architect must migrate a Windows internet information Services (IIS) web application to AWS. The application currently relies on a file share hosted in the user's on-premises network-attached storage (NAS). The solutions architect has proposed migrating the IIS web servers to Amazon EC2 instances in multiple Availability Zones that are connected to the storage solution, and configuring an Elastic Load Balancer attached to the instances.

Which replacement to the on-premises file share is MOST resilient and durable?

- A. Migrate the file Share to Amazon RDS.
- B. Migrate the file Share to AWS Storage Gateway
- C. Migrate the file Share to Amazon FSx for Windows File Server.
- D. Migrate the file share to Amazon Elastic File System (Amazon EFS)

Question #168Topic 1

A company needs to implement a relational database with a multi-Region disaster recovery Recovery Point Objective (RPO) of 1 second and a Recovery Time

Objective (RTO) of 1 minute.

Which AWS solution can achieve this?

- A. Amazon Aurora Global Database
- B. Amazon DynamoDB global tables
- C. Amazon RDS for MySQL with Multi-AZ enabled
- D. Amazon RDS for MySQL with a cross-Region snapshot copy

Question #169Topic 1

A company runs a web service on Amazon EC2 instances behind an Application Load Balancer. The instances run in an Amazon EC2 Auto Scaling group across two Availability Zones. The company needs a minimum of four instances at all times to meet the required service level agreement (SLA) while keeping costs low.

If an Availability Zone fails, how can the company remain compliant with the SLA?

- A. Add a target tracking scaling policy with a short cooldown period.
- B. Change the Auto Scaling group launch configuration to use a larger instance type.
- C. Change the Auto Scaling group to use six servers across three Availability Zones.
- D. Change the Auto Scaling group to use eight servers across two Availability Zones.

Question #170Topic 1

A company is reviewing its AWS Cloud deployment to ensure its data is not accessed by anyone without appropriate authorization. A solutions architect is tasked with identifying all open Amazon S3 buckets and recording any S3 bucket configuration changes.

What should the solutions architect do to accomplish this?

- A. Enable AWS Config service with the appropriate rules
- B. Enable AWS Trusted Advisor with the appropriate checks.
- C. Write a script using an AWS SDK to generate a bucket report
- D. Enable Amazon S3 server access logging and configure Amazon CloudWatch Events.

Question #171Topic 1

A company is planning to build a new web application on AWS. The company expects predictable traffic most of the year and very high traffic on occasion. The web application needs to be highly available and fault tolerant with minimal latency.

What should a solutions architect recommend to meet these requirements?

- A. Use an Amazon Route 53 routing policy to distribute requests to two AWS Regions, each with one Amazon EC2 instance.
- B. Use Amazon EC2 instances in an Auto Scaling group with an Application Load Balancer across multiple Availability Zones.
- C. Use Amazon EC2 instances in a cluster placement group with an Application Load Balancer across multiple Availability Zones.
- D. Use Amazon EC2 instances in a cluster placement group and include the cluster placement group within a new Auto Scaling group.

#### Question #172Topic 1

A company is designing a web application using AWS that processes insurance quotes. Users will request quotes from the application. Quotes must be separated by quote type must be responded to within 24 hours, and must not be lost. The solution should be simple to set up and maintain.

Which solution meets these requirements?

- A. Create multiple Amazon Kinesis data streams based on the quote type. Configure the web application to send messages to the proper data stream. Configure each backend group of application servers to pool messages from its own data stream using the Kinesis Client Library (KCL).
- B. Create multiple Amazon Simple Notification Service (Amazon SNS) topics and register Amazon SQS queues to their own SNS topic based on the quote type. Configure the web application to publish messages to the SNS topic queue. Configure each backend application server to work its own SQS queue.
- C. Create a single Amazon Simple Notification Service (Amazon SNS) topic and subscribe the Amazon SQS queues to the SNS topic. Configure SNS message filtering to publish messages to the proper SQS queue based on the quote type. Configure each backend application server to work its own SQS queue.
- D. Create multiple Amazon Kinesis Data Firehose delivery streams based on the quote type to deliver data streams to an Amazon Elasticsearch Service (Amazon ES) cluster. Configure the web application to send messages to the proper delivery stream. Configure each backend group of application servers to search for the messages from Amazon ES and process them accordingly.

#### Question #173Topic 1

A solutions architect has configured the following IAM policy.

Which action will be allowed by the policy?

- A. An AWS Lambda function can be deleted from any network.
- B. An AWS Lambda function can be created from any network.
- C. An AWS Lambda function can be deleted from the 100.220.0.0/20 network.
- D. An AWS Lambda function can be deleted from the 220.100.16.0/20 network.

Question #174Topic 1

A solutions architect is using Amazon S3 to design the storage architecture of a new digital media application. The media files must be resilient to the loss of an

Availability Zone. Some files are accessed frequently while other files are rarely accessed in an unpredictable pattern. The solutions architect must minimize the costs of storing and retrieving the media files.

Which storage option meets these requirements?

- A. S3 Standard
- B. S3 Intelligent-Tiering
- C. S3 Standard-Infrequent Access (S3 Standard-IA)
- D. S3 One Zone-Infrequent Access (S3 One Zone-IA)

Question #175Topic 1

A company is running a three-tier web application to process credit card payments. The front-end user interface consists of static webpages. The application tier can have long-running processes. The database tier uses MySQL.

The application is currently running on a single, general purpose large Amazon EC2 instance. A solutions architect needs to decouple the services to make the web application highly available.

Which solution would provide the HIGHEST availability?

- A. Move static assets to Amazon CloudFront. Leave the application in EC2 in an Auto Scaling group. Move the database to Amazon RDS to deploy Multi-AZ.
- B. Move static assets and the application into a medium EC2 instance. Leave the database on the large instance. Place both instances in an Auto Scaling group.
- C. Move static assets to Amazon S3. Move the application to AWS Lambda with the concurrency limit set. Move the database to Amazon DynamoDB with on-demand enabled.

D. Move static assets to Amazon S3. Move the application to Amazon Elastic Container Service (Amazon ECS) containers with Auto Scaling enabled. Move the database to Amazon RDS to deploy Multi-AZ.

Question #176Topic 1

A media company stores video content in an Amazon Elastic Block Store (Amazon EBS) volume. A certain video file has become popular and a large number of users across the world are accessing this content. This has resulted in a cost increase.

Which action will DECREASE cost without compromising user accessibility?

- A. Change the EBS volume to Provisioned IOPS (PIOPS).
- B. Store the video in an Amazon S3 bucket and create an Amazon CloudFront distribution.
- C. Split the video into multiple, smaller segments so users are routed to the requested video segments only.
- D. Clear an Amazon S3 bucket in each Region and upload the videos so users are routed to the nearest S3 bucket.

Question #177Topic 1

A solutions architect is designing the cloud architecture for a new application being deployed to AWS. The application allows users to interactively download and upload files. Files older than 2 years will be accessed less frequently. The solutions architect needs to ensure that the application can scale to any number of files while maintaining high availability and durability.

Which scalable solutions should the solutions architect recommend? (Choose two.)

- A. Store the files on Amazon S3 with a lifecycle policy that moves objects older than 2 years to S3 Glacier.
- B. Store the files on Amazon S3 with a lifecycle policy that moves objects older than 2 years to S3 Standard-Infrequent Access (S3 Standard-IA)
- C. Store the files on Amazon Elastic File System (Amazon EFS) with a lifecycle policy that moves objects older than 2 years to EFS Infrequent Access (EFS IA).
- D. Store the files in Amazon Elastic Block Store (Amazon EBS) volumes. Schedule snapshots of the volumes. Use the snapshots to archive data older than 2 years.
- E. Store the files in RAID-striped Amazon Elastic Block Store (Amazon EBS) volumes. Schedule snapshots of the volumes. Use the snapshots to archive data older than 2 years.

Question #178Topic 1

A company has recently updated its internal security standards. The company must now ensure all Amazon S3 buckets and Amazon Elastic Block Store (Amazon

EBS) volumes are encrypted with keys created and periodically rotated by internal security specialists. The company is looking for a native, software-based AWS service to accomplish this goal.

What should a solutions architect recommend as a solution?

- A. Use AWS Secrets Manager with customer master keys (CMKs) to store master key material and apply a routine to create a new CMK periodically and replace it in AWS Secrets Manager.
- B. Use AWS Key Management Service (AWS KMS) with customer master keys (CMKs) to store master key material and apply a routine to re-create a new key periodically and replace it in AWS KMS.
- C. Use an AWS CloudHSM cluster with customer master keys (CMKs) to store master key material and apply a routine to re-create a new key periodically and replace it in the CloudHSM cluster nodes.
- D. Use AWS Systems Manager Parameter Store with customer master keys (CMKs) to store master key material and apply a routine to re-create a new key periodically and replace it in the Parameter Store.

#### Question #179Topic 1

A company's dynamic website is hosted using on-premises servers in the United States. The company is launching its product in Europe, and it wants to optimize site loading times for new European users. The site's backend must remain in the United States. The product is being launched in a few days, and an immediate solution is needed.

What should the solutions architect recommend?

- A. Launch an Amazon EC2 instance in us-east-1 and migrate the site to it.
- B. Move the website to Amazon S3. Use cross-Region replication between Regions.
- C. Use Amazon CloudFront with a custom origin pointing to the on-premises servers.
- D. Use an Amazon Route 53 geo-proximity routing policy pointing to on-premises servers.

#### Question #180Topic 1

A development team needs to host a website that will be accessed by other teams. The website contents consist of HTML, CSS, client-side JavaScript, and images.

Which method is the MOST cost-effective for hosting the website?

- A. Containerize the website and host it in AWS Fargate.
- B. Create an Amazon S3 bucket and host the website there.
- C. Deploy a web server on an Amazon EC2 instance to host the website.
- D. Configure an Application Load Balancer with an AWS Lambda target that uses the Express.js framework.

Question #181Topic 1

A company is hosting multiple websites for several lines of business under its registered parent domain. Users accessing these websites will be routed to appropriate backend Amazon EC2 instances based on the subdomain. The websites host static webpages, images, and server-side scripts like PHP and

JavaScript.

Some of the websites experience peak access during the first two hours of business with constant usage throughout the rest of the day. A solutions architect needs to design a solution that will automatically adjust capacity to these traffic patterns while keeping costs low.

Which combination of AWS services or features will meet these requirements? (Choose two.)

- A. AWS Batch
- B. Network Load Balancer
- C. Application Load Balancer
- D. Amazon EC2 Auto Scaling
- E. Amazon S3 website hosting

Question #182Topic 1

A company uses an Amazon S3 bucket to store static images for its website. The company configured permissions to allow access to Amazon S3 objects by privileged users only.

What should a solutions architect do to protect against data loss? (Choose two.)

- A. Enable versioning on the S3 bucket.
- B. Enable access logging on the S3 bucket.
- C. Enable server-side encryption on the S3 bucket.
- D. Configure an S3 lifecycle rule to transition objects to Amazon S3 Glacier.
- E. Use MFA Delete to require multi-factor authentication to delete an object.

Question #183Topic 1

An operations team has a standard that states IAM policies should not be applied directly to users. Some new team members have not been following this standard. The operations manager needs a way to easily identify the users with attached policies.

What should a solutions architect do to accomplish this?

- A. Monitor using AWS CloudTrail.
- B. Create an AWS Config rule to run daily.

- C. Publish IAM user changes to Amazon SNS.
- D. Run AWS Lambda when a user is modified.

Question #184Topic 1

A company wants to use an AWS Region as a disaster recovery location for its on-premises infrastructure. The company has 10 TB of existing data, and the on-premise data center has a 1 Gbps internet connection. A solutions architect must find a solution so the company can have its existing data on AWS in 72 hours without transmitting it using an unencrypted channel.

Which solution should the solutions architect select?

- A. Send the initial 10 TB of data to AWS using FTP.
- B. Send the initial 10 TB of data to AWS using AWS Snowball.
- C. Establish a VPN connection between Amazon VPC and the company's data center.
- D. Establish an AWS Direct Connect connection between Amazon VPC and the company's data center.

Question #185Topic 1

A company is building applications in containers. The company wants to migrate its on-premises development and operations services from its on-premises data center to AWS. Management states that production systems must be cloud agnostic and use the same configuration and administrator tools across production systems. A solutions architect needs to design a managed solution that will align open-source software.

Which solution meets these requirements?

- A. Launch the containers on Amazon EC2 with EC2 instance worker nodes.
- B. Launch the containers on Amazon Elastic Kubernetes Service (Amazon EKS) and EKS worker nodes.
- C. Launch the containers on Amazon Elastic Containers service (Amazon ECS) with AWS Fargate instances.
- D. Launch the containers on Amazon Elastic Container Service (Amazon ECS) with Amazon EC2 instance worker nodes.

Question #186Topic 1

A company hosts its website on AWS. To address the highly variable demand, the company has implemented Amazon EC2 Auto Scaling. Management is concerned that the company is over-provisioning its infrastructure, especially at the front end of the three-tier application. A solutions architect needs to ensure costs are optimized without impacting performance.

What should the solutions architect do to accomplish this?



- A. Use Auto Scaling with Reserved Instances.
- B. Use Auto Scaling with a scheduled scaling policy.
- C. Use Auto Scaling with the suspend-resume feature.
- D. Use Auto Scaling with a target tracking scaling policy.

Question #187Topic 1

A solutions architect is performing a security review of a recently migrated workload. The workload is a web application that consists of Amazon EC2 instances in an Auto Scaling group behind an Application Load Balancer. The solutions architect must improve the security posture and minimize the impact of a DDoS attack on resources.

Which solution is MOST effective?

- A. Configure an AWS WAF ACL with rate-based rules. Create an Amazon CloudFront distribution that points to the Application Load Balancer. Enable the WAF ACL on the CloudFront distribution.
- B. Create a custom AWS Lambda function that adds identified attacks into a common vulnerability pool to capture a potential DDoS attack. Use the identified information to modify a network ACL to block access.
- C. Enable VPC Flow Logs and store them in Amazon S3. Create a custom AWS Lambda function that parses the logs looking for a DDoS attack. Modify a network ACL to block identified source IP addresses.
- D. Enable Amazon GuardDuty and configure findings written to Amazon CloudWatch. Create an event with CloudWatch Events for DDoS alerts that triggers Amazon Simple Notification Service (Amazon SNS). Have Amazon SNS invoke a custom AWS Lambda function that parses the logs, looking for a DDoS attack. Modify a network ACL to block identified source IP addresses.

Question #188Topic 1

A company has multiple AWS accounts for various departments. One of the departments wants to share an Amazon S3 bucket with all other departments.

Which solution will require the LEAST amount of effort?

- A. Enable cross-account S3 replication for the bucket.
- B. Create a pre-signed URL for the bucket and share it with other departments.
- C. Set the S3 bucket policy to allow cross-account access to other departments.
- D. Create IAM users for each of the departments and configure a read-only IAM policy.

Question #189Topic 1

A company needs to share an Amazon S3 bucket with an external vendor. The bucket owner must be able to access all objects.

Which action should be taken to share the S3 bucket?

- A. Update the bucket to be a Requester Pays bucket.
- B. Update the bucket to enable cross-origin resource sharing (CORS).
- C. Create a bucket policy to require users to grant bucket-owner-full-control when uploading objects.
- D. Create an IAM policy to require users to grant bucket-owner-full-control when uploading objects.

Question #190Topic 1

A company is developing a real-time multiplier game that uses UDP for communications between client and servers in an Auto Scaling group. Spikes in demand are anticipated during the day, so the game server platform must adapt accordingly. Developers want to store gamer scores and other non-relational data in a database solution that will scale without intervention.

Which solution should a solutions architect recommend?

- A. Use Amazon Route 53 for traffic distribution and Amazon Aurora Serverless for data storage.
- B. Use a Network Load Balancer for traffic distribution and Amazon DynamoDB on-demand for data storage.
- C. Use a Network Load Balancer for traffic distribution and Amazon Aurora Global Database for data storage.
- D. Use an Application Load Balancer for traffic distribution and Amazon DynamoDB global tables for data storage.

Question #191Topic 1

A company collects temperature, humidity, and atmospheric pressure data in cities across multiple continents. The average volume of data collected per site each day is 500 GB. Each site has a high-speed internet connection. The company's weather forecasting applications are based in a single Region and analyze the data daily.

What is the FASTEST way to aggregate data from all of these global sites?

- A. Enable Amazon S3 Transfer Acceleration on the destination bucket. Use multipart uploads to directly upload site data to the destination bucket.
- B. Upload site data to an Amazon S3 bucket in the closest AWS Region. Use S3 cross-Region replication to copy objects to the destination bucket.
- C. Schedule AWS Snowball jobs daily to transfer data to the closest AWS Region. Use S3 cross-Region replication to copy objects to the destination bucket.
- D. Upload the data to an Amazon EC2 instance in the closest Region. Store the data in an Amazon Elastic Block Store (Amazon EBS) volume. Once a day take an EBS snapshot and copy it

to the centralized Region. Restore the EBS volume in the centralized Region and run an analysis on the data daily.

#### Question #192Topic 1

A company has a custom application running on an Amazon EC instance that:

- \* Reads a large amount of data from Amazon S3
- \* Performs a multi-stage analysis
- \* Writes the results to Amazon DynamoDB

The application writes a significant number of large, temporary files during the multi-stage analysis. The process performance depends on the temporary storage performance.

What would be the fastest storage option for holding the temporary files?

- A. Multiple Amazon S3 buckets with Transfer Acceleration for storage.
- B. Multiple Amazon Elastic Block Store (Amazon EBS) drives with Provisioned IOPS and EBS optimization.
- C. Multiple Amazon Elastic File System (Amazon EFS) volumes using the Network File System version 4.1 (NFSv4.1) protocol.
- D. Multiple instance store volumes with software RAID 0.

#### Question #193Topic 1

A leasing company generates and emails PDF statements every month for all its customers. Each statement is about 400 KB in size. Customers can download their statements from the website for up to 30 days from when the statements were generated. At the end of their 3-year lease, the customers are emailed a ZIP file that contains all the statements.

What is the MOST cost-effective storage solution for this situation?

- A. Store the statements using the Amazon S3 Standard storage class. Create a lifecycle policy to move the statements to Amazon S3 Glacier storage after 1 day.
- B. Store the statements using the Amazon S3 Glacier storage class. Create a lifecycle policy to move the statements to Amazon S3 Glacier Deep Archive storage after 30 days.
- C. Store the statements using the Amazon S3 Standard storage class. Create a lifecycle policy to move the statements to Amazon S3 One Zone-Infrequent Access (S3 One Zone-IA) storage after 30 days.
- D. Store the statements using the Amazon S3 Standard-Infrequent Access (S3 Standard-IA) storage class. Create a lifecycle policy to move the statements to Amazon S3 Glacier storage after 30 days.

#### Question #194Topic 1

A company recently released a new type of internet-connected sensor. The company is expecting to sell thousands of sensors, which are designed to stream high volumes of data each

second to a central location. A solutions architect must design a solution that ingests and stores data so that engineering teams can analyze it in near-real time with millisecond responsiveness.

Which solution should the solutions architect recommend?

- A. Use an Amazon SQS queue to ingest the data. Consume the data with an AWS Lambda function, which then stores the data in Amazon Redshift.
- B. Use an Amazon SQS queue to ingest the data. Consume the data with an AWS Lambda function, which then stores the data in Amazon DynamoDB.
- C. Use Amazon Kinesis Data Streams to ingest the data. Consume the data with an AWS Lambda function, which then stores the data in Amazon Redshift.
- D. Use Amazon Kinesis Data Streams to ingest the data. Consume the data with an AWS Lambda function, which then stores the data in Amazon DynamoDB.

Question #195Topic 1

A website runs a web application that receives a burst of traffic each day at noon. The users upload new pictures and content daily, but have been complaining of timeouts. The architecture uses Amazon EC2 Auto Scaling groups, and the custom application consistently takes 1 minute to initiate upon boot up before responding to user requests.

How should a solutions architect redesign the architecture to better respond to changing traffic?

- A. Configure a Network Load Balancer with a slow start configuration.
- B. Configure AWS ElastiCache for Redis to offload direct requests to the servers.
- C. Configure an Auto Scaling step scaling policy with an instance warmup condition.
- D. Configure Amazon CloudFront to use an Application Load Balancer as the origin.

Question #196Topic 1

A company is concerned that two NAT instances in use will no longer be able to support the traffic needed for the company's application. A solutions architect wants to implement a solution that is highly available fault tolerant, and automatically scalable.

What should the solutions architect recommend?

- A. Remove the two NAT instances and replace them with two NAT gateways in the same Availability Zone.
- B. Use Auto Scaling groups with Network Load Balancers for the NAT instances in different Availability Zones.
- C. Remove the two NAT instances and replace them with two NAT gateways in different Availability Zones.
- D. Replace the two NAT instances with Spot Instances in different Availability Zones and deploy a Network Load Balancer.

Question #197Topic 1

A company operates a website on Amazon EC2 Linux instances. Some of the instances are failing. Troubleshooting points to insufficient swap space on the failed instances. The operations team lead needs a solution to monitor this.

What should a solutions architect recommend?

- A. Configure an Amazon CloudWatch SwapUsage metric dimension. Monitor the SwapUsage dimension in the EC2 metrics in CloudWatch.
- B. Use EC2 metadata to collect information, then publish it to Amazon CloudWatch custom metrics. Monitor SwapUsage metrics in CloudWatch.
- C. Install an Amazon CloudWatch agent on the instances. Run an appropriate script on a set schedule. Monitor SwapUtilization metrics in CloudWatch.
- D. Enable detailed monitoring in the EC2 console. Create an Amazon CloudWatch SwapUtilization custom metric. Monitor SwapUtilization metrics in CloudWatch.

Question #198Topic 1

A company has a web server running on an Amazon EC2 instance in a public subnet with an Elastic IP address. The default security group is assigned to the EC2 instance. The default network ACL has been modified to block all traffic. A solutions architect needs to make the web server accessible from everywhere on port

443.

Which combination of steps will accomplish this task? (Choose two.)

- A. Create a security group with a rule to allow TCP port 443 from source 0.0.0.0/0.
- B. Create a security group with a rule to allow TCP port 443 to destination 0.0.0.0/0.
- C. Update the network ACL to allow TCP port 443 from source 0.0.0.0/0.
- D. Update the network ACL to allow inbound/outbound TCP port 443 from source 0.0.0.0/0 and to destination 0.0.0.0/0.
- E. Update the network ACL to allow inbound TCP port 443 from source 0.0.0.0/0 and outbound TCP port 32768-65535 to destination 0.0.0.0/0.

Question #199Topic 1

A company must re-evaluate its need for the Amazon EC2 instances it currently has provisioned in an Auto Scaling group. At present, the Auto Scaling group is configured for a minimum of two instances and a maximum of four instances across two Availability Zones. A Solutions architect reviewed Amazon CloudWatch metrics and found that CPU utilization is consistently low for all the EC2 instances.

What should the solutions architect recommend to maximize utilization while ensuring the application remains fault tolerant?

- A. Remove some EC2 instances to increase the utilization of remaining instances.
- B. Increase the Amazon Elastic Block Store (Amazon EBS) capacity of instances with less CPU utilization.
- C. Modify the Auto Scaling group scaling policy to scale in and out based on a higher CPU utilization metric.
- D. Create a new launch configuration that uses smaller instance types. Update the existing Auto Scaling group.

#### Question #200Topic 1

A company has an application that posts messages to Amazon SQS. Another application polls the queue and processes the messages in an I/O-intensive operation. The company has a service level agreement (SLA) that specifies the maximum amount of time that can elapse between receiving the messages and responding to the users. Due to an increase in the number of messages, the company has difficulty meeting its SLA consistently.

What should a solutions architect do to help improve the application's processing time and ensure it can handle the load at any level?

- A. Create an Amazon Machine Image (AMI) from the instance used for processing. Terminate the instance and replace it with a larger size.
- B. Create an Amazon Machine Image (AMI) from the instance used for processing. Terminate the instance and replace it with an Amazon EC2 Dedicated Instance.
- C. Create an Amazon Machine image (AMI) from the instance used for processing. Create an Auto Scaling group using this image in its launch configuration. Configure the group with a target tracking policy to keep its aggregate CPU utilization below 70%.
- D. Create an Amazon Machine Image (AMI) from the instance used for processing. Create an Auto Scaling group using this image in its launch configuration. Configure the group with a target tracking policy based on the age of the oldest message in the SQS queue.

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#### Topic 1 - Exam A

#### Question #1Topic 1

A company collects data for temperature, humidity, and atmospheric pressure in cities across multiple continents. The average volume of data that the company collects from each site daily is 500 GB. Each site has a high-speed Internet connection.

The company wants to aggregate the data from all these global sites as quickly as possible in a single Amazon S3 bucket. The solution must minimize operational complexity.

Which solution meets these requirements?

- A. Turn on S3 Transfer Acceleration on the destination S3 bucket. Use multipart uploads to directly upload site data to the destination S3 bucket.
- B. Upload the data from each site to an S3 bucket in the closest Region. Use S3 Cross-Region Replication to copy objects to the destination S3 bucket. Then remove the data from the origin S3 bucket.
- C. Schedule AWS Snowball Edge Storage Optimized device jobs daily to transfer data from each site to the closest Region. Use S3 Cross-Region Replication to copy objects to the destination S3 bucket.
- D. Upload the data from each site to an Amazon EC2 instance in the closest Region. Store the data in an Amazon Elastic Block Store (Amazon EBS) volume. At regular intervals, take an EBS snapshot and copy it to the Region that contains the destination S3 bucket. Restore the EBS volume in that Region.

#### Question #2Topic 1

A company needs the ability to analyze the log files of its proprietary application. The logs are stored in JSON format in an Amazon S3 bucket. Queries will be simple and will run on-demand. A solutions architect needs to perform the analysis with minimal changes to the existing architecture.

What should the solutions architect do to meet these requirements with the LEAST amount of operational overhead?

- A. Use Amazon Redshift to load all the content into one place and run the SQL queries as needed.
- B. Use Amazon CloudWatch Logs to store the logs. Run SQL queries as needed from the Amazon CloudWatch console.
- C. Use Amazon Athena directly with Amazon S3 to run the queries as needed.
- D. Use AWS Glue to catalog the logs. Use a transient Apache Spark cluster on Amazon EMR to run the SQL queries as needed.

#### Question #3Topic 1

A company uses AWS Organizations to manage multiple AWS accounts for different departments. The management account has an Amazon S3 bucket that contains project reports. The company wants to limit access to this S3 bucket to only users of accounts within the organization in AWS Organizations.

Which solution meets these requirements with the LEAST amount of operational overhead?

- A. Add the aws:PrincipalOrgID global condition key with a reference to the organization ID to the S3 bucket policy.
- B. Create an organizational unit (OU) for each department. Add the aws:PrincipalOrgPaths global condition key to the S3 bucket policy.
- C. Use AWS CloudTrail to monitor the CreateAccount, InviteAccountToOrganization, LeaveOrganization, and RemoveAccountFromOrganization events. Update the S3 bucket policy accordingly.
- D. Tag each user that needs access to the S3 bucket. Add the aws:PrincipalTag global condition key to the S3 bucket policy.

#### Question #4Topic 1

An application runs on an Amazon EC2 instance in a VPC. The application processes logs that are stored in an Amazon S3 bucket. The EC2 instance needs to access the S3 bucket without connectivity to the internet.

Which solution will provide private network connectivity to Amazon S3?

- A. Create a gateway VPC endpoint to the S3 bucket.
- B. Stream the logs to Amazon CloudWatch Logs. Export the logs to the S3 bucket.
- C. Create an instance profile on Amazon EC2 to allow S3 access.
- D. Create an Amazon API Gateway API with a private link to access the S3 endpoint.

#### Question #5Topic 1

A company is hosting a web application on AWS using a single Amazon EC2 instance that stores user-uploaded documents in an Amazon EBS volume. For better scalability and availability, the company duplicated the architecture and created a second EC2 instance and EBS volume in another Availability Zone, placing both behind an Application Load Balancer. After completing this change, users reported that, each time they refreshed the website, they could see one subset of their documents or the other, but never all of the documents at the same time.

What should a solutions architect propose to ensure users see all of their documents at once?

- A. Copy the data so both EBS volumes contain all the documents
- B. Configure the Application Load Balancer to direct a user to the server with the documents
- C. Copy the data from both EBS volumes to Amazon EFS. Modify the application to save new documents to Amazon EFS



D. Configure the Application Load Balancer to send the request to both servers. Return each document from the correct server

#### Question #6Topic 1

A company uses NFS to store large video files in on-premises network attached storage. Each video file ranges in size from 1 MB to 500 GB. The total storage is 70 TB and is no longer growing. The company decides to migrate the video files to Amazon S3. The company must migrate the video files as soon as possible while using the least possible network bandwidth.

Which solution will meet these requirements?

A. Create an S3 bucket. Create an IAM role that has permissions to write to the S3 bucket. Use the AWS CLI to copy all files locally to the S3 bucket.

B. Create an AWS Snowball Edge job. Receive a Snowball Edge device on premises. Use the Snowball Edge client to transfer data to the device. Return the device so that AWS can import the data into Amazon S3.

C. Deploy an S3 File Gateway on premises. Create a public service endpoint to connect to the S3 File Gateway. Create an S3 bucket. Create a new NFS file share on the S3 File Gateway. Point the new file share to the S3 bucket. Transfer the data from the existing NFS file share to the S3 File Gateway.

D. Set up an AWS Direct Connect connection between the on-premises network and AWS. Deploy an S3 File Gateway on premises. Create a public virtual interface (VIF) to connect to the S3 File Gateway. Create an S3 bucket. Create a new NFS file share on the S3 File Gateway. Point the new file share to the S3 bucket. Transfer the data from the existing NFS file share to the S3 File Gateway.

#### Question #7Topic 1

A company has an application that ingests incoming messages. Dozens of other applications and microservices then quickly consume these messages. The number of messages varies drastically and sometimes increases suddenly to 100,000 each second. The company wants to decouple the solution and increase scalability.

Which solution meets these requirements?

A. Persist the messages to Amazon Kinesis Data Analytics. Configure the consumer applications to read and process the messages.

B. Deploy the ingestion application on Amazon EC2 instances in an Auto Scaling group to scale the number of EC2 instances based on CPU metrics.

C. Write the messages to Amazon Kinesis Data Streams with a single shard. Use an AWS Lambda function to preprocess messages and store them in Amazon DynamoDB. Configure the consumer applications to read from DynamoDB to process the messages.

D. Publish the messages to an Amazon Simple Notification Service (Amazon SNS) topic with multiple Amazon Simple Queue Service (Amazon SQS) subscriptions. Configure the consumer applications to process the messages from the queues.

#### Question #8Topic 1

A company is migrating a distributed application to AWS. The application serves variable workloads. The legacy platform consists of a primary server that coordinates jobs across multiple compute nodes. The company wants to modernize the application with a solution that maximizes resiliency and scalability.

How should a solutions architect design the architecture to meet these requirements?

A. Configure an Amazon Simple Queue Service (Amazon SQS) queue as a destination for the jobs. Implement the compute nodes with Amazon EC2 instances that are managed in an Auto Scaling group. Configure EC2 Auto Scaling to use scheduled scaling.

B. Configure an Amazon Simple Queue Service (Amazon SQS) queue as a destination for the jobs. Implement the compute nodes with Amazon EC2 instances that are managed in an Auto Scaling group. Configure EC2 Auto Scaling based on the size of the queue.

C. Implement the primary server and the compute nodes with Amazon EC2 instances that are managed in an Auto Scaling group. Configure AWS CloudTrail as a destination for the jobs. Configure EC2 Auto Scaling based on the load on the primary server.

D. Implement the primary server and the compute nodes with Amazon EC2 instances that are managed in an Auto Scaling group. Configure Amazon EventBridge (Amazon CloudWatch Events) as a destination for the jobs. Configure EC2 Auto Scaling based on the load on the compute nodes.

#### Question #9Topic 1

A company is running an SMB file server in its data center. The file server stores large files that are accessed frequently for the first few days after the files are created. After 7 days the files are rarely accessed.

The total data size is increasing and is close to the company's total storage capacity. A solutions architect must increase the company's available storage space without losing low-latency access to the most recently accessed files. The solutions architect must also provide file lifecycle management to avoid future storage issues.

Which solution will meet these requirements?

A. Use AWS DataSync to copy data that is older than 7 days from the SMB file server to AWS.

- B. Create an Amazon S3 File Gateway to extend the company's storage space. Create an S3 Lifecycle policy to transition the data to S3 Glacier Deep Archive after 7 days.
- C. Create an Amazon FSx for Windows File Server file system to extend the company's storage space.
- D. Install a utility on each user's computer to access Amazon S3. Create an S3 Lifecycle policy to transition the data to S3 Glacier Flexible Retrieval after 7 days.

#### Question #10Topic 1

A company is building an ecommerce web application on AWS. The application sends information about new orders to an Amazon API Gateway REST API to process. The company wants to ensure that orders are processed in the order that they are received.

Which solution will meet these requirements?

- A. Use an API Gateway integration to publish a message to an Amazon Simple Notification Service (Amazon SNS) topic when the application receives an order. Subscribe an AWS Lambda function to the topic to perform processing.
- B. Use an API Gateway integration to send a message to an Amazon Simple Queue Service (Amazon SQS) FIFO queue when the application receives an order. Configure the SQS FIFO queue to invoke an AWS Lambda function for processing.
- C. Use an API Gateway authorizer to block any requests while the application processes an order.
- D. Use an API Gateway integration to send a message to an Amazon Simple Queue Service (Amazon SQS) standard queue when the application receives an order. Configure the SQS standard queue to invoke an AWS Lambda function for processing.

#### Question #11Topic 1

A company has an application that runs on Amazon EC2 instances and uses an Amazon Aurora database. The EC2 instances connect to the database by using user names and passwords that are stored locally in a file. The company wants to minimize the operational overhead of credential management.

What should a solutions architect do to accomplish this goal?

- A. Use AWS Secrets Manager. Turn on automatic rotation.
- B. Use AWS Systems Manager Parameter Store. Turn on automatic rotation.
- C. Create an Amazon S3 bucket to store objects that are encrypted with an AWS Key Management Service (AWS KMS) encryption key. Migrate the credential file to the S3 bucket. Point the application to the S3 bucket.

D. Create an encrypted Amazon Elastic Block Store (Amazon EBS) volume for each EC2 instance. Attach the new EBS volume to each EC2 instance. Migrate the credential file to the new EBS volume. Point the application to the new EBS volume.

#### Question #12Topic 1

A global company hosts its web application on Amazon EC2 instances behind an Application Load Balancer (ALB). The web application has static data and dynamic data. The company stores its static data in an Amazon S3 bucket. The company wants to improve performance and reduce latency for the static data and dynamic data. The company is using its own domain name registered with Amazon Route 53.

What should a solutions architect do to meet these requirements?

A. Create an Amazon CloudFront distribution that has the S3 bucket and the ALB as origins. Configure Route 53 to route traffic to the CloudFront distribution.

B. Create an Amazon CloudFront distribution that has the ALB as an origin. Create an AWS Global Accelerator standard accelerator that has the S3 bucket as an endpoint. Configure Route 53 to route traffic to the CloudFront distribution.

C. Create an Amazon CloudFront distribution that has the S3 bucket as an origin. Create an AWS Global Accelerator standard accelerator that has the ALB and the CloudFront distribution as endpoints. Create a custom domain name that points to the accelerator DNS name. Use the custom domain name as an endpoint for the web application.

D. Create an Amazon CloudFront distribution that has the ALB as an origin. Create an AWS Global Accelerator standard accelerator that has the S3 bucket as an endpoint. Create two domain names. Point one domain name to the CloudFront DNS name for dynamic content. Point the other domain name to the accelerator DNS name for static content. Use the domain names as endpoints for the web application.

#### Question #13Topic 1

A company performs monthly maintenance on its AWS infrastructure. During these maintenance activities, the company needs to rotate the credentials for its Amazon RDS for MySQL databases across multiple AWS Regions.

Which solution will meet these requirements with the LEAST operational overhead?

A. Store the credentials as secrets in AWS Secrets Manager. Use multi-Region secret replication for the required Regions. Configure Secrets Manager to rotate the secrets on a schedule.

B. Store the credentials as secrets in AWS Systems Manager by creating a secure string parameter. Use multi-Region secret replication for the required Regions. Configure Systems Manager to rotate the secrets on a schedule.

C. Store the credentials in an Amazon S3 bucket that has server-side encryption (SSE) enabled. Use Amazon EventBridge (Amazon CloudWatch Events) to invoke an AWS Lambda function to rotate the credentials.

D. Encrypt the credentials as secrets by using AWS Key Management Service (AWS KMS) multi-Region customer managed keys. Store the secrets in an Amazon DynamoDB global table. Use an AWS Lambda function to retrieve the secrets from DynamoDB. Use the RDS API to rotate the secrets.

#### Question #14Topic 1

A company runs an ecommerce application on Amazon EC2 instances behind an Application Load Balancer. The instances run in an Amazon EC2 Auto Scaling group across multiple Availability Zones. The Auto Scaling group scales based on CPU utilization metrics. The ecommerce application stores the transaction data in a MySQL 8.0 database that is hosted on a large EC2 instance.

The database's performance degrades quickly as application load increases. The application handles more read requests than write transactions. The company wants a solution that will automatically scale the database to meet the demand of unpredictable read workloads while maintaining high availability.

Which solution will meet these requirements?

A. Use Amazon Redshift with a single node for leader and compute functionality.

B. Use Amazon RDS with a Single-AZ deployment Configure Amazon RDS to add reader instances in a different Availability Zone.

C. Use Amazon Aurora with a Multi-AZ deployment. Configure Aurora Auto Scaling with Aurora Replicas.

D. Use Amazon ElastiCache for Memcached with EC2 Spot Instances.

#### Question #15Topic 1

A company recently migrated to AWS and wants to implement a solution to protect the traffic that flows in and out of the production VPC. The company had an inspection server in its on-premises data center. The inspection server performed specific operations such as traffic flow inspection and traffic filtering. The company wants to have the same functionalities in the AWS Cloud.

Which solution will meet these requirements?

A. Use Amazon GuardDuty for traffic inspection and traffic filtering in the production VPC.

B. Use Traffic Mirroring to mirror traffic from the production VPC for traffic inspection and filtering.

C. Use AWS Network Firewall to create the required rules for traffic inspection and traffic filtering for the production VPC.

D. Use AWS Firewall Manager to create the required rules for traffic inspection and traffic filtering for the production VPC.

#### Question #16Topic 1

A company hosts a data lake on AWS. The data lake consists of data in Amazon S3 and Amazon RDS for PostgreSQL. The company needs a reporting solution that provides data visualization and includes all the data sources within the data lake. Only the company's management team should have full access to all the visualizations. The rest of the company should have only limited access.

Which solution will meet these requirements?

A. Create an analysis in Amazon QuickSight. Connect all the data sources and create new datasets. Publish dashboards to visualize the data. Share the dashboards with the appropriate IAM roles.

B. Create an analysis in Amazon QuickSight. Connect all the data sources and create new datasets. Publish dashboards to visualize the data. Share the dashboards with the appropriate users and groups.

C. Create an AWS Glue table and crawler for the data in Amazon S3. Create an AWS Glue extract, transform, and load (ETL) job to produce reports. Publish the reports to Amazon S3. Use S3 bucket policies to limit access to the reports.

D. Create an AWS Glue table and crawler for the data in Amazon S3. Use Amazon Athena Federated Query to access data within Amazon RDS for PostgreSQL. Generate reports by using Amazon Athena. Publish the reports to Amazon S3. Use S3 bucket policies to limit access to the reports.

#### Question #17Topic 1

A company is implementing a new business application. The application runs on two Amazon EC2 instances and uses an Amazon S3 bucket for document storage. A solutions architect needs to ensure that the EC2 instances can access the S3 bucket.

What should the solutions architect do to meet this requirement?

A. Create an IAM role that grants access to the S3 bucket. Attach the role to the EC2 instances.

B. Create an IAM policy that grants access to the S3 bucket. Attach the policy to the EC2 instances.

C. Create an IAM group that grants access to the S3 bucket. Attach the group to the EC2 instances.

D. Create an IAM user that grants access to the S3 bucket. Attach the user account to the EC2 instances.

#### Question #18Topic 1

An application development team is designing a microservice that will convert large images to smaller, compressed images. When a user uploads an image through the web interface, the microservice should store the image in an Amazon S3 bucket, process and compress the image with an AWS Lambda function, and store the image in its compressed form in a different S3 bucket.

A solutions architect needs to design a solution that uses durable, stateless components to process the images automatically.

Which combination of actions will meet these requirements? (Choose two.)

- A. Create an Amazon Simple Queue Service (Amazon SQS) queue. Configure the S3 bucket to send a notification to the SQS queue when an image is uploaded to the S3 bucket.
- B. Configure the Lambda function to use the Amazon Simple Queue Service (Amazon SQS) queue as the invocation source. When the SQS message is successfully processed, delete the message in the queue.
- C. Configure the Lambda function to monitor the S3 bucket for new uploads. When an uploaded image is detected, write the file name to a text file in memory and use the text file to keep track of the images that were processed.
- D. Launch an Amazon EC2 instance to monitor an Amazon Simple Queue Service (Amazon SQS) queue. When items are added to the queue, log the file name in a text file on the EC2 instance and invoke the Lambda function.
- E. Configure an Amazon EventBridge (Amazon CloudWatch Events) event to monitor the S3 bucket. When an image is uploaded, send an alert to an Amazon Simple Notification Service (Amazon SNS) topic with the application owner's email address for further processing.

#### Question #19Topic 1

A company has a three-tier web application that is deployed on AWS. The web servers are deployed in a public subnet in a VPC. The application servers and database servers are deployed in private subnets in the same VPC. The company has deployed a third-party virtual firewall appliance from AWS Marketplace in an inspection VPC. The appliance is configured with an IP interface that can accept IP packets.

A solutions architect needs to integrate the web application with the appliance to inspect all traffic to the application before the traffic reaches the web server.

Which solution will meet these requirements with the LEAST operational overhead?

- A. Create a Network Load Balancer in the public subnet of the application's VPC to route the traffic to the appliance for packet inspection.
- B. Create an Application Load Balancer in the public subnet of the application's VPC to route the traffic to the appliance for packet inspection.
- C. Deploy a transit gateway in the inspection VPC. Configure route tables to route the incoming packets through the transit gateway.
- D. Deploy a Gateway Load Balancer in the inspection VPC. Create a Gateway Load Balancer endpoint to receive the incoming packets and forward the packets to the appliance.

#### Question #20 Topic 1

A company wants to improve its ability to clone large amounts of production data into a test environment in the same AWS Region. The data is stored in Amazon EC2 instances on Amazon Elastic Block Store (Amazon EBS) volumes. Modifications to the cloned data must not affect the production environment. The software that accesses this data requires consistently high I/O performance.

A solutions architect needs to minimize the time that is required to clone the production data into the test environment.

Which solution will meet these requirements?

- A. Take EBS snapshots of the production EBS volumes. Restore the snapshots onto EC2 instance store volumes in the test environment.
- B. Configure the production EBS volumes to use the EBS Multi-Attach feature. Take EBS snapshots of the production EBS volumes. Attach the production EBS volumes to the EC2 instances in the test environment.
- C. Take EBS snapshots of the production EBS volumes. Create and initialize new EBS volumes. Attach the new EBS volumes to EC2 instances in the test environment before restoring the volumes from the production EBS snapshots.
- D. Take EBS snapshots of the production EBS volumes. Turn on the EBS fast snapshot restore feature on the EBS snapshots. Restore the snapshots into new EBS volumes. Attach the new EBS volumes to EC2 instances in the test environment.

#### Question #21 Topic 1

An ecommerce company wants to launch a one-deal-a-day website on AWS. Each day will feature exactly one product on sale for a period of 24 hours. The company wants to be able to handle millions of requests each hour with millisecond latency during peak hours.

Which solution will meet these requirements with the LEAST operational overhead?



A. Use Amazon S3 to host the full website in different S3 buckets. Add Amazon CloudFront distributions. Set the S3 buckets as origins for the distributions. Store the order data in Amazon S3.

B. Deploy the full website on Amazon EC2 instances that run in Auto Scaling groups across multiple Availability Zones. Add an Application Load Balancer (ALB) to distribute the website traffic. Add another ALB for the backend APIs. Store the data in Amazon RDS for MySQL.

C. Migrate the full application to run in containers. Host the containers on Amazon Elastic Kubernetes Service (Amazon EKS). Use the Kubernetes Cluster Autoscaler to increase and decrease the number of pods to process bursts in traffic. Store the data in Amazon RDS for MySQL.

D. Use an Amazon S3 bucket to host the website's static content. Deploy an Amazon CloudFront distribution. Set the S3 bucket as the origin. Use Amazon API Gateway and AWS Lambda functions for the backend APIs. Store the data in Amazon DynamoDB.

Question #22Topic 1

A solutions architect is using Amazon S3 to design the storage architecture of a new digital media application. The media files must be resilient to the loss of an Availability Zone. Some files are accessed frequently while other files are rarely accessed in an unpredictable pattern. The solutions architect must minimize the costs of storing and retrieving the media files.

Which storage option meets these requirements?

A. S3 Standard

B. S3 Intelligent-Tiering

C. S3 Standard-Infrequent Access (S3 Standard-IA)

D. S3 One Zone-Infrequent Access (S3 One Zone-IA)

Question #23Topic 1

A company is storing backup files by using Amazon S3 Standard storage. The files are accessed frequently for 1 month. However, the files are not accessed after 1 month. The company must keep the files indefinitely.

Which storage solution will meet these requirements MOST cost-effectively?

A. Configure S3 Intelligent-Tiering to automatically migrate objects.

B. Create an S3 Lifecycle configuration to transition objects from S3 Standard to S3 Glacier Deep Archive after 1 month.

C. Create an S3 Lifecycle configuration to transition objects from S3 Standard to S3 Standard-Infrequent Access (S3 Standard-IA) after 1 month.

D. Create an S3 Lifecycle configuration to transition objects from S3 Standard to S3 One Zone-Infrequent Access (S3 One Zone-IA) after 1 month.

#### Question #24Topic 1

A company observes an increase in Amazon EC2 costs in its most recent bill. The billing team notices unwanted vertical scaling of instance types for a couple of EC2 instances. A solutions architect needs to create a graph comparing the last 2 months of EC2 costs and perform an in-depth analysis to identify the root cause of the vertical scaling.

How should the solutions architect generate the information with the LEAST operational overhead?

- A. Use AWS Budgets to create a budget report and compare EC2 costs based on instance types.
- B. Use Cost Explorer's granular filtering feature to perform an in-depth analysis of EC2 costs based on instance types.
- C. Use graphs from the AWS Billing and Cost Management dashboard to compare EC2 costs based on instance types for the last 2 months.
- D. Use AWS Cost and Usage Reports to create a report and send it to an Amazon S3 bucket. Use Amazon QuickSight with Amazon S3 as a source to generate an interactive graph based on instance types.

#### Question #25Topic 1

A company is designing an application. The application uses an AWS Lambda function to receive information through Amazon API Gateway and to store the information in an Amazon Aurora PostgreSQL database.

During the proof-of-concept stage, the company has to increase the Lambda quotas significantly to handle the high volumes of data that the company needs to load into the database. A solutions architect must recommend a new design to improve scalability and minimize the configuration effort.

Which solution will meet these requirements?

- A. Refactor the Lambda function code to Apache Tomcat code that runs on Amazon EC2 instances. Connect the database by using native Java Database Connectivity (JDBC) drivers.
- B. Change the platform from Aurora to Amazon DynamoDB. Provision a DynamoDB Accelerator (DAX) cluster. Use the DAX client SDK to point the existing DynamoDB API calls at the DAX cluster.
- C. Set up two Lambda functions. Configure one function to receive the information. Configure the other function to load the information into the database. Integrate the Lambda functions by using Amazon Simple Notification Service (Amazon SNS).

D. Set up two Lambda functions. Configure one function to receive the information. Configure the other function to load the information into the database. Integrate the Lambda functions by using an Amazon Simple Queue Service (Amazon SQS) queue.

Question #26Topic 1

A company needs to review its AWS Cloud deployment to ensure that its Amazon S3 buckets do not have unauthorized configuration changes.

What should a solutions architect do to accomplish this goal?

- A. Turn on AWS Config with the appropriate rules.
- B. Turn on AWS Trusted Advisor with the appropriate checks.
- C. Turn on Amazon Inspector with the appropriate assessment template.
- D. Turn on Amazon S3 server access logging. Configure Amazon EventBridge (Amazon Cloud Watch Events).

Question #27Topic 1

A company is launching a new application and will display application metrics on an Amazon CloudWatch dashboard. The company's product manager needs to access this dashboard periodically. The product manager does not have an AWS account. A solutions architect must provide access to the product manager by following the principle of least privilege.

Which solution will meet these requirements?

- A. Share the dashboard from the CloudWatch console. Enter the product manager's email address, and complete the sharing steps. Provide a shareable link for the dashboard to the product manager.
- B. Create an IAM user specifically for the product manager. Attach the CloudWatchReadOnlyAccess AWS managed policy to the user. Share the new login credentials with the product manager. Share the browser URL of the correct dashboard with the product manager.
- C. Create an IAM user for the company's employees. Attach the ViewOnlyAccess AWS managed policy to the IAM user. Share the new login credentials with the product manager. Ask the product manager to navigate to the CloudWatch console and locate the dashboard by name in the Dashboards section.
- D. Deploy a bastion server in a public subnet. When the product manager requires access to the dashboard, start the server and share the RDP credentials. On the bastion server, ensure that the browser is configured to open the dashboard URL with cached AWS credentials that have appropriate permissions to view the dashboard.

#### Question #28Topic 1

A company is migrating applications to AWS. The applications are deployed in different accounts. The company manages the accounts centrally by using AWS Organizations. The company's security team needs a single sign-on (SSO) solution across all the company's accounts. The company must continue managing the users and groups in its on-premises self-managed Microsoft Active Directory.

Which solution will meet these requirements?

- A. Enable AWS Single Sign-On (AWS SSO) from the AWS SSO console. Create a one-way forest trust or a one-way domain trust to connect the company's self-managed Microsoft Active Directory with AWS SSO by using AWS Directory Service for Microsoft Active Directory.
- B. Enable AWS Single Sign-On (AWS SSO) from the AWS SSO console. Create a two-way forest trust to connect the company's self-managed Microsoft Active Directory with AWS SSO by using AWS Directory Service for Microsoft Active Directory.
- C. Use AWS Directory Service. Create a two-way trust relationship with the company's self-managed Microsoft Active Directory.
- D. Deploy an identity provider (IdP) on premises. Enable AWS Single Sign-On (AWS SSO) from the AWS SSO console.

#### Question #29Topic 1

A company provides a Voice over Internet Protocol (VoIP) service that uses UDP connections. The service consists of Amazon EC2 instances that run in an Auto Scaling group. The company has deployments across multiple AWS Regions.

The company needs to route users to the Region with the lowest latency. The company also needs automated failover between Regions.

Which solution will meet these requirements?

- A. Deploy a Network Load Balancer (NLB) and an associated target group. Associate the target group with the Auto Scaling group. Use the NLB as an AWS Global Accelerator endpoint in each Region.
- B. Deploy an Application Load Balancer (ALB) and an associated target group. Associate the target group with the Auto Scaling group. Use the ALB as an AWS Global Accelerator endpoint in each Region.
- C. Deploy a Network Load Balancer (NLB) and an associated target group. Associate the target group with the Auto Scaling group. Create an Amazon Route 53 latency record that points to aliases for each NLB. Create an Amazon CloudFront distribution that uses the latency record as an origin.

D. Deploy an Application Load Balancer (ALB) and an associated target group. Associate the target group with the Auto Scaling group. Create an Amazon Route 53 weighted record that points to aliases for each ALB. Deploy an Amazon CloudFront distribution that uses the weighted record as an origin.

#### Question #30Topic 1

A development team runs monthly resource-intensive tests on its general purpose Amazon RDS for MySQL DB instance with Performance Insights enabled. The testing lasts for 48 hours once a month and is the only process that uses the database. The team wants to reduce the cost of running the tests without reducing the compute and memory attributes of the DB instance.

Which solution meets these requirements MOST cost-effectively?

- A. Stop the DB instance when tests are completed. Restart the DB instance when required.
- B. Use an Auto Scaling policy with the DB instance to automatically scale when tests are completed.
- C. Create a snapshot when tests are completed. Terminate the DB instance and restore the snapshot when required.
- D. Modify the DB instance to a low-capacity instance when tests are completed. Modify the DB instance again when required.

#### Question #31Topic 1

A company that hosts its web application on AWS wants to ensure all Amazon EC2 instances, Amazon RDS DB instances, and Amazon Redshift clusters are configured with tags. The company wants to minimize the effort of configuring and operating this check.

What should a solutions architect do to accomplish this?

- A. Use AWS Config rules to define and detect resources that are not properly tagged.
- B. Use Cost Explorer to display resources that are not properly tagged. Tag those resources manually.
- C. Write API calls to check all resources for proper tag allocation. Periodically run the code on an EC2 instance.
- D. Write API calls to check all resources for proper tag allocation. Schedule an AWS Lambda function through Amazon CloudWatch to periodically run the code.

#### Question #32Topic 1

A development team needs to host a website that will be accessed by other teams. The website contents consist of HTML, CSS, client-side JavaScript, and images.

Which method is the MOST cost-effective for hosting the website?

- A. Containerize the website and host it in AWS Fargate.
- B. Create an Amazon S3 bucket and host the website there.
- C. Deploy a web server on an Amazon EC2 instance to host the website.
- D. Configure an Application Load Balancer with an AWS Lambda target that uses the Express.js framework.

#### Question #33Topic 1

A company runs an online marketplace web application on AWS. The application serves hundreds of thousands of users during peak hours. The company needs a scalable, near-real-time solution to share the details of millions of financial transactions with several other internal applications. Transactions also need to be processed to remove sensitive data before being stored in a document database for low-latency retrieval.

What should a solutions architect recommend to meet these requirements?

- A. Store the transactions data into Amazon DynamoDB. Set up a rule in DynamoDB to remove sensitive data from every transaction upon write. Use DynamoDB Streams to share the transactions data with other applications.
- B. Stream the transactions data into Amazon Kinesis Data Firehose to store data in Amazon DynamoDB and Amazon S3. Use AWS Lambda integration with Kinesis Data Firehose to remove sensitive data. Other applications can consume the data stored in Amazon S3.
- C. Stream the transactions data into Amazon Kinesis Data Streams. Use AWS Lambda integration to remove sensitive data from every transaction and then store the transactions data in Amazon DynamoDB. Other applications can consume the transactions data off the Kinesis data stream.
- D. Store the batched transactions data in Amazon S3 as files. Use AWS Lambda to process every file and remove sensitive data before updating the files in Amazon S3. The Lambda function then stores the data in Amazon DynamoDB. Other applications can consume transaction files stored in Amazon S3.

#### Question #34Topic 1

A company hosts its multi-tier applications on AWS. For compliance, governance, auditing, and security, the company must track configuration changes on its AWS resources and record a history of API calls made to these resources.

What should a solutions architect do to meet these requirements?

- A. Use AWS CloudTrail to track configuration changes and AWS Config to record API calls.
- B. Use AWS Config to track configuration changes and AWS CloudTrail to record API calls.
- C. Use AWS Config to track configuration changes and Amazon CloudWatch to record API calls.
- D. Use AWS CloudTrail to track configuration changes and Amazon CloudWatch to record API calls.

Question #35Topic 1

A company is preparing to launch a public-facing web application in the AWS Cloud. The architecture consists of Amazon EC2 instances within a VPC behind an Elastic Load Balancer (ELB). A third-party service is used for the DNS. The company's solutions architect must recommend a solution to detect and protect against large-scale DDoS attacks.

Which solution meets these requirements?

- A. Enable Amazon GuardDuty on the account.
- B. Enable Amazon Inspector on the EC2 instances.
- C. Enable AWS Shield and assign Amazon Route 53 to it.
- D. Enable AWS Shield Advanced and assign the ELB to it.

Question #36Topic 1

A company is building an application in the AWS Cloud. The application will store data in Amazon S3 buckets in two AWS Regions. The company must use an AWS Key Management Service (AWS KMS) customer managed key to encrypt all data that is stored in the S3 buckets. The data in both S3 buckets must be encrypted and decrypted with the same KMS key. The data and the key must be stored in each of the two Regions.

Which solution will meet these requirements with the LEAST operational overhead?

- A. Create an S3 bucket in each Region. Configure the S3 buckets to use server-side encryption with Amazon S3 managed encryption keys (SSE-S3). Configure replication between the S3 buckets.
- B. Create a customer managed multi-Region KMS key. Create an S3 bucket in each Region. Configure replication between the S3 buckets. Configure the application to use the KMS key with client-side encryption.
- C. Create a customer managed KMS key and an S3 bucket in each Region. Configure the S3 buckets to use server-side encryption with Amazon S3 managed encryption keys (SSE-S3). Configure replication between the S3 buckets.

D. Create a customer managed KMS key and an S3 bucket in each Region. Configure the S3 buckets to use server-side encryption with AWS KMS keys (SSE-KMS). Configure replication between the S3 buckets.

#### Question #37Topic 1

A company recently launched a variety of new workloads on Amazon EC2 instances in its AWS account. The company needs to create a strategy to access and administer the instances remotely and securely. The company needs to implement a repeatable process that works with native AWS services and follows the AWS Well-Architected Framework.

Which solution will meet these requirements with the LEAST operational overhead?

A. Use the EC2 serial console to directly access the terminal interface of each instance for administration.

B. Attach the appropriate IAM role to each existing instance and new instance. Use AWS Systems Manager Session Manager to establish a remote SSH session.

C. Create an administrative SSH key pair. Load the public key into each EC2 instance. Deploy a bastion host in a public subnet to provide a tunnel for administration of each instance.

D. Establish an AWS Site-to-Site VPN connection. Instruct administrators to use their local on-premises machines to connect directly to the instances by using SSH keys across the VPN tunnel.

#### Question #38Topic 1

A company is hosting a static website on Amazon S3 and is using Amazon Route 53 for DNS. The website is experiencing increased demand from around the world. The company must decrease latency for users who access the website.

Which solution meets these requirements MOST cost-effectively?

A. Replicate the S3 bucket that contains the website to all AWS Regions. Add Route 53 geolocation routing entries.

B. Provision accelerators in AWS Global Accelerator. Associate the supplied IP addresses with the S3 bucket. Edit the Route 53 entries to point to the IP addresses of the accelerators.

C. Add an Amazon CloudFront distribution in front of the S3 bucket. Edit the Route 53 entries to point to the CloudFront distribution.

D. Enable S3 Transfer Acceleration on the bucket. Edit the Route 53 entries to point to the new endpoint.

#### Question #39Topic 1



A company maintains a searchable repository of items on its website. The data is stored in an Amazon RDS for MySQL database table that contains more than 10 million rows. The database has 2 TB of General Purpose SSD storage. There are millions of updates against this data every day through the company's website.

The company has noticed that some insert operations are taking 10 seconds or longer. The company has determined that the database storage performance is the problem.

Which solution addresses this performance issue?

- A. Change the storage type to Provisioned IOPS SSD.
- B. Change the DB instance to a memory optimized instance class.
- C. Change the DB instance to a burstable performance instance class.
- D. Enable Multi-AZ RDS read replicas with MySQL native asynchronous replication.

#### Question #40Topic 1

A company has thousands of edge devices that collectively generate 1 TB of status alerts each day. Each alert is approximately 2 KB in size. A solutions architect needs to implement a solution to ingest and store the alerts for future analysis.

The company wants a highly available solution. However, the company needs to minimize costs and does not want to manage additional infrastructure. Additionally, the company wants to keep 14 days of data available for immediate analysis and archive any data older than 14 days.

What is the MOST operationally efficient solution that meets these requirements?

- A. Create an Amazon Kinesis Data Firehose delivery stream to ingest the alerts. Configure the Kinesis Data Firehose stream to deliver the alerts to an Amazon S3 bucket. Set up an S3 Lifecycle configuration to transition data to Amazon S3 Glacier after 14 days.
- B. Launch Amazon EC2 instances across two Availability Zones and place them behind an Elastic Load Balancer to ingest the alerts. Create a script on the EC2 instances that will store the alerts in an Amazon S3 bucket. Set up an S3 Lifecycle configuration to transition data to Amazon S3 Glacier after 14 days.
- C. Create an Amazon Kinesis Data Firehose delivery stream to ingest the alerts. Configure the Kinesis Data Firehose stream to deliver the alerts to an Amazon OpenSearch Service (Amazon Elasticsearch Service) cluster. Set up the Amazon OpenSearch Service (Amazon Elasticsearch Service) cluster to take manual snapshots every day and delete data from the cluster that is older than 14 days.
- D. Create an Amazon Simple Queue Service (Amazon SQS) standard queue to ingest the alerts, and set the message retention period to 14 days. Configure consumers to poll the SQS queue, check the age of the message, and analyze the message data as needed. If the message is 14

days old, the consumer should copy the message to an Amazon S3 bucket and delete the message from the SQS queue.

#### Question #41Topic 1

A company's application integrates with multiple software-as-a-service (SaaS) sources for data collection. The company runs Amazon EC2 instances to receive the data and to upload the data to an Amazon S3 bucket for analysis. The same EC2 instance that receives and uploads the data also sends a notification to the user when an upload is complete. The company has noticed slow application performance and wants to improve the performance as much as possible.

Which solution will meet these requirements with the LEAST operational overhead?

- A. Create an Auto Scaling group so that EC2 instances can scale out. Configure an S3 event notification to send events to an Amazon Simple Notification Service (Amazon SNS) topic when the upload to the S3 bucket is complete.
- B. Create an Amazon AppFlow flow to transfer data between each SaaS source and the S3 bucket. Configure an S3 event notification to send events to an Amazon Simple Notification Service (Amazon SNS) topic when the upload to the S3 bucket is complete.
- C. Create an Amazon EventBridge (Amazon CloudWatch Events) rule for each SaaS source to send output data. Configure the S3 bucket as the rule's target. Create a second EventBridge (Cloud Watch Events) rule to send events when the upload to the S3 bucket is complete. Configure an Amazon Simple Notification Service (Amazon SNS) topic as the second rule's target.
- D. Create a Docker container to use instead of an EC2 instance. Host the containerized application on Amazon Elastic Container Service (Amazon ECS). Configure Amazon CloudWatch Container Insights to send events to an Amazon Simple Notification Service (Amazon SNS) topic when the upload to the S3 bucket is complete.

#### Question #42Topic 1

A company runs a highly available image-processing application on Amazon EC2 instances in a single VPC. The EC2 instances run inside several subnets across multiple Availability Zones. The EC2 instances do not communicate with each other. However, the EC2 instances download images from Amazon S3 and upload images to Amazon S3 through a single NAT gateway. The company is concerned about data transfer charges.

What is the MOST cost-effective way for the company to avoid Regional data transfer charges?

- A. Launch the NAT gateway in each Availability Zone.
- B. Replace the NAT gateway with a NAT instance.
- C. Deploy a gateway VPC endpoint for Amazon S3.

D. Provision an EC2 Dedicated Host to run the EC2 instances.

#### Question #43Topic 1

A company has an on-premises application that generates a large amount of time-sensitive data that is backed up to Amazon S3. The application has grown and there are user complaints about internet bandwidth limitations. A solutions architect needs to design a long-term solution that allows for both timely backups to Amazon S3 and with minimal impact on internet connectivity for internal users.

Which solution meets these requirements?

- A. Establish AWS VPN connections and proxy all traffic through a VPC gateway endpoint.
- B. Establish a new AWS Direct Connect connection and direct backup traffic through this new connection.
- C. Order daily AWS Snowball devices. Load the data onto the Snowball devices and return the devices to AWS each day.
- D. Submit a support ticket through the AWS Management Console. Request the removal of S3 service limits from the account.

#### Question #44Topic 1

A company has an Amazon S3 bucket that contains critical data. The company must protect the data from accidental deletion.

Which combination of steps should a solutions architect take to meet these requirements? (Choose two.)

- A. Enable versioning on the S3 bucket.
- B. Enable MFA Delete on the S3 bucket.
- C. Create a bucket policy on the S3 bucket.
- D. Enable default encryption on the S3 bucket.
- E. Create a lifecycle policy for the objects in the S3 bucket.

#### Question #45Topic 1

A company has a data ingestion workflow that consists of the following:

- An Amazon Simple Notification Service (Amazon SNS) topic for notifications about new data deliveries

- An AWS Lambda function to process the data and record metadata

The company observes that the ingestion workflow fails occasionally because of network connectivity issues. When such a failure occurs, the Lambda function does not ingest the corresponding data unless the company manually reruns the job.

Which combination of actions should a solutions architect take to ensure that the Lambda function ingests all data in the future? (Choose two.)

- A. Deploy the Lambda function in multiple Availability Zones.
- B. Create an Amazon Simple Queue Service (Amazon SQS) queue, and subscribe it to the SNS topic.
- C. Increase the CPU and memory that are allocated to the Lambda function.
- D. Increase provisioned throughput for the Lambda function.
- E. Modify the Lambda function to read from an Amazon Simple Queue Service (Amazon SQS) queue.

#### Question #46Topic 1

A company has an application that provides marketing services to stores. The services are based on previous purchases by store customers. The stores upload transaction data to the company through SFTP, and the data is processed and analyzed to generate new marketing offers. Some of the files can exceed 200 GB in size.

Recently, the company discovered that some of the stores have uploaded files that contain personally identifiable information (PII) that should not have been included. The company wants administrators to be alerted if PII is shared again. The company also wants to automate remediation.

What should a solutions architect do to meet these requirements with the LEAST development effort?

- A. Use an Amazon S3 bucket as a secure transfer point. Use Amazon Inspector to scan the objects in the bucket. If objects contain PII, trigger an S3 Lifecycle policy to remove the objects that contain PII.
- B. Use an Amazon S3 bucket as a secure transfer point. Use Amazon Macie to scan the objects in the bucket. If objects contain PII, use Amazon Simple Notification Service (Amazon SNS) to trigger a notification to the administrators to remove the objects that contain PII.
- C. Implement custom scanning algorithms in an AWS Lambda function. Trigger the function when objects are loaded into the bucket. If objects contain PII, use Amazon Simple Notification Service (Amazon SNS) to trigger a notification to the administrators to remove the objects that contain PII.
- D. Implement custom scanning algorithms in an AWS Lambda function. Trigger the function when objects are loaded into the bucket. If objects contain PII, use Amazon Simple Email

Service (Amazon SES) to trigger a notification to the administrators and trigger an S3 Lifecycle policy to remove the meats that contain PII.

Question #47Topic 1

A company needs guaranteed Amazon EC2 capacity in three specific Availability Zones in a specific AWS Region for an upcoming event that will last 1 week.

What should the company do to guarantee the EC2 capacity?

- A. Purchase Reserved Instances that specify the Region needed.
- B. Create an On-Demand Capacity Reservation that specifies the Region needed.
- C. Purchase Reserved Instances that specify the Region and three Availability Zones needed.
- D. Create an On-Demand Capacity Reservation that specifies the Region and three Availability Zones needed.

Question #48Topic 1

A company's website uses an Amazon EC2 instance store for its catalog of items. The company wants to make sure that the catalog is highly available and that the catalog is stored in a durable location.

What should a solutions architect do to meet these requirements?

- A. Move the catalog to Amazon ElastiCache for Redis.
- B. Deploy a larger EC2 instance with a larger instance store.
- C. Move the catalog from the instance store to Amazon S3 Glacier Deep Archive.
- D. Move the catalog to an Amazon Elastic File System (Amazon EFS) file system.

Question #49Topic 1

A company stores call transcript files on a monthly basis. Users access the files randomly within 1 year of the call, but users access the files infrequently after 1 year. The company wants to optimize its solution by giving users the ability to query and retrieve files that are less than 1-year-old as quickly as possible. A delay in retrieving older files is acceptable.

Which solution will meet these requirements MOST cost-effectively?

- A. Store individual files with tags in Amazon S3 Glacier Instant Retrieval. Query the tags to retrieve the files from S3 Glacier Instant Retrieval.
- B. Store individual files in Amazon S3 Intelligent-Tiering. Use S3 Lifecycle policies to move the files to S3 Glacier Flexible Retrieval after 1 year. Query and retrieve the files that are in Amazon

S3 by using Amazon Athena. Query and retrieve the files that are in S3 Glacier by using S3 Glacier Select.

C. Store individual files with tags in Amazon S3 Standard storage. Store search metadata for each archive in Amazon S3 Standard storage. Use S3 Lifecycle policies to move the files to S3 Glacier Instant Retrieval after 1 year. Query and retrieve the files by searching for metadata from Amazon S3.

D. Store individual files in Amazon S3 Standard storage. Use S3 Lifecycle policies to move the files to S3 Glacier Deep Archive after 1 year. Store search metadata in Amazon RDS. Query the files from Amazon RDS. Retrieve the files from S3 Glacier Deep Archive.

#### Question #50Topic 1

A company has a production workload that runs on 1,000 Amazon EC2 Linux instances. The workload is powered by third-party software. The company needs to patch the third-party software on all EC2 instances as quickly as possible to remediate a critical security vulnerability.

What should a solutions architect do to meet these requirements?

- A. Create an AWS Lambda function to apply the patch to all EC2 instances.
- B. Configure AWS Systems Manager Patch Manager to apply the patch to all EC2 instances.
- C. Schedule an AWS Systems Manager maintenance window to apply the patch to all EC2 instances.
- D. Use AWS Systems Manager Run Command to run a custom command that applies the patch to all EC2 instances.

#### Question #51Topic 1

A company is developing an application that provides order shipping statistics for retrieval by a REST API. The company wants to extract the shipping statistics, organize the data into an easy-to-read HTML format, and send the report to several email addresses at the same time every morning.

Which combination of steps should a solutions architect take to meet these requirements? (Choose two.)

- A. Configure the application to send the data to Amazon Kinesis Data Firehose.
- B. Use Amazon Simple Email Service (Amazon SES) to format the data and to send the report by email.
- C. Create an Amazon EventBridge (Amazon CloudWatch Events) scheduled event that invokes an AWS Glue job to query the application's API for the data.

- D. Create an Amazon EventBridge (Amazon CloudWatch Events) scheduled event that invokes an AWS Lambda function to query the application's API for the data.
- E. Store the application data in Amazon S3. Create an Amazon Simple Notification Service (Amazon SNS) topic as an S3 event destination to send the report by email.

#### Question #52Topic 1

A company wants to migrate its on-premises application to AWS. The application produces output files that vary in size from tens of gigabytes to hundreds of terabytes. The application data must be stored in a standard file system structure. The company wants a solution that scales automatically, is highly available, and requires minimum operational overhead.

Which solution will meet these requirements?

- A. Migrate the application to run as containers on Amazon Elastic Container Service (Amazon ECS). Use Amazon S3 for storage.
- B. Migrate the application to run as containers on Amazon Elastic Kubernetes Service (Amazon EKS). Use Amazon Elastic Block Store (Amazon EBS) for storage.
- C. Migrate the application to Amazon EC2 instances in a Multi-AZ Auto Scaling group. Use Amazon Elastic File System (Amazon EFS) for storage.
- D. Migrate the application to Amazon EC2 instances in a Multi-AZ Auto Scaling group. Use Amazon Elastic Block Store (Amazon EBS) for storage.

#### Question #53Topic 1

A company needs to store its accounting records in Amazon S3. The records must be immediately accessible for 1 year and then must be archived for an additional 9 years. No one at the company, including administrative users and root users, can be able to delete the records during the entire 10-year period. The records must be stored with maximum resiliency.

Which solution will meet these requirements?

- A. Store the records in S3 Glacier for the entire 10-year period. Use an access control policy to deny deletion of the records for a period of 10 years.
- B. Store the records by using S3 Intelligent-Tiering. Use an IAM policy to deny deletion of the records. After 10 years, change the IAM policy to allow deletion.
- C. Use an S3 Lifecycle policy to transition the records from S3 Standard to S3 Glacier Deep Archive after 1 year. Use S3 Object Lock in compliance mode for a period of 10 years.
- D. Use an S3 Lifecycle policy to transition the records from S3 Standard to S3 One Zone-Infrequent Access (S3 One Zone-IA) after 1 year. Use S3 Object Lock in governance mode for a period of 10 years.

Question #54Topic 1

A company runs multiple Windows workloads on AWS. The company's employees use Windows file shares that are hosted on two Amazon EC2 instances. The file shares synchronize data between themselves and maintain duplicate copies. The company wants a highly available and durable storage solution that preserves how users currently access the files.

What should a solutions architect do to meet these requirements?

- A. Migrate all the data to Amazon S3. Set up IAM authentication for users to access files.
- B. Set up an Amazon S3 File Gateway. Mount the S3 File Gateway on the existing EC2 instances.
- C. Extend the file share environment to Amazon FSx for Windows File Server with a Multi-AZ configuration. Migrate all the data to FSx for Windows File Server.
- D. Extend the file share environment to Amazon Elastic File System (Amazon EFS) with a Multi-AZ configuration. Migrate all the data to Amazon EFS.

Question #55Topic 1

A solutions architect is developing a VPC architecture that includes multiple subnets. The architecture will host applications that use Amazon EC2 instances and Amazon RDS DB instances. The architecture consists of six subnets in two Availability Zones. Each Availability Zone includes a public subnet, a private subnet, and a dedicated subnet for databases. Only EC2 instances that run in the private subnets can have access to the RDS databases.

Which solution will meet these requirements?

- A. Create a new route table that excludes the route to the public subnets' CIDR blocks. Associate the route table with the database subnets.
- B. Create a security group that denies inbound traffic from the security group that is assigned to instances in the public subnets. Attach the security group to the DB instances.
- C. Create a security group that allows inbound traffic from the security group that is assigned to instances in the private subnets. Attach the security group to the DB instances.
- D. Create a new peering connection between the public subnets and the private subnets. Create a different peering connection between the private subnets and the database subnets.

Question #56Topic 1

A company has registered its domain name with Amazon Route 53. The company uses Amazon API Gateway in the ca-central-1 Region as a public interface for its backend microservice APIs. Third-party services consume the APIs securely. The company wants to design its API Gateway



URL with the company's domain name and corresponding certificate so that the third-party services can use HTTPS.

Which solution will meet these requirements?

- A. Create stage variables in API Gateway with Name="Endpoint-URL" and Value="Company Domain Name" to overwrite the default URL. Import the public certificate associated with the company's domain name into AWS Certificate Manager (ACM).
- B. Create Route 53 DNS records with the company's domain name. Point the alias record to the Regional API Gateway stage endpoint. Import the public certificate associated with the company's domain name into AWS Certificate Manager (ACM) in the us-east-1 Region.
- C. Create a Regional API Gateway endpoint. Associate the API Gateway endpoint with the company's domain name. Import the public certificate associated with the company's domain name into AWS Certificate Manager (ACM) in the same Region. Attach the certificate to the API Gateway endpoint. Configure Route 53 to route traffic to the API Gateway endpoint.
- D. Create a Regional API Gateway endpoint. Associate the API Gateway endpoint with the company's domain name. Import the public certificate associated with the company's domain name into AWS Certificate Manager (ACM) in the us-east-1 Region. Attach the certificate to the API Gateway APIs. Create Route 53 DNS records with the company's domain name. Point an A record to the company's domain name.

Question #57Topic 1

A company is running a popular social media website. The website gives users the ability to upload images to share with other users. The company wants to make sure that the images do not contain inappropriate content. The company needs a solution that minimizes development effort.

What should a solutions architect do to meet these requirements?

- A. Use Amazon Comprehend to detect inappropriate content. Use human review for low-confidence predictions.
- B. Use Amazon Rekognition to detect inappropriate content. Use human review for low-confidence predictions.
- C. Use Amazon SageMaker to detect inappropriate content. Use ground truth to label low-confidence predictions.
- D. Use AWS Fargate to deploy a custom machine learning model to detect inappropriate content. Use ground truth to label low-confidence predictions.

Question #58Topic 1

A company wants to run its critical applications in containers to meet requirements for scalability and availability. The company prefers to focus on maintenance of the critical applications. The company does not want to be responsible for provisioning and managing the underlying infrastructure that runs the containerized workload.

What should a solutions architect do to meet these requirements?

- A. Use Amazon EC2 instances, and install Docker on the instances.
- B. Use Amazon Elastic Container Service (Amazon ECS) on Amazon EC2 worker nodes.
- C. Use Amazon Elastic Container Service (Amazon ECS) on AWS Fargate.
- D. Use Amazon EC2 instances from an Amazon Elastic Container Service (Amazon ECS)-optimized Amazon Machine Image (AMI).

#### Question #59Topic 1

A company hosts more than 300 global websites and applications. The company requires a platform to analyze more than 30 TB of clickstream data each day.

What should a solutions architect do to transmit and process the clickstream data?

- A. Design an AWS Data Pipeline to archive the data to an Amazon S3 bucket and run an Amazon EMR cluster with the data to generate analytics.
- B. Create an Auto Scaling group of Amazon EC2 instances to process the data and send it to an Amazon S3 data lake for Amazon Redshift to use for analysis.
- C. Cache the data to Amazon CloudFront. Store the data in an Amazon S3 bucket. When an object is added to the S3 bucket, run an AWS Lambda function to process the data for analysis.
- D. Collect the data from Amazon Kinesis Data Streams. Use Amazon Kinesis Data Firehose to transmit the data to an Amazon S3 data lake. Load the data in Amazon Redshift for analysis.

#### Question #60Topic 1

A company has a website hosted on AWS. The website is behind an Application Load Balancer (ALB) that is configured to handle HTTP and HTTPS separately. The company wants to forward all requests to the website so that the requests will use HTTPS.

What should a solutions architect do to meet this requirement?

- A. Update the ALB's network ACL to accept only HTTPS traffic.
- B. Create a rule that replaces the HTTP in the URL with HTTPS.
- C. Create a listener rule on the ALB to redirect HTTP traffic to HTTPS.

D. Replace the ALB with a Network Load Balancer configured to use Server Name Indication (SNI).

#### Question #61Topic 1

A company is developing a two-tier web application on AWS. The company's developers have deployed the application on an Amazon EC2 instance that connects directly to a backend Amazon RDS database. The company must not hardcode database credentials in the application. The company must also implement a solution to automatically rotate the database credentials on a regular basis.

Which solution will meet these requirements with the LEAST operational overhead?

A. Store the database credentials in the instance metadata. Use Amazon EventBridge (Amazon CloudWatch Events) rules to run a scheduled AWS Lambda function that updates the RDS credentials and instance metadata at the same time.

B. Store the database credentials in a configuration file in an encrypted Amazon S3 bucket. Use Amazon EventBridge (Amazon CloudWatch Events) rules to run a scheduled AWS Lambda function that updates the RDS credentials and the credentials in the configuration file at the same time. Use S3 Versioning to ensure the ability to fall back to previous values.

C. Store the database credentials as a secret in AWS Secrets Manager. Turn on automatic rotation for the secret. Attach the required permission to the EC2 role to grant access to the secret.

D. Store the database credentials as encrypted parameters in AWS Systems Manager Parameter Store. Turn on automatic rotation for the encrypted parameters. Attach the required permission to the EC2 role to grant access to the encrypted parameters.

#### Question #62Topic 1

A company is deploying a new public web application to AWS. The application will run behind an Application Load Balancer (ALB). The application needs to be encrypted at the edge with an SSL/TLS certificate that is issued by an external certificate authority (CA). The certificate must be rotated each year before the certificate expires.

What should a solutions architect do to meet these requirements?

A. Use AWS Certificate Manager (ACM) to issue an SSL/TLS certificate. Apply the certificate to the ALB. Use the managed renewal feature to automatically rotate the certificate.

B. Use AWS Certificate Manager (ACM) to issue an SSL/TLS certificate. Import the key material from the certificate. Apply the certificate to the ALB. Use the managed renewal feature to automatically rotate the certificate.

C. Use AWS Certificate Manager (ACM) Private Certificate Authority to issue an SSL/TLS certificate from the root CA. Apply the certificate to the ALB. Use the managed renewal feature to automatically rotate the certificate.

D. Use AWS Certificate Manager (ACM) to import an SSL/TLS certificate. Apply the certificate to the ALB. Use Amazon EventBridge (Amazon CloudWatch Events) to send a notification when the certificate is nearing expiration. Rotate the certificate manually.

#### Question #63Topic 1

A company runs its infrastructure on AWS and has a registered base of 700,000 users for its document management application. The company intends to create a product that converts large .pdf files to .jpg image files. The .pdf files average 5 MB in size. The company needs to store the original files and the converted files. A solutions architect must design a scalable solution to accommodate demand that will grow rapidly over time.

Which solution meets these requirements MOST cost-effectively?

A. Save the .pdf files to Amazon S3. Configure an S3 PUT event to invoke an AWS Lambda function to convert the files to .jpg format and store them back in Amazon S3.

B. Save the .pdf files to Amazon DynamoDB. Use the DynamoDB Streams feature to invoke an AWS Lambda function to convert the files to .jpg format and store them back in DynamoDB.

C. Upload the .pdf files to an AWS Elastic Beanstalk application that includes Amazon EC2 instances, Amazon Elastic Block Store (Amazon EBS) storage, and an Auto Scaling group. Use a program in the EC2 instances to convert the files to .jpg format. Save the .pdf files and the .jpg files in the EBS store.

D. Upload the .pdf files to an AWS Elastic Beanstalk application that includes Amazon EC2 instances, Amazon Elastic File System (Amazon EFS) storage, and an Auto Scaling group. Use a program in the EC2 instances to convert the file to .jpg format. Save the .pdf files and the .jpg files in the EBS store.

#### Question #64Topic 1

A company has more than 5 TB of file data on Windows file servers that run on premises. Users and applications interact with the data each day.

The company is moving its Windows workloads to AWS. As the company continues this process, the company requires access to AWS and on-premises file storage with minimum latency. The company needs a solution that minimizes operational overhead and requires no significant changes to the existing file access patterns. The company uses an AWS Site-to-Site VPN connection for connectivity to AWS.

What should a solutions architect do to meet these requirements?

- A. Deploy and configure Amazon FSx for Windows File Server on AWS. Move the on-premises file data to FSx for Windows File Server. Reconfigure the workloads to use FSx for Windows File Server on AWS.
- B. Deploy and configure an Amazon S3 File Gateway on premises. Move the on-premises file data to the S3 File Gateway. Reconfigure the on-premises workloads and the cloud workloads to use the S3 File Gateway.
- C. Deploy and configure an Amazon S3 File Gateway on premises. Move the on-premises file data to Amazon S3. Reconfigure the workloads to use either Amazon S3 directly or the S3 File Gateway, depending on each workload's location.
- D. Deploy and configure Amazon FSx for Windows File Server on AWS. Deploy and configure an Amazon FSx File Gateway on premises. Move the on-premises file data to the FSx File Gateway. Configure the cloud workloads to use FSx for Windows File Server on AWS. Configure the on-premises workloads to use the FSx File Gateway.

Question #65Topic 1

A hospital recently deployed a RESTful API with Amazon API Gateway and AWS Lambda. The hospital uses API Gateway and Lambda to upload reports that are in PDF format and JPEG format. The hospital needs to modify the Lambda code to identify protected health information (PHI) in the reports.

Which solution will meet these requirements with the LEAST operational overhead?

- A. Use existing Python libraries to extract the text from the reports and to identify the PHI from the extracted text.
- B. Use Amazon Textract to extract the text from the reports. Use Amazon SageMaker to identify the PHI from the extracted text.
- C. Use Amazon Textract to extract the text from the reports. Use Amazon Comprehend Medical to identify the PHI from the extracted text.
- D. Use Amazon Rekognition to extract the text from the reports. Use Amazon Comprehend Medical to identify the PHI from the extracted text.

Question #66Topic 1

A company has an application that generates a large number of files, each approximately 5 MB in size. The files are stored in Amazon S3. Company policy requires the files to be stored for 4 years before they can be deleted. Immediate accessibility is always required as the files contain critical business data that is not easy to reproduce. The files are frequently accessed in the first 30 days of the object creation but are rarely accessed after the first 30 days.

Which storage solution is MOST cost-effective?

- A. Create an S3 bucket lifecycle policy to move files from S3 Standard to S3 Glacier 30 days from object creation. Delete the files 4 years after object creation.
- B. Create an S3 bucket lifecycle policy to move files from S3 Standard to S3 One Zone-Infrequent Access (S3 One Zone-IA) 30 days from object creation. Delete the files 4 years after object creation.
- C. Create an S3 bucket lifecycle policy to move files from S3 Standard to S3 Standard-Infrequent Access (S3 Standard-IA) 30 days from object creation. Delete the files 4 years after object creation.
- D. Create an S3 bucket lifecycle policy to move files from S3 Standard to S3 Standard-Infrequent Access (S3 Standard-IA) 30 days from object creation. Move the files to S3 Glacier 4 years after object creation.

Question #67Topic 1

A company hosts an application on multiple Amazon EC2 instances. The application processes messages from an Amazon SQS queue, writes to an Amazon RDS table, and deletes the message from the queue. Occasional duplicate records are found in the RDS table. The SQS queue does not contain any duplicate messages.

What should a solutions architect do to ensure messages are being processed once only?

- A. Use the CreateQueue API call to create a new queue.
- B. Use the AddPermission API call to add appropriate permissions.
- C. Use the ReceiveMessage API call to set an appropriate wait time.
- D. Use the ChangeMessageVisibility API call to increase the visibility timeout.

Question #68Topic 1

A solutions architect is designing a new hybrid architecture to extend a company's on-premises infrastructure to AWS. The company requires a highly available connection with consistent low latency to an AWS Region. The company needs to minimize costs and is willing to accept slower traffic if the primary connection fails.

What should the solutions architect do to meet these requirements?

- A. Provision an AWS Direct Connect connection to a Region. Provision a VPN connection as a backup if the primary Direct Connect connection fails.
- B. Provision a VPN tunnel connection to a Region for private connectivity. Provision a second VPN tunnel for private connectivity and as a backup if the primary VPN connection fails.
- C. Provision an AWS Direct Connect connection to a Region. Provision a second Direct Connect connection to the same Region as a backup if the primary Direct Connect connection fails.

D. Provision an AWS Direct Connect connection to a Region. Use the Direct Connect failover attribute from the AWS CLI to automatically create a backup connection if the primary Direct Connect connection fails.

#### Question #69Topic 1

A company is running a business-critical web application on Amazon EC2 instances behind an Application Load Balancer. The EC2 instances are in an Auto Scaling group. The application uses an Amazon Aurora PostgreSQL database that is deployed in a single Availability Zone. The company wants the application to be highly available with minimum downtime and minimum loss of data.

Which solution will meet these requirements with the LEAST operational effort?

A. Place the EC2 instances in different AWS Regions. Use Amazon Route 53 health checks to redirect traffic. Use Aurora PostgreSQL Cross-Region Replication.

B. Configure the Auto Scaling group to use multiple Availability Zones. Configure the database as Multi-AZ. Configure an Amazon RDS Proxy instance for the database.

C. Configure the Auto Scaling group to use one Availability Zone. Generate hourly snapshots of the database. Recover the database from the snapshots in the event of a failure.

D. Configure the Auto Scaling group to use multiple AWS Regions. Write the data from the application to Amazon S3. Use S3 Event Notifications to launch an AWS Lambda function to write the data to the database.

#### Question #70Topic 1

A company's HTTP application is behind a Network Load Balancer (NLB). The NLB's target group is configured to use an Amazon EC2 Auto Scaling group with multiple EC2 instances that run the web service.

The company notices that the NLB is not detecting HTTP errors for the application. These errors require a manual restart of the EC2 instances that run the web service. The company needs to improve the application's availability without writing custom scripts or code.

What should a solutions architect do to meet these requirements?

A. Enable HTTP health checks on the NLB, supplying the URL of the company's application.

B. Add a cron job to the EC2 instances to check the local application's logs once each minute. If HTTP errors are detected, the application will restart.

C. Replace the NLB with an Application Load Balancer. Enable HTTP health checks by supplying the URL of the company's application. Configure an Auto Scaling action to replace unhealthy instances.

D. Create an Amazon Cloud Watch alarm that monitors the UnhealthyHostCount metric for the NLB. Configure an Auto Scaling action to replace unhealthy instances when the alarm is in the ALARM state.

#### Question #71Topic 1

A company runs a shopping application that uses Amazon DynamoDB to store customer information. In case of data corruption, a solutions architect needs to design a solution that meets a recovery point objective (RPO) of 15 minutes and a recovery time objective (RTO) of 1 hour.

What should the solutions architect recommend to meet these requirements?

- A. Configure DynamoDB global tables. For RPO recovery, point the application to a different AWS Region.
- B. Configure DynamoDB point-in-time recovery. For RPO recovery, restore to the desired point in time.
- C. Export the DynamoDB data to Amazon S3 Glacier on a daily basis. For RPO recovery, import the data from S3 Glacier to DynamoDB.
- D. Schedule Amazon Elastic Block Store (Amazon EBS) snapshots for the DynamoDB table every 15 minutes. For RPO recovery, restore the DynamoDB table by using the EBS snapshot.

#### Question #72Topic 1

A company runs a photo processing application that needs to frequently upload and download pictures from Amazon S3 buckets that are located in the same AWS Region. A solutions architect has noticed an increased cost in data transfer fees and needs to implement a solution to reduce these costs.

How can the solutions architect meet this requirement?

- A. Deploy Amazon API Gateway into a public subnet and adjust the route table to route S3 calls through it.
- B. Deploy a NAT gateway into a public subnet and attach an endpoint policy that allows access to the S3 buckets.
- C. Deploy the application into a public subnet and allow it to route through an internet gateway to access the S3 buckets.
- D. Deploy an S3 VPC gateway endpoint into the VPC and attach an endpoint policy that allows access to the S3 buckets.

#### Question #73Topic 1



A company recently launched Linux-based application instances on Amazon EC2 in a private subnet and launched a Linux-based bastion host on an Amazon EC2 instance in a public subnet of a VPC. A solutions architect needs to connect from the on-premises network, through the company's internet connection, to the bastion host, and to the application servers. The solutions architect must make sure that the security groups of all the EC2 instances will allow that access.

Which combination of steps should the solutions architect take to meet these requirements? (Choose two.)

- A. Replace the current security group of the bastion host with one that only allows inbound access from the application instances.
- B. Replace the current security group of the bastion host with one that only allows inbound access from the internal IP range for the company.
- C. Replace the current security group of the bastion host with one that only allows inbound access from the external IP range for the company.
- D. Replace the current security group of the application instances with one that allows inbound SSH access from only the private IP address of the bastion host.
- E. Replace the current security group of the application instances with one that allows inbound SSH access from only the public IP address of the bastion host.

#### Question #74Topic 1

A solutions architect is designing a two-tier web application. The application consists of a public-facing web tier hosted on Amazon EC2 in public subnets. The database tier consists of Microsoft SQL Server running on Amazon EC2 in a private subnet. Security is a high priority for the company.

How should security groups be configured in this situation? (Choose two.)

- A. Configure the security group for the web tier to allow inbound traffic on port 443 from 0.0.0.0/0.
- B. Configure the security group for the web tier to allow outbound traffic on port 443 from 0.0.0.0/0.
- C. Configure the security group for the database tier to allow inbound traffic on port 1433 from the security group for the web tier.
- D. Configure the security group for the database tier to allow outbound traffic on ports 443 and 1433 to the security group for the web tier.
- E. Configure the security group for the database tier to allow inbound traffic on ports 443 and 1433 from the security group for the web tier.

Question #75Topic 1

A company wants to move a multi-tiered application from on premises to the AWS Cloud to improve the application's performance. The application consists of application tiers that communicate with each other by way of RESTful services. Transactions are dropped when one tier becomes overloaded. A solutions architect must design a solution that resolves these issues and modernizes the application.

Which solution meets these requirements and is the MOST operationally efficient?

- A. Use Amazon API Gateway and direct transactions to the AWS Lambda functions as the application layer. Use Amazon Simple Queue Service (Amazon SQS) as the communication layer between application services.
- B. Use Amazon CloudWatch metrics to analyze the application performance history to determine the servers' peak utilization during the performance failures. Increase the size of the application server's Amazon EC2 instances to meet the peak requirements.
- C. Use Amazon Simple Notification Service (Amazon SNS) to handle the messaging between application servers running on Amazon EC2 in an Auto Scaling group. Use Amazon CloudWatch to monitor the SNS queue length and scale up and down as required.
- D. Use Amazon Simple Queue Service (Amazon SQS) to handle the messaging between application servers running on Amazon EC2 in an Auto Scaling group. Use Amazon CloudWatch to monitor the SQS queue length and scale up when communication failures are detected.

Question #76Topic 1

A company receives 10 TB of instrumentation data each day from several machines located at a single factory. The data consists of JSON files stored on a storage area network (SAN) in an on-premises data center located within the factory. The company wants to send this data to Amazon S3 where it can be accessed by several additional systems that provide critical near-real-time analytics. A secure transfer is important because the data is considered sensitive.

Which solution offers the MOST reliable data transfer?

- A. AWS DataSync over public internet
- B. AWS DataSync over AWS Direct Connect
- C. AWS Database Migration Service (AWS DMS) over public internet
- D. AWS Database Migration Service (AWS DMS) over AWS Direct Connect

Question #77Topic 1

A company needs to configure a real-time data ingestion architecture for its application. The company needs an API, a process that transforms data as the data is streamed, and a storage solution for the data.

Which solution will meet these requirements with the LEAST operational overhead?

- A. Deploy an Amazon EC2 instance to host an API that sends data to an Amazon Kinesis data stream. Create an Amazon Kinesis Data Firehose delivery stream that uses the Kinesis data stream as a data source. Use AWS Lambda functions to transform the data. Use the Kinesis Data Firehose delivery stream to send the data to Amazon S3.
- B. Deploy an Amazon EC2 instance to host an API that sends data to AWS Glue. Stop source/destination checking on the EC2 instance. Use AWS Glue to transform the data and to send the data to Amazon S3.
- C. Configure an Amazon API Gateway API to send data to an Amazon Kinesis data stream. Create an Amazon Kinesis Data Firehose delivery stream that uses the Kinesis data stream as a data source. Use AWS Lambda functions to transform the data. Use the Kinesis Data Firehose delivery stream to send the data to Amazon S3.
- D. Configure an Amazon API Gateway API to send data to AWS Glue. Use AWS Lambda functions to transform the data. Use AWS Glue to send the data to Amazon S3.

#### Question #78Topic 1

A company needs to keep user transaction data in an Amazon DynamoDB table. The company must retain the data for 7 years.

What is the MOST operationally efficient solution that meets these requirements?

- A. Use DynamoDB point-in-time recovery to back up the table continuously.
- B. Use AWS Backup to create backup schedules and retention policies for the table.
- C. Create an on-demand backup of the table by using the DynamoDB console. Store the backup in an Amazon S3 bucket. Set an S3 Lifecycle configuration for the S3 bucket.
- D. Create an Amazon EventBridge (Amazon CloudWatch Events) rule to invoke an AWS Lambda function. Configure the Lambda function to back up the table and to store the backup in an Amazon S3 bucket. Set an S3 Lifecycle configuration for the S3 bucket.

#### Question #79Topic 1

A company is planning to use an Amazon DynamoDB table for data storage. The company is concerned about cost optimization. The table will not be used on most mornings. In the evenings, the read and write traffic will often be unpredictable. When traffic spikes occur, they will happen very quickly.

What should a solutions architect recommend?

- A. Create a DynamoDB table in on-demand capacity mode.
- B. Create a DynamoDB table with a global secondary index.
- C. Create a DynamoDB table with provisioned capacity and auto scaling.
- D. Create a DynamoDB table in provisioned capacity mode, and configure it as a global table.

Question #80Topic 1

A company recently signed a contract with an AWS Managed Service Provider (MSP) Partner for help with an application migration initiative. A solutions architect needs to share an Amazon Machine Image (AMI) from an existing AWS account with the MSP Partner's AWS account. The AMI is backed by Amazon Elastic Block Store (Amazon EBS) and uses an AWS Key Management Service (AWS KMS) customer managed key to encrypt EBS volume snapshots.

What is the MOST secure way for the solutions architect to share the AMI with the MSP Partner's AWS account?

- A. Make the encrypted AMI and snapshots publicly available. Modify the key policy to allow the MSP Partner's AWS account to use the key.
- B. Modify the launchPermission property of the AMI. Share the AMI with the MSP Partner's AWS account only. Modify the key policy to allow the MSP Partner's AWS account to use the key.
- C. Modify the launchPermission property of the AMI. Share the AMI with the MSP Partner's AWS account only. Modify the key policy to trust a new KMS key that is owned by the MSP Partner for encryption.
- D. Export the AMI from the source account to an Amazon S3 bucket in the MSP Partner's AWS account. Encrypt the S3 bucket with a new KMS key that is owned by the MSP Partner. Copy and launch the AMI in the MSP Partner's AWS account.

Question #81Topic 1

A solutions architect is designing the cloud architecture for a new application being deployed on AWS. The process should run in parallel while adding and removing application nodes as needed based on the number of jobs to be processed. The processor application is stateless. The solutions architect must ensure that the application is loosely coupled and the job items are durably stored.

Which design should the solutions architect use?

- A. Create an Amazon SNS topic to send the jobs that need to be processed. Create an Amazon Machine Image (AMI) that consists of the processor application. Create a launch configuration

that uses the AMI. Create an Auto Scaling group using the launch configuration. Set the scaling policy for the Auto Scaling group to add and remove nodes based on CPU usage.

B. Create an Amazon SQS queue to hold the jobs that need to be processed. Create an Amazon Machine Image (AMI) that consists of the processor application. Create a launch configuration that uses the AMI. Create an Auto Scaling group using the launch configuration. Set the scaling policy for the Auto Scaling group to add and remove nodes based on network usage.

C. Create an Amazon SQS queue to hold the jobs that need to be processed. Create an Amazon Machine Image (AMI) that consists of the processor application. Create a launch template that uses the AMI. Create an Auto Scaling group using the launch template. Set the scaling policy for the Auto Scaling group to add and remove nodes based on the number of items in the SQS queue.

D. Create an Amazon SNS topic to send the jobs that need to be processed. Create an Amazon Machine Image (AMI) that consists of the processor application. Create a launch template that uses the AMI. Create an Auto Scaling group using the launch template. Set the scaling policy for the Auto Scaling group to add and remove nodes based on the number of messages published to the SNS topic.

#### Question #82Topic 1

A company hosts its web applications in the AWS Cloud. The company configures Elastic Load Balancers to use certificates that are imported into AWS Certificate Manager (ACM). The company's security team must be notified 30 days before the expiration of each certificate.

What should a solutions architect recommend to meet this requirement?

A. Add a rule in ACM to publish a custom message to an Amazon Simple Notification Service (Amazon SNS) topic every day, beginning 30 days before any certificate will expire.

B. Create an AWS Config rule that checks for certificates that will expire within 30 days. Configure Amazon EventBridge (Amazon CloudWatch Events) to invoke a custom alert by way of Amazon Simple Notification Service (Amazon SNS) when AWS Config reports a noncompliant resource.

C. Use AWS Trusted Advisor to check for certificates that will expire within 30 days. Create an Amazon CloudWatch alarm that is based on Trusted Advisor metrics for check status changes. Configure the alarm to send a custom alert by way of Amazon Simple Notification Service (Amazon SNS).

D. Create an Amazon EventBridge (Amazon CloudWatch Events) rule to detect any certificates that will expire within 30 days. Configure the rule to invoke an AWS Lambda function. Configure the Lambda function to send a custom alert by way of Amazon Simple Notification Service (Amazon SNS).

#### Question #83Topic 1

A company's dynamic website is hosted using on-premises servers in the United States. The company is launching its product in Europe, and it wants to optimize site loading times for new

European users. The site's backend must remain in the United States. The product is being launched in a few days, and an immediate solution is needed.

What should the solutions architect recommend?

- A. Launch an Amazon EC2 instance in us-east-1 and migrate the site to it.
- B. Move the website to Amazon S3. Use Cross-Region Replication between Regions.
- C. Use Amazon CloudFront with a custom origin pointing to the on-premises servers.
- D. Use an Amazon Route 53 geoproximity routing policy pointing to on-premises servers.

#### Question #84Topic 1

A company wants to reduce the cost of its existing three-tier web architecture. The web, application, and database servers are running on Amazon EC2 instances for the development, test, and production environments. The EC2 instances average 30% CPU utilization during peak hours and 10% CPU utilization during non-peak hours.

The production EC2 instances run 24 hours a day. The development and test EC2 instances run for at least 8 hours each day. The company plans to implement automation to stop the development and test EC2 instances when they are not in use.

Which EC2 instance purchasing solution will meet the company's requirements MOST cost-effectively?

- A. Use Spot Instances for the production EC2 instances. Use Reserved Instances for the development and test EC2 instances.
- B. Use Reserved Instances for the production EC2 instances. Use On-Demand Instances for the development and test EC2 instances.
- C. Use Spot blocks for the production EC2 instances. Use Reserved Instances for the development and test EC2 instances.
- D. Use On-Demand Instances for the production EC2 instances. Use Spot blocks for the development and test EC2 instances.

#### Question #85Topic 1

A company has a production web application in which users upload documents through a web interface or a mobile app. According to a new regulatory requirement, new documents cannot be modified or deleted after they are stored.

What should a solutions architect do to meet this requirement?

- A. Store the uploaded documents in an Amazon S3 bucket with S3 Versioning and S3 Object Lock enabled.
- B. Store the uploaded documents in an Amazon S3 bucket. Configure an S3 Lifecycle policy to archive the documents periodically.
- C. Store the uploaded documents in an Amazon S3 bucket with S3 Versioning enabled. Configure an ACL to restrict all access to read-only.
- D. Store the uploaded documents on an Amazon Elastic File System (Amazon EFS) volume. Access the data by mounting the volume in read-only mode.

#### Question #86Topic 1

A company has several web servers that need to frequently access a common Amazon RDS MySQL Multi-AZ DB instance. The company wants a secure method for the web servers to connect to the database while meeting a security requirement to rotate user credentials frequently.

Which solution meets these requirements?

- A. Store the database user credentials in AWS Secrets Manager. Grant the necessary IAM permissions to allow the web servers to access AWS Secrets Manager.
- B. Store the database user credentials in AWS Systems Manager OpsCenter. Grant the necessary IAM permissions to allow the web servers to access OpsCenter.
- C. Store the database user credentials in a secure Amazon S3 bucket. Grant the necessary IAM permissions to allow the web servers to retrieve credentials and access the database.
- D. Store the database user credentials in files encrypted with AWS Key Management Service (AWS KMS) on the web server file system. The web server should be able to decrypt the files and access the database.

#### Question #87Topic 1

A company hosts an application on AWS Lambda functions that are invoked by an Amazon API Gateway API. The Lambda functions save customer data to an Amazon Aurora MySQL database. Whenever the company upgrades the database, the Lambda functions fail to establish database connections until the upgrade is complete. The result is that customer data is not recorded for some of the event.

A solutions architect needs to design a solution that stores customer data that is created during database upgrades.

Which solution will meet these requirements?

- A. Provision an Amazon RDS proxy to sit between the Lambda functions and the database. Configure the Lambda functions to connect to the RDS proxy.
- B. Increase the run time of the Lambda functions to the maximum. Create a retry mechanism in the code that stores the customer data in the database.
- C. Persist the customer data to Lambda local storage. Configure new Lambda functions to scan the local storage to save the customer data to the database.
- D. Store the customer data in an Amazon Simple Queue Service (Amazon SQS) FIFO queue. Create a new Lambda function that polls the queue and stores the customer data in the database.

Question #88Topic 1

A survey company has gathered data for several years from areas in the United States. The company hosts the data in an Amazon S3 bucket that is 3 TB in size and growing. The company has started to share the data with a European marketing firm that has S3 buckets. The company wants to ensure that its data transfer costs remain as low as possible.

Which solution will meet these requirements?

- A. Configure the Requester Pays feature on the company's S3 bucket.
- B. Configure S3 Cross-Region Replication from the company's S3 bucket to one of the marketing firm's S3 buckets.
- C. Configure cross-account access for the marketing firm so that the marketing firm has access to the company's S3 bucket.
- D. Configure the company's S3 bucket to use S3 Intelligent-Tiering. Sync the S3 bucket to one of the marketing firm's S3 buckets.

Question #89Topic 1

A company uses Amazon S3 to store its confidential audit documents. The S3 bucket uses bucket policies to restrict access to audit team IAM user credentials according to the principle of least privilege. Company managers are worried about accidental deletion of documents in the S3 bucket and want a more secure solution.

What should a solutions architect do to secure the audit documents?

- A. Enable the versioning and MFA Delete features on the S3 bucket.
- B. Enable multi-factor authentication (MFA) on the IAM user credentials for each audit team IAM user account.
- C. Add an S3 Lifecycle policy to the audit team's IAM user accounts to deny the s3:DeleteObject action during audit dates.



D. Use AWS Key Management Service (AWS KMS) to encrypt the S3 bucket and restrict audit team IAM user accounts from accessing the KMS key.

#### Question #90Topic 1

A company is using a SQL database to store movie data that is publicly accessible. The database runs on an Amazon RDS Single-AZ DB instance. A script runs queries at random intervals each day to record the number of new movies that have been added to the database. The script must report a final total during business hours.

The company's development team notices that the database performance is inadequate for development tasks when the script is running. A solutions architect must recommend a solution to resolve this issue.

Which solution will meet this requirement with the LEAST operational overhead?

- A. Modify the DB instance to be a Multi-AZ deployment.
- B. Create a read replica of the database. Configure the script to query only the read replica.
- C. Instruct the development team to manually export the entries in the database at the end of each day.
- D. Use Amazon ElastiCache to cache the common queries that the script runs against the database.

#### Question #91Topic 1

A company has applications that run on Amazon EC2 instances in a VPC. One of the applications needs to call the Amazon S3 API to store and read objects. According to the company's security regulations, no traffic from the applications is allowed to travel across the internet.

Which solution will meet these requirements?

- A. Configure an S3 gateway endpoint.
- B. Create an S3 bucket in a private subnet.
- C. Create an S3 bucket in the same AWS Region as the EC2 instances.
- D. Configure a NAT gateway in the same subnet as the EC2 instances.

#### Question #92Topic 1

A company is storing sensitive user information in an Amazon S3 bucket. The company wants to provide secure access to this bucket from the application tier running on Amazon EC2 instances inside a VPC.

Which combination of steps should a solutions architect take to accomplish this? (Choose two.)

- A. Configure a VPC gateway endpoint for Amazon S3 within the VPC.
- B. Create a bucket policy to make the objects in the S3 bucket public.
- C. Create a bucket policy that limits access to only the application tier running in the VPC.
- D. Create an IAM user with an S3 access policy and copy the IAM credentials to the EC2 instance.
- E. Create a NAT instance and have the EC2 instances use the NAT instance to access the S3 bucket.

#### Question #93Topic 1

A company runs an on-premises application that is powered by a MySQL database. The company is migrating the application to AWS to increase the application's elasticity and availability.

The current architecture shows heavy read activity on the database during times of normal operation. Every 4 hours, the company's development team pulls a full export of the production database to populate a database in the staging environment. During this period, users experience unacceptable application latency. The development team is unable to use the staging environment until the procedure completes.

A solutions architect must recommend replacement architecture that alleviates the application latency issue. The replacement architecture also must give the development team the ability to continue using the staging environment without delay.

Which solution meets these requirements?

- A. Use Amazon Aurora MySQL with Multi-AZ Aurora Replicas for production. Populate the staging database by implementing a backup and restore process that uses the mysqldump utility.
- B. Use Amazon Aurora MySQL with Multi-AZ Aurora Replicas for production. Use database cloning to create the staging database on-demand.
- C. Use Amazon RDS for MySQL with a Multi-AZ deployment and read replicas for production. Use the standby instance for the staging database.
- D. Use Amazon RDS for MySQL with a Multi-AZ deployment and read replicas for production. Populate the staging database by implementing a backup and restore process that uses the mysqldump utility.

#### Question #94Topic 1

A company is designing an application where users upload small files into Amazon S3. After a user uploads a file, the file requires one-time simple processing to transform the data and save the data in JSON format for later analysis.

Each file must be processed as quickly as possible after it is uploaded. Demand will vary. On some days, users will upload a high number of files. On other days, users will upload a few files or no files.

Which solution meets these requirements with the LEAST operational overhead?

- A. Configure Amazon EMR to read text files from Amazon S3. Run processing scripts to transform the data. Store the resulting JSON file in an Amazon Aurora DB cluster.
- B. Configure Amazon S3 to send an event notification to an Amazon Simple Queue Service (Amazon SQS) queue. Use Amazon EC2 instances to read from the queue and process the data. Store the resulting JSON file in Amazon DynamoDB.
- C. Configure Amazon S3 to send an event notification to an Amazon Simple Queue Service (Amazon SQS) queue. Use an AWS Lambda function to read from the queue and process the data. Store the resulting JSON file in Amazon DynamoDB.
- D. Configure Amazon EventBridge (Amazon CloudWatch Events) to send an event to Amazon Kinesis Data Streams when a new file is uploaded. Use an AWS Lambda function to consume the event from the stream and process the data. Store the resulting JSON file in an Amazon Aurora DB cluster.

#### Question #95Topic 1

An application allows users at a company's headquarters to access product data. The product data is stored in an Amazon RDS MySQL DB instance. The operations team has isolated an application performance slowdown and wants to separate read traffic from write traffic. A solutions architect needs to optimize the application's performance quickly.

What should the solutions architect recommend?

- A. Change the existing database to a Multi-AZ deployment. Serve the read requests from the primary Availability Zone.
- B. Change the existing database to a Multi-AZ deployment. Serve the read requests from the secondary Availability Zone.
- C. Create read replicas for the database. Configure the read replicas with half of the compute and storage resources as the source database.
- D. Create read replicas for the database. Configure the read replicas with the same compute and storage resources as the source database.

#### Question #96Topic 1

An Amazon EC2 administrator created the following policy associated with an IAM group containing several users:

What is the effect of this policy?

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Allow",
      "Action": "ec2:TerminateInstances",
      "Resource": "*",
      "Condition": {
        "IpAddress": {
          "aws:SourceIp": "10.100.100.1"
        }
      }
    },
    {
      "Effect": "Deny",
      "Action": "ec2:*",
      "Resource": "*",
      "Condition": {
        "StringNotEquals": {
          "ec2:Region": "us-east-1"
        }
      }
    }
  ]
}
```

- A. Users can terminate an EC2 instance in any AWS Region except us-east-1.
- B. Users can terminate an EC2 instance with the IP address 10.100.100.1 in the us-east-1 Region.
- C. Users can terminate an EC2 instance in the us-east-1 Region when the user's source IP is 10.100.100.254.
- D. Users cannot terminate an EC2 instance in the us-east-1 Region when the user's source IP is 10.100.100.254.

Question #97Topic 1

A company has a large Microsoft SharePoint deployment running on-premises that requires Microsoft Windows shared file storage. The company wants to migrate this workload to the AWS Cloud and is considering various storage options. The storage solution must be highly available and integrated with Active Directory for access control.

Which solution will satisfy these requirements?

- A. Configure Amazon EFS storage and set the Active Directory domain for authentication.
- B. Create an SMB file share on an AWS Storage Gateway file gateway in two Availability Zones.
- C. Create an Amazon S3 bucket and configure Microsoft Windows Server to mount it as a volume.
- D. Create an Amazon FSx for Windows File Server file system on AWS and set the Active Directory domain for authentication.

Question #98Topic 1

An image-processing company has a web application that users use to upload images. The application uploads the images into an Amazon S3 bucket. The company has set up S3 event notifications to publish the object creation events to an Amazon Simple Queue Service (Amazon SQS) standard queue. The SQS queue serves as the event source for an AWS Lambda function that processes the images and sends the results to users through email.

Users report that they are receiving multiple email messages for every uploaded image. A solutions architect determines that SQS messages are invoking the Lambda function more than once, resulting in multiple email messages.

What should the solutions architect do to resolve this issue with the LEAST operational overhead?

- A. Set up long polling in the SQS queue by increasing the ReceiveMessage wait time to 30 seconds.
- B. Change the SQS standard queue to an SQS FIFO queue. Use the message deduplication ID to discard duplicate messages.
- C. Increase the visibility timeout in the SQS queue to a value that is greater than the total of the function timeout and the batch window timeout.
- D. Modify the Lambda function to delete each message from the SQS queue immediately after the message is read before processing.

Question #99Topic 1

A company is implementing a shared storage solution for a gaming application that is hosted in an on-premises data center. The company needs the ability to use Lustre clients to access data. The solution must be fully managed.

Which solution meets these requirements?

- A. Create an AWS Storage Gateway file gateway. Create a file share that uses the required client protocol. Connect the application server to the file share.
- B. Create an Amazon EC2 Windows instance. Install and configure a Windows file share role on the instance. Connect the application server to the file share.
- C. Create an Amazon Elastic File System (Amazon EFS) file system, and configure it to support Lustre. Attach the file system to the origin server. Connect the application server to the file system.
- D. Create an Amazon FSx for Lustre file system. Attach the file system to the origin server. Connect the application server to the file system.

Question #100Topic 1

A company's containerized application runs on an Amazon EC2 instance. The application needs to download security certificates before it can communicate with other business applications. The company wants a highly secure solution to encrypt and decrypt the certificates in near real time. The solution also needs to store data in highly available storage after the data is encrypted.

Which solution will meet these requirements with the LEAST operational overhead?

- A. Create AWS Secrets Manager secrets for encrypted certificates. Manually update the certificates as needed. Control access to the data by using fine-grained IAM access.
- B. Create an AWS Lambda function that uses the Python cryptography library to receive and perform encryption operations. Store the function in an Amazon S3 bucket.
- C. Create an AWS Key Management Service (AWS KMS) customer managed key. Allow the EC2 role to use the KMS key for encryption operations. Store the encrypted data on Amazon S3.
- D. Create an AWS Key Management Service (AWS KMS) customer managed key. Allow the EC2 role to use the KMS key for encryption operations. Store the encrypted data on Amazon Elastic Block Store (Amazon EBS) volumes.

Question #101Topic 1

A solutions architect is designing a VPC with public and private subnets. The VPC and subnets use IPv4 CIDR blocks. There is one public subnet and one private subnet in each of three Availability Zones (AZs) for high availability. An internet gateway is used to provide internet access for the public subnets. The private subnets require access to the internet to allow Amazon EC2 instances to download software updates.

What should the solutions architect do to enable Internet access for the private subnets?

- A. Create three NAT gateways, one for each public subnet in each AZ. Create a private route table for each AZ that forwards non-VPC traffic to the NAT gateway in its AZ.
- B. Create three NAT instances, one for each private subnet in each AZ. Create a private route table for each AZ that forwards non-VPC traffic to the NAT instance in its AZ.
- C. Create a second internet gateway on one of the private subnets. Update the route table for the private subnets that forward non-VPC traffic to the private internet gateway.
- D. Create an egress-only internet gateway on one of the public subnets. Update the route table for the private subnets that forward non-VPC traffic to the egress-only Internet gateway.

#### Question #102Topic 1

A company wants to migrate an on-premises data center to AWS. The data center hosts an SFTP server that stores its data on an NFS-based file system. The server holds 200 GB of data that needs to be transferred. The server must be hosted on an Amazon EC2 instance that uses an Amazon Elastic File System (Amazon EFS) file system.

Which combination of steps should a solutions architect take to automate this task? (Choose two.)

- A. Launch the EC2 instance into the same Availability Zone as the EFS file system.
- B. Install an AWS DataSync agent in the on-premises data center.
- C. Create a secondary Amazon Elastic Block Store (Amazon EBS) volume on the EC2 instance for the data.
- D. Manually use an operating system copy command to push the data to the EC2 instance.
- E. Use AWS DataSync to create a suitable location configuration for the on-premises SFTP server.

#### Question #103Topic 1

A company has an AWS Glue extract, transform, and load (ETL) job that runs every day at the same time. The job processes XML data that is in an Amazon S3 bucket. New data is added to the S3 bucket every day. A solutions architect notices that AWS Glue is processing all the data during each run.

What should the solutions architect do to prevent AWS Glue from reprocessing old data?

- A. Edit the job to use job bookmarks.
- B. Edit the job to delete data after the data is processed.
- C. Edit the job by setting the NumberOfWorkers field to 1.

D. Use a FindMatches machine learning (ML) transform.

#### Question #104Topic 1

A solutions architect must design a highly available infrastructure for a website. The website is powered by Windows web servers that run on Amazon EC2 instances. The solutions architect must implement a solution that can mitigate a large-scale DDoS attack that originates from thousands of IP addresses. Downtime is not acceptable for the website.

Which actions should the solutions architect take to protect the website from such an attack? (Choose two.)

- A. Use AWS Shield Advanced to stop the DDoS attack.
- B. Configure Amazon GuardDuty to automatically block the attackers.
- C. Configure the website to use Amazon CloudFront for both static and dynamic content.
- D. Use an AWS Lambda function to automatically add attacker IP addresses to VPC network ACLs.
- E. Use EC2 Spot Instances in an Auto Scaling group with a target tracking scaling policy that is set to 80% CPU utilization.

#### Question #105Topic 1

A company is preparing to deploy a new serverless workload. A solutions architect must use the principle of least privilege to configure permissions that will be used to run an AWS Lambda function. An Amazon EventBridge (Amazon CloudWatch Events) rule will invoke the function.

Which solution meets these requirements?

- A. Add an execution role to the function with `lambda:InvokeFunction` as the action and `*` as the principal.
- B. Add an execution role to the function with `lambda:InvokeFunction` as the action and `Service: lambda.amazonaws.com` as the principal.
- C. Add a resource-based policy to the function with `lambda:*` as the action and `Service: events.amazonaws.com` as the principal.
- D. Add a resource-based policy to the function with `lambda:InvokeFunction` as the action and `Service: events.amazonaws.com` as the principal.

#### Question #106Topic 1

A company is preparing to store confidential data in Amazon S3. For compliance reasons, the data must be encrypted at rest. Encryption key usage must be logged for auditing purposes. Keys must be rotated every year.



Which solution meets these requirements and is the MOST operationally efficient?

- A. Server-side encryption with customer-provided keys (SSE-C)
- B. Server-side encryption with Amazon S3 managed keys (SSE-S3)
- C. Server-side encryption with AWS KMS keys (SSE-KMS) with manual rotation
- D. Server-side encryption with AWS KMS keys (SSE-KMS) with automatic rotation

Question #107Topic 1

A bicycle sharing company is developing a multi-tier architecture to track the location of its bicycles during peak operating hours. The company wants to use these data points in its existing analytics platform. A solutions architect must determine the most viable multi-tier option to support this architecture. The data points must be accessible from the REST API.

Which action meets these requirements for storing and retrieving location data?

- A. Use Amazon Athena with Amazon S3.
- B. Use Amazon API Gateway with AWS Lambda.
- C. Use Amazon QuickSight with Amazon Redshift.
- D. Use Amazon API Gateway with Amazon Kinesis Data Analytics.

Question #108Topic 1

A company has an automobile sales website that stores its listings in a database on Amazon RDS. When an automobile is sold, the listing needs to be removed from the website and the data must be sent to multiple target systems.

Which design should a solutions architect recommend?

- A. Create an AWS Lambda function triggered when the database on Amazon RDS is updated to send the information to an Amazon Simple Queue Service (Amazon SQS) queue for the targets to consume.
- B. Create an AWS Lambda function triggered when the database on Amazon RDS is updated to send the information to an Amazon Simple Queue Service (Amazon SQS) FIFO queue for the targets to consume.
- C. Subscribe to an RDS event notification and send an Amazon Simple Queue Service (Amazon SQS) queue fanned out to multiple Amazon Simple Notification Service (Amazon SNS) topics. Use AWS Lambda functions to update the targets.
- D. Subscribe to an RDS event notification and send an Amazon Simple Notification Service (Amazon SNS) topic fanned out to multiple Amazon Simple Queue Service (Amazon SQS) queues. Use AWS Lambda functions to update the targets.

Question #109Topic 1

A company needs to store data in Amazon S3 and must prevent the data from being changed. The company wants new objects that are uploaded to Amazon S3 to remain unchangeable for a nonspecific amount of time until the company decides to modify the objects. Only specific users in the company's AWS account can have the ability to delete the objects.

What should a solutions architect do to meet these requirements?

- A. Create an S3 Glacier vault. Apply a write-once, read-many (WORM) vault lock policy to the objects.
- B. Create an S3 bucket with S3 Object Lock enabled. Enable versioning. Set a retention period of 100 years. Use governance mode as the S3 bucket's default retention mode for new objects.
- C. Create an S3 bucket. Use AWS CloudTrail to track any S3 API events that modify the objects. Upon notification, restore the modified objects from any backup versions that the company has.
- D. Create an S3 bucket with S3 Object Lock enabled. Enable versioning. Add a legal hold to the objects. Add the s3:PutObjectLegalHold permission to the IAM policies of users who need to delete the objects.

Question #110Topic 1

A social media company allows users to upload images to its website. The website runs on Amazon EC2 instances. During upload requests, the website resizes the images to a standard size and stores the resized images in Amazon S3. Users are experiencing slow upload requests to the website.

The company needs to reduce coupling within the application and improve website performance. A solutions architect must design the most operationally efficient process for image uploads.

Which combination of actions should the solutions architect take to meet these requirements? (Choose two.)

- A. Configure the application to upload images to S3 Glacier.
- B. Configure the web server to upload the original images to Amazon S3.
- C. Configure the application to upload images directly from each user's browser to Amazon S3 through the use of a presigned URL
- D. Configure S3 Event Notifications to invoke an AWS Lambda function when an image is uploaded. Use the function to resize the image.
- E. Create an Amazon EventBridge (Amazon CloudWatch Events) rule that invokes an AWS Lambda function on a schedule to resize uploaded images.

Question #111Topic 1

A company recently migrated a message processing system to AWS. The system receives messages into an ActiveMQ queue running on an Amazon EC2 instance. Messages are processed by a consumer application running on Amazon EC2. The consumer application processes the messages and writes results to a MySQL database running on Amazon EC2. The company wants this application to be highly available with low operational complexity.

Which architecture offers the HIGHEST availability?

- A. Add a second ActiveMQ server to another Availability Zone. Add an additional consumer EC2 instance in another Availability Zone. Replicate the MySQL database to another Availability Zone.
- B. Use Amazon MQ with active/standby brokers configured across two Availability Zones. Add an additional consumer EC2 instance in another Availability Zone. Replicate the MySQL database to another Availability Zone.
- C. Use Amazon MQ with active/standby brokers configured across two Availability Zones. Add an additional consumer EC2 instance in another Availability Zone. Use Amazon RDS for MySQL with Multi-AZ enabled.
- D. Use Amazon MQ with active/standby brokers configured across two Availability Zones. Add an Auto Scaling group for the consumer EC2 instances across two Availability Zones. Use Amazon RDS for MySQL with Multi-AZ enabled.

Question #112Topic 1

A company hosts a containerized web application on a fleet of on-premises servers that process incoming requests. The number of requests is growing quickly. The on-premises servers cannot handle the increased number of requests. The company wants to move the application to AWS with minimum code changes and minimum development effort.

Which solution will meet these requirements with the LEAST operational overhead?

- A. Use AWS Fargate on Amazon Elastic Container Service (Amazon ECS) to run the containerized web application with Service Auto Scaling. Use an Application Load Balancer to distribute the incoming requests.
- B. Use two Amazon EC2 instances to host the containerized web application. Use an Application Load Balancer to distribute the incoming requests.
- C. Use AWS Lambda with a new code that uses one of the supported languages. Create multiple Lambda functions to support the load. Use Amazon API Gateway as an entry point to the Lambda functions.
- D. Use a high performance computing (HPC) solution such as AWS ParallelCluster to establish an HPC cluster that can process the incoming requests at the appropriate scale.

Question #113Topic 1

A company uses 50 TB of data for reporting. The company wants to move this data from on premises to AWS. A custom application in the company's data center runs a weekly data transformation job. The company plans to pause the application until the data transfer is complete and needs to begin the transfer process as soon as possible.

The data center does not have any available network bandwidth for additional workloads. A solutions architect must transfer the data and must configure the transformation job to continue to run in the AWS Cloud.

Which solution will meet these requirements with the LEAST operational overhead?

- A. Use AWS DataSync to move the data. Create a custom transformation job by using AWS Glue.
- B. Order an AWS Snowcone device to move the data. Deploy the transformation application to the device.
- C. Order an AWS Snowball Edge Storage Optimized device. Copy the data to the device. Create a custom transformation job by using AWS Glue.
- D. Order an AWS Snowball Edge Storage Optimized device that includes Amazon EC2 compute. Copy the data to the device. Create a new EC2 instance on AWS to run the transformation application.

#### Question #114Topic 1

A company has created an image analysis application in which users can upload photos and add photo frames to their images. The users upload images and metadata to indicate which photo frames they want to add to their images. The application uses a single Amazon EC2 instance and Amazon DynamoDB to store the metadata.

The application is becoming more popular, and the number of users is increasing. The company expects the number of concurrent users to vary significantly depending on the time of day and day of week. The company must ensure that the application can scale to meet the needs of the growing user base.

Which solution meets these requirements?

- A. Use AWS Lambda to process the photos. Store the photos and metadata in DynamoDB.
- B. Use Amazon Kinesis Data Firehose to process the photos and to store the photos and metadata.
- C. Use AWS Lambda to process the photos. Store the photos in Amazon S3. Retain DynamoDB to store the metadata.
- D. Increase the number of EC2 instances to three. Use Provisioned IOPS SSD (io2) Amazon Elastic Block Store (Amazon EBS) volumes to store the photos and metadata.

Question #115Topic 1

A medical records company is hosting an application on Amazon EC2 instances. The application processes customer data files that are stored on Amazon S3. The EC2 instances are hosted in public subnets. The EC2 instances access Amazon S3 over the internet, but they do not require any other network access.

A new requirement mandates that the network traffic for file transfers take a private route and not be sent over the internet.

Which change to the network architecture should a solutions architect recommend to meet this requirement?

- A. Create a NAT gateway. Configure the route table for the public subnets to send traffic to Amazon S3 through the NAT gateway.
- B. Configure the security group for the EC2 instances to restrict outbound traffic so that only traffic to the S3 prefix list is permitted.
- C. Move the EC2 instances to private subnets. Create a VPC endpoint for Amazon S3, and link the endpoint to the route table for the private subnets.
- D. Remove the internet gateway from the VPC. Set up an AWS Direct Connect connection, and route traffic to Amazon S3 over the Direct Connect connection.

Question #116Topic 1

A company uses a popular content management system (CMS) for its corporate website. However, the required patching and maintenance are burdensome. The company is redesigning its website and wants a new solution. The website will be updated four times a year and does not need to have any dynamic content available. The solution must provide high scalability and enhanced security.

Which combination of changes will meet these requirements with the LEAST operational overhead? (Choose two.)

- A. Configure Amazon CloudFront in front of the website to use HTTPS functionality.
- B. Deploy an AWS WAF web ACL in front of the website to provide HTTPS functionality.
- C. Create and deploy an AWS Lambda function to manage and serve the website content.
- D. Create the new website and an Amazon S3 bucket. Deploy the website on the S3 bucket with static website hosting enabled.
- E. Create the new website. Deploy the website by using an Auto Scaling group of Amazon EC2 instances behind an Application Load Balancer.

Question #117Topic 1

A company stores its application logs in an Amazon CloudWatch Logs log group. A new policy requires the company to store all application logs in Amazon OpenSearch Service (Amazon Elasticsearch Service) in near-real time.

Which solution will meet this requirement with the LEAST operational overhead?

- A. Configure a CloudWatch Logs subscription to stream the logs to Amazon OpenSearch Service (Amazon Elasticsearch Service).
- B. Create an AWS Lambda function. Use the log group to invoke the function to write the logs to Amazon OpenSearch Service (Amazon Elasticsearch Service).
- C. Create an Amazon Kinesis Data Firehose delivery stream. Configure the log group as the delivery streams sources. Configure Amazon OpenSearch Service (Amazon Elasticsearch Service) as the delivery stream's destination.
- D. Install and configure Amazon Kinesis Agent on each application server to deliver the logs to Amazon Kinesis Data Streams. Configure Kinesis Data Streams to deliver the logs to Amazon OpenSearch Service (Amazon Elasticsearch Service).

#### Question #118Topic 1

A company is building a web-based application running on Amazon EC2 instances in multiple Availability Zones. The web application will provide access to a repository of text documents totaling about 900 TB in size. The company anticipates that the web application will experience periods of high demand. A solutions architect must ensure that the storage component for the text documents can scale to meet the demand of the application at all times. The company is concerned about the overall cost of the solution.

Which storage solution meets these requirements MOST cost-effectively?

- A. Amazon Elastic Block Store (Amazon EBS)
- B. Amazon Elastic File System (Amazon EFS)
- C. Amazon OpenSearch Service (Amazon Elasticsearch Service)
- D. Amazon S3

#### Question #119Topic 1

A global company is using Amazon API Gateway to design REST APIs for its loyalty club users in the us-east-1 Region and the ap-southeast-2 Region. A solutions architect must design a solution to protect these API Gateway managed REST APIs across multiple accounts from SQL injection and cross-site scripting attacks.

Which solution will meet these requirements with the LEAST amount of administrative effort?

- A. Set up AWS WAF in both Regions. Associate Regional web ACLs with an API stage.

- B. Set up AWS Firewall Manager in both Regions. Centrally configure AWS WAF rules.
- C. Set up AWS Shield in both Regions. Associate Regional web ACLs with an API stage.
- D. Set up AWS Shield in one of the Regions. Associate Regional web ACLs with an API stage.

Question #120Topic 1

A company has implemented a self-managed DNS solution on three Amazon EC2 instances behind a Network Load Balancer (NLB) in the us-west-2 Region. Most of the company's users are located in the United States and Europe. The company wants to improve the performance and availability of the solution. The company launches and configures three EC2 instances in the eu-west-1 Region and adds the EC2 instances as targets for a new NLB.

Which solution can the company use to route traffic to all the EC2 instances?

- A. Create an Amazon Route 53 geolocation routing policy to route requests to one of the two NLBs. Create an Amazon CloudFront distribution. Use the Route 53 record as the distribution's origin.
- B. Create a standard accelerator in AWS Global Accelerator. Create endpoint groups in us-west-2 and eu-west-1. Add the two NLBs as endpoints for the endpoint groups.
- C. Attach Elastic IP addresses to the six EC2 instances. Create an Amazon Route 53 geolocation routing policy to route requests to one of the six EC2 instances. Create an Amazon CloudFront distribution. Use the Route 53 record as the distribution's origin.
- D. Replace the two NLBs with two Application Load Balancers (ALBs). Create an Amazon Route 53 latency routing policy to route requests to one of the two ALBs. Create an Amazon CloudFront distribution. Use the Route 53 record as the distribution's origin.

Question #121Topic 1

A company is running an online transaction processing (OLTP) workload on AWS. This workload uses an unencrypted Amazon RDS DB instance in a Multi-AZ deployment. Daily database snapshots are taken from this instance.

What should a solutions architect do to ensure the database and snapshots are always encrypted moving forward?

- A. Encrypt a copy of the latest DB snapshot. Replace existing DB instance by restoring the encrypted snapshot.
- B. Create a new encrypted Amazon Elastic Block Store (Amazon EBS) volume and copy the snapshots to it. Enable encryption on the DB instance.
- C. Copy the snapshots and enable encryption using AWS Key Management Service (AWS KMS). Restore encrypted snapshot to an existing DB instance.

D. Copy the snapshots to an Amazon S3 bucket that is encrypted using server-side encryption with AWS Key Management Service (AWS KMS) managed keys (SSE-KMS).

Question #122Topic 1

A company wants to build a scalable key management infrastructure to support developers who need to encrypt data in their applications.

What should a solutions architect do to reduce the operational burden?

- A. Use multi-factor authentication (MFA) to protect the encryption keys.
- B. Use AWS Key Management Service (AWS KMS) to protect the encryption keys.
- C. Use AWS Certificate Manager (ACM) to create, store, and assign the encryption keys.
- D. Use an IAM policy to limit the scope of users who have access permissions to protect the encryption keys.

Question #123Topic 1

A company has a dynamic web application hosted on two Amazon EC2 instances. The company has its own SSL certificate, which is on each instance to perform SSL termination.

There has been an increase in traffic recently, and the operations team determined that SSL encryption and decryption is causing the compute capacity of the web servers to reach their maximum limit.

What should a solutions architect do to increase the application's performance?

- A. Create a new SSL certificate using AWS Certificate Manager (ACM). Install the ACM certificate on each instance.
- B. Create an Amazon S3 bucket. Migrate the SSL certificate to the S3 bucket. Configure the EC2 instances to reference the bucket for SSL termination.
- C. Create another EC2 instance as a proxy server. Migrate the SSL certificate to the new instance and configure it to direct connections to the existing EC2 instances.
- D. Import the SSL certificate into AWS Certificate Manager (ACM). Create an Application Load Balancer with an HTTPS listener that uses the SSL certificate from ACM.

Question #124Topic 1

A company has a highly dynamic batch processing job that uses many Amazon EC2 instances to complete it. The job is stateless in nature, can be started and stopped at any given time with no negative impact, and typically takes upwards of 60 minutes total to complete. The company has asked a solutions architect to design a scalable and cost-effective solution that meets the requirements of the job.



What should the solutions architect recommend?

- A. Implement EC2 Spot Instances.
- B. Purchase EC2 Reserved Instances.
- C. Implement EC2 On-Demand Instances.
- D. Implement the processing on AWS Lambda.

Question #125Topic 1

A company runs its two-tier ecommerce website on AWS. The web tier consists of a load balancer that sends traffic to Amazon EC2 instances. The database tier uses an Amazon RDS DB instance. The EC2 instances and the RDS DB instance should not be exposed to the public internet. The EC2 instances require internet access to complete payment processing of orders through a third-party web service. The application must be highly available.

Which combination of configuration options will meet these requirements? (Choose two.)

- A. Use an Auto Scaling group to launch the EC2 instances in private subnets. Deploy an RDS Multi-AZ DB instance in private subnets.
- B. Configure a VPC with two private subnets and two NAT gateways across two Availability Zones. Deploy an Application Load Balancer in the private subnets.
- C. Use an Auto Scaling group to launch the EC2 instances in public subnets across two Availability Zones. Deploy an RDS Multi-AZ DB instance in private subnets.
- D. Configure a VPC with one public subnet, one private subnet, and two NAT gateways across two Availability Zones. Deploy an Application Load Balancer in the public subnet.
- D. Configure a VPC with two public subnets, two private subnets, and two NAT gateways across two Availability Zones. Deploy an Application Load Balancer in the public subnets.

Question #126Topic 1

A solutions architect needs to implement a solution to reduce a company's storage costs. All the company's data is in the Amazon S3 Standard storage class. The company must keep all data for at least 25 years. Data from the most recent 2 years must be highly available and immediately retrievable.

Which solution will meet these requirements?

- A. Set up an S3 Lifecycle policy to transition objects to S3 Glacier Deep Archive immediately.
- B. Set up an S3 Lifecycle policy to transition objects to S3 Glacier Deep Archive after 2 years.
- C. Use S3 Intelligent-Tiering. Activate the archiving option to ensure that data is archived in S3 Glacier Deep Archive.

D. Set up an S3 Lifecycle policy to transition objects to S3 One Zone-Infrequent Access (S3 One Zone-IA) immediately and to S3 Glacier Deep Archive after 2 years.

#### Question #127Topic 1

A media company is evaluating the possibility of moving its systems to the AWS Cloud. The company needs at least 10 TB of storage with the maximum possible I/O performance for video processing, 300 TB of very durable storage for storing media content, and 900 TB of storage to meet requirements for archival media that is not in use anymore.

Which set of services should a solutions architect recommend to meet these requirements?

- A. Amazon EBS for maximum performance, Amazon S3 for durable data storage, and Amazon S3 Glacier for archival storage
- B. Amazon EBS for maximum performance, Amazon EFS for durable data storage, and Amazon S3 Glacier for archival storage
- C. Amazon EC2 instance store for maximum performance, Amazon EFS for durable data storage, and Amazon S3 for archival storage
- D. Amazon EC2 instance store for maximum performance, Amazon S3 for durable data storage, and Amazon S3 Glacier for archival storage

#### Question #128Topic 1

A company wants to run applications in containers in the AWS Cloud. These applications are stateless and can tolerate disruptions within the underlying infrastructure. The company needs a solution that minimizes cost and operational overhead.

What should a solutions architect do to meet these requirements?

- A. Use Spot Instances in an Amazon EC2 Auto Scaling group to run the application containers.
- B. Use Spot Instances in an Amazon Elastic Kubernetes Service (Amazon EKS) managed node group.
- C. Use On-Demand Instances in an Amazon EC2 Auto Scaling group to run the application containers.
- D. Use On-Demand Instances in an Amazon Elastic Kubernetes Service (Amazon EKS) managed node group.

#### Question #129Topic 1

A company is running a multi-tier web application on premises. The web application is containerized and runs on a number of Linux hosts connected to a PostgreSQL database that contains user records. The operational overhead of maintaining the infrastructure and capacity

planning is limiting the company's growth. A solutions architect must improve the application's infrastructure.

Which combination of actions should the solutions architect take to accomplish this? (Choose two.)

- A. Migrate the PostgreSQL database to Amazon Aurora.
- B. Migrate the web application to be hosted on Amazon EC2 instances.
- C. Set up an Amazon CloudFront distribution for the web application content.
- D. Set up Amazon ElastiCache between the web application and the PostgreSQL database.
- E. Migrate the web application to be hosted on AWS Fargate with Amazon Elastic Container Service (Amazon ECS).

#### Question #130Topic 1

An application runs on Amazon EC2 instances across multiple Availability Zones. The instances run in an Amazon EC2 Auto Scaling group behind an Application Load Balancer. The application performs best when the CPU utilization of the EC2 instances is at or near 40%.

What should a solutions architect do to maintain the desired performance across all instances in the group?

- A. Use a simple scaling policy to dynamically scale the Auto Scaling group.
- B. Use a target tracking policy to dynamically scale the Auto Scaling group.
- C. Use an AWS Lambda function to update the desired Auto Scaling group capacity.
- D. Use scheduled scaling actions to scale up and scale down the Auto Scaling group.

#### Question #131Topic 1

A company is developing a file-sharing application that will use an Amazon S3 bucket for storage. The company wants to serve all the files through an Amazon CloudFront distribution. The company does not want the files to be accessible through direct navigation to the S3 URL.

What should a solutions architect do to meet these requirements?

- A. Write individual policies for each S3 bucket to grant read permission for only CloudFront access.
- B. Create an IAM user. Grant the user read permission to objects in the S3 bucket. Assign the user to CloudFront.
- C. Write an S3 bucket policy that assigns the CloudFront distribution ID as the Principal and assigns the target S3 bucket as the Amazon Resource Name (ARN).

D. Create an origin access identity (OAI). Assign the OAI to the CloudFront distribution. Configure the S3 bucket permissions so that only the OAI has read permission.

Question #132Topic 1

A company's website provides users with downloadable historical performance reports. The website needs a solution that will scale to meet the company's website demands globally. The solution should be cost-effective, limit the provisioning of infrastructure resources, and provide the fastest possible response time.

Which combination should a solutions architect recommend to meet these requirements?

- A. Amazon CloudFront and Amazon S3
- B. AWS Lambda and Amazon DynamoDB
- C. Application Load Balancer with Amazon EC2 Auto Scaling
- D. Amazon Route 53 with internal Application Load Balancers

Question #133Topic 1

A company runs an Oracle database on premises. As part of the company's migration to AWS, the company wants to upgrade the database to the most recent available version. The company also wants to set up disaster recovery (DR) for the database. The company needs to minimize the operational overhead for normal operations and DR setup. The company also needs to maintain access to the database's underlying operating system.

Which solution will meet these requirements?

- A. Migrate the Oracle database to an Amazon EC2 instance. Set up database replication to a different AWS Region.
- B. Migrate the Oracle database to Amazon RDS for Oracle. Activate Cross-Region automated backups to replicate the snapshots to another AWS Region.
- C. Migrate the Oracle database to Amazon RDS Custom for Oracle. Create a read replica for the database in another AWS Region.
- D. Migrate the Oracle database to Amazon RDS for Oracle. Create a standby database in another Availability Zone.

Question #134Topic 1

A company wants to move its application to a serverless solution. The serverless solution needs to analyze existing and new data by using SL. The company stores the data in an Amazon S3 bucket. The data requires encryption and must be replicated to a different AWS Region.

Which solution will meet these requirements with the LEAST operational overhead?

A. Create a new S3 bucket. Load the data into the new S3 bucket. Use S3 Cross-Region Replication (CRR) to replicate encrypted objects to an S3 bucket in another Region. Use server-side encryption with AWS KMS multi-Region keys (SSE-KMS). Use Amazon Athena to query the data.

B. Create a new S3 bucket. Load the data into the new S3 bucket. Use S3 Cross-Region Replication (CRR) to replicate encrypted objects to an S3 bucket in another Region. Use server-side encryption with AWS KMS multi-Region keys (SSE-KMS). Use Amazon RDS to query the data.

C. Load the data into the existing S3 bucket. Use S3 Cross-Region Replication (CRR) to replicate encrypted objects to an S3 bucket in another Region. Use server-side encryption with Amazon S3 managed encryption keys (SSE-S3). Use Amazon Athena to query the data.

D. Load the data into the existing S3 bucket. Use S3 Cross-Region Replication (CRR) to replicate encrypted objects to an S3 bucket in another Region. Use server-side encryption with Amazon S3 managed encryption keys (SSE-S3). Use Amazon RDS to query the data.

#### Question #135Topic 1

A company runs workloads on AWS. The company needs to connect to a service from an external provider. The service is hosted in the provider's VPC. According to the company's security team, the connectivity must be private and must be restricted to the target service. The connection must be initiated only from the company's VPC.

Which solution will meet these requirements?

A. Create a VPC peering connection between the company's VPC and the provider's VPC. Update the route table to connect to the target service.

B. Ask the provider to create a virtual private gateway in its VPC. Use AWS PrivateLink to connect to the target service.

C. Create a NAT gateway in a public subnet of the company's VPC. Update the route table to connect to the target service.

D. Ask the provider to create a VPC endpoint for the target service. Use AWS PrivateLink to connect to the target service.

#### Question #136Topic 1

A company is migrating its on-premises PostgreSQL database to Amazon Aurora PostgreSQL. The on-premises database must remain online and accessible during the migration. The Aurora database must remain synchronized with the on-premises database.

Which combination of actions must a solutions architect take to meet these requirements? (Choose two.)

- A. Create an ongoing replication task.
- B. Create a database backup of the on-premises database.
- C. Create an AWS Database Migration Service (AWS DMS) replication server.
- D. Convert the database schema by using the AWS Schema Conversion Tool (AWS SCT).
- E. Create an Amazon EventBridge (Amazon CloudWatch Events) rule to monitor the database synchronization.

Question #137Topic 1

A company uses AWS Organizations to create dedicated AWS accounts for each business unit to manage each business unit's account independently upon request. The root email recipient missed a notification that was sent to the root user email address of one account. The company wants to ensure that all future notifications are not missed. Future notifications must be limited to account administrators.

Which solution will meet these requirements?

- A. Configure the company's email server to forward notification email messages that are sent to the AWS account root user email address to all users in the organization.
- B. Configure all AWS account root user email addresses as distribution lists that go to a few administrators who can respond to alerts. Configure AWS account alternate contacts in the AWS Organizations console or programmatically.
- C. Configure all AWS account root user email messages to be sent to one administrator who is responsible for monitoring alerts and forwarding those alerts to the appropriate groups.
- D. Configure all existing AWS accounts and all newly created accounts to use the same root user email address. Configure AWS account alternate contacts in the AWS Organizations console or programmatically.

Question #138Topic 1

A company runs its ecommerce application on AWS. Every new order is published as a message in a RabbitMQ queue that runs on an Amazon EC2 instance in a single Availability Zone. These messages are processed by a different application that runs on a separate EC2 instance. This application stores the details in a PostgreSQL database on another EC2 instance. All the EC2 instances are in the same Availability Zone.

The company needs to redesign its architecture to provide the highest availability with the least operational overhead.

What should a solutions architect do to meet these requirements?

A. Migrate the queue to a redundant pair (active/standby) of RabbitMQ instances on Amazon MQ. Create a Multi-AZ Auto Scaling group for EC2 instances that host the application. Create another Multi-AZ Auto Scaling group for EC2 instances that host the PostgreSQL database.

B. Migrate the queue to a redundant pair (active/standby) of RabbitMQ instances on Amazon MQ. Create a Multi-AZ Auto Scaling group for EC2 instances that host the application. Migrate the database to run on a Multi-AZ deployment of Amazon RDS for PostgreSQL.

C. Create a Multi-AZ Auto Scaling group for EC2 instances that host the RabbitMQ queue. Create another Multi-AZ Auto Scaling group for EC2 instances that host the application. Migrate the database to run on a Multi-AZ deployment of Amazon RDS for PostgreSQL.

D. Create a Multi-AZ Auto Scaling group for EC2 instances that host the RabbitMQ queue. Create another Multi-AZ Auto Scaling group for EC2 instances that host the application. Create a third Multi-AZ Auto Scaling group for EC2 instances that host the PostgreSQL database

#### Question #139Topic 1

A reporting team receives files each day in an Amazon S3 bucket. The reporting team manually reviews and copies the files from this initial S3 bucket to an analysis S3 bucket each day at the same time to use with Amazon QuickSight. Additional teams are starting to send more files in larger sizes to the initial S3 bucket.

The reporting team wants to move the files automatically analysis S3 bucket as the files enter the initial S3 bucket. The reporting team also wants to use AWS Lambda functions to run pattern-matching code on the copied data. In addition, the reporting team wants to send the data files to a pipeline in Amazon SageMaker Pipelines.

What should a solutions architect do to meet these requirements with the LEAST operational overhead?

A. Create a Lambda function to copy the files to the analysis S3 bucket. Create an S3 event notification for the analysis S3 bucket. Configure Lambda and SageMaker Pipelines as destinations of the event notification. Configure s3:ObjectCreated:Put as the event type.

B. Create a Lambda function to copy the files to the analysis S3 bucket. Configure the analysis S3 bucket to send event notifications to Amazon EventBridge (Amazon CloudWatch Events). Configure an ObjectCreated rule in EventBridge (CloudWatch Events). Configure Lambda and SageMaker Pipelines as targets for the rule.

C. Configure S3 replication between the S3 buckets. Create an S3 event notification for the analysis S3 bucket. Configure Lambda and SageMaker Pipelines as destinations of the event notification. Configure s3:ObjectCreated:Put as the event type.

D. Configure S3 replication between the S3 buckets. Configure the analysis S3 bucket to send event notifications to Amazon EventBridge (Amazon CloudWatch Events). Configure an ObjectCreated rule in EventBridge (CloudWatch Events). Configure Lambda and SageMaker Pipelines as targets for the rule.

#### Question #140Topic 1

A solutions architect needs to help a company optimize the cost of running an application on AWS. The application will use Amazon EC2 instances, AWS Fargate, and AWS Lambda for compute within the architecture.

The EC2 instances will run the data ingestion layer of the application. EC2 usage will be sporadic and unpredictable. Workloads that run on EC2 instances can be interrupted at any time. The application front end will run on Fargate, and Lambda will serve the API layer. The front-end utilization and API layer utilization will be predictable over the course of the next year.

Which combination of purchasing options will provide the MOST cost-effective solution for hosting this application? (Choose two.)

- A. Use Spot Instances for the data ingestion layer
- B. Use On-Demand Instances for the data ingestion layer
- C. Purchase a 1-year Compute Savings Plan for the front end and API layer.
- D. Purchase 1-year All Upfront Reserved instances for the data ingestion layer.
- E. Purchase a 1-year EC2 instance Savings Plan for the front end and API layer.

#### Question #141Topic 1

A company runs a web-based portal that provides users with global breaking news, local alerts, and weather updates. The portal delivers each user a personalized view by using mixture of static and dynamic content. Content is served over HTTPS through an API server running on an Amazon EC2 instance behind an Application Load Balancer (ALB). The company wants the portal to provide this content to its users across the world as quickly as possible.

How should a solutions architect design the application to ensure the LEAST amount of latency for all users?

- A. Deploy the application stack in a single AWS Region. Use Amazon CloudFront to serve all static and dynamic content by specifying the ALB as an origin.
- B. Deploy the application stack in two AWS Regions. Use an Amazon Route 53 latency routing policy to serve all content from the ALB in the closest Region.
- C. Deploy the application stack in a single AWS Region. Use Amazon CloudFront to serve the static content. Serve the dynamic content directly from the ALB.
- D. Deploy the application stack in two AWS Regions. Use an Amazon Route 53 geolocation routing policy to serve all content from the ALB in the closest Region.

#### Question #142Topic 1

A gaming company is designing a highly available architecture. The application runs on a modified Linux kernel and supports only UDP-based traffic. The company needs the front-end



tier to provide the best possible user experience. That tier must have low latency, route traffic to the nearest edge location, and provide static IP addresses for entry into the application endpoints.

What should a solutions architect do to meet these requirements?

- A. Configure Amazon Route 53 to forward requests to an Application Load Balancer. Use AWS Lambda for the application in AWS Application Auto Scaling.
- B. Configure Amazon CloudFront to forward requests to a Network Load Balancer. Use AWS Lambda for the application in an AWS Application Auto Scaling group.
- C. Configure AWS Global Accelerator to forward requests to a Network Load Balancer. Use Amazon EC2 instances for the application in an EC2 Auto Scaling group.
- D. Configure Amazon API Gateway to forward requests to an Application Load Balancer. Use Amazon EC2 instances for the application in an EC2 Auto Scaling group.

#### Question #143Topic 1

A company wants to migrate its existing on-premises monolithic application to AWS. The company wants to keep as much of the front-end code and the backend code as possible. However, the company wants to break the application into smaller applications. A different team will manage each application. The company needs a highly scalable solution that minimizes operational overhead.

Which solution will meet these requirements?

- A. Host the application on AWS Lambda. Integrate the application with Amazon API Gateway.
- B. Host the application with AWS Amplify. Connect the application to an Amazon API Gateway API that is integrated with AWS Lambda.
- C. Host the application on Amazon EC2 instances. Set up an Application Load Balancer with EC2 instances in an Auto Scaling group as targets.
- D. Host the application on Amazon Elastic Container Service (Amazon ECS). Set up an Application Load Balancer with Amazon ECS as the target.

#### Question #144Topic 1

A company recently started using Amazon Aurora as the data store for its global ecommerce application. When large reports are run, developers report that the ecommerce application is performing poorly. After reviewing metrics in Amazon CloudWatch, a solutions architect finds that the ReadIOPS and CPUUtilization metrics are spiking when monthly reports run.

What is the MOST cost-effective solution?

- A. Migrate the monthly reporting to Amazon Redshift.

- B. Migrate the monthly reporting to an Aurora Replica.
- C. Migrate the Aurora database to a larger instance class.
- D. Increase the Provisioned IOPS on the Aurora instance.

Question #145Topic 1

A company hosts a website analytics application on a single Amazon EC2 On-Demand Instance. The analytics software is written in PHP and uses a MySQL database. The analytics software, the web server that provides PHP, and the database server are all hosted on the EC2 instance. The application is showing signs of performance degradation during busy times and is presenting 5xx errors. The company needs to make the application scale seamlessly.

Which solution will meet these requirements MOST cost-effectively?

- A. Migrate the database to an Amazon RDS for MySQL DB instance. Create an AMI of the web application. Use the AMI to launch a second EC2 On-Demand Instance. Use an Application Load Balancer to distribute the load to each EC2 instance.
- B. Migrate the database to an Amazon RDS for MySQL DB instance. Create an AMI of the web application. Use the AMI to launch a second EC2 On-Demand Instance. Use Amazon Route 53 weighted routing to distribute the load across the two EC2 instances.
- C. Migrate the database to an Amazon Aurora MySQL DB instance. Create an AWS Lambda function to stop the EC2 instance and change the instance type. Create an Amazon CloudWatch alarm to invoke the Lambda function when CPU utilization surpasses 75%.
- D. Migrate the database to an Amazon Aurora MySQL DB instance. Create an AMI of the web application. Apply the AMI to a launch template. Create an Auto Scaling group with the launch template. Configure the launch template to use a Spot Fleet. Attach an Application Load Balancer to the Auto Scaling group.

Question #146Topic 1

A company runs a stateless web application in production on a group of Amazon EC2 On-Demand Instances behind an Application Load Balancer. The application experiences heavy usage during an 8-hour period each business day. Application usage is moderate and steady overnight. Application usage is low during weekends.

The company wants to minimize its EC2 costs without affecting the availability of the application.

Which solution will meet these requirements?

- A. Use Spot Instances for the entire workload.
- B. Use Reserved Instances for the baseline level of usage. Use Spot instances for any additional capacity that the application needs.

C. Use On-Demand Instances for the baseline level of usage. Use Spot Instances for any additional capacity that the application needs.

D. Use Dedicated Instances for the baseline level of usage. Use On-Demand Instances for any additional capacity that the application needs.

#### Question #147Topic 1

A company needs to retain application log files for a critical application for 10 years. The application team regularly accesses logs from the past month for troubleshooting, but logs older than 1 month are rarely accessed. The application generates more than 10 TB of logs per month.

Which storage option meets these requirements MOST cost-effectively?

A. Store the logs in Amazon S3. Use AWS Backup to move logs more than 1 month old to S3 Glacier Deep Archive.

B. Store the logs in Amazon S3. Use S3 Lifecycle policies to move logs more than 1 month old to S3 Glacier Deep Archive.

C. Store the logs in Amazon CloudWatch Logs. Use AWS Backup to move logs more than 1 month old to S3 Glacier Deep Archive.

D. Store the logs in Amazon CloudWatch Logs. Use Amazon S3 Lifecycle policies to move logs more than 1 month old to S3 Glacier Deep Archive.

#### Question #148Topic 1

A company has a data ingestion workflow that includes the following components:

An Amazon Simple Notification Service (Amazon SNS) topic that receives notifications about new data deliveries

An AWS Lambda function that processes and stores the data

The ingestion workflow occasionally fails because of network connectivity issues. When failure occurs, the corresponding data is not ingested unless the company manually reruns the job.

What should a solutions architect do to ensure that all notifications are eventually processed?

A. Configure the Lambda function for deployment across multiple Availability Zones.

B. Modify the Lambda function's configuration to increase the CPU and memory allocations for the function.

C. Configure the SNS topic's retry strategy to increase both the number of retries and the wait time between retries.

D. Configure an Amazon Simple Queue Service (Amazon SQS) queue as the on-failure destination. Modify the Lambda function to process messages in the queue.

Question #149Topic 1

A company has a service that produces event data. The company wants to use AWS to process the event data as it is received. The data is written in a specific order that must be maintained throughout processing. The company wants to implement a solution that minimizes operational overhead.

How should a solutions architect accomplish this?

A. Create an Amazon Simple Queue Service (Amazon SQS) FIFO queue to hold messages. Set up an AWS Lambda function to process messages from the queue.

B. Create an Amazon Simple Notification Service (Amazon SNS) topic to deliver notifications containing payloads to process. Configure an AWS Lambda function as a subscriber.

C. Create an Amazon Simple Queue Service (Amazon SQS) standard queue to hold messages. Set up an AWS Lambda function to process messages from the queue independently.

D. Create an Amazon Simple Notification Service (Amazon SNS) topic to deliver notifications containing payloads to process. Configure an Amazon Simple Queue Service (Amazon SQS) queue as a subscriber.

Question #150Topic 1

A company is migrating an application from on-premises servers to Amazon EC2 instances. As part of the migration design requirements, a solutions architect must implement infrastructure metric alarms. The company does not need to take action if CPU utilization increases to more than 50% for a short burst of time. However, if the CPU utilization increases to more than 50% and read IOPS on the disk are high at the same time, the company needs to act as soon as possible. The solutions architect also must reduce false alarms.

What should the solutions architect do to meet these requirements?

A. Create Amazon CloudWatch composite alarms where possible.

B. Create Amazon CloudWatch dashboards to visualize the metrics and react to issues quickly.

C. Create Amazon CloudWatch Synthetics canaries to monitor the application and raise an alarm.

D. Create single Amazon CloudWatch metric alarms with multiple metric thresholds where possible.

Question #151Topic 1

A company wants to migrate its on-premises data center to AWS. According to the company's compliance requirements, the company can use only the ap-northeast-3 Region. Company administrators are not permitted to connect VPCs to the internet.

Which solutions will meet these requirements? (Choose two.)

- A. Use AWS Control Tower to implement data residency guardrails to deny internet access and deny access to all AWS Regions except ap-northeast-3.
- B. Use rules in AWS WAF to prevent internet access. Deny access to all AWS Regions except ap-northeast-3 in the AWS account settings.
- C. Use AWS Organizations to configure service control policies (SCPs) that prevent VPCs from gaining internet access. Deny access to all AWS Regions except ap-northeast-3.
- D. Create an outbound rule for the network ACL in each VPC to deny all traffic from 0.0.0.0/0. Create an IAM policy for each user to prevent the use of any AWS Region other than ap-northeast-3.
- E. Use AWS Config to activate managed rules to detect and alert for internet gateways and to detect and alert for new resources deployed outside of ap-northeast-3.

#### Question #152Topic 1

A company uses a three-tier web application to provide training to new employees. The application is accessed for only 12 hours every day. The company is using an Amazon RDS for MySQL DB instance to store information and wants to minimize costs.

What should a solutions architect do to meet these requirements?

- A. Configure an IAM policy for AWS Systems Manager Session Manager. Create an IAM role for the policy. Update the trust relationship of the role. Set up automatic start and stop for the DB instance.
- B. Create an Amazon ElastiCache for Redis cache cluster that gives users the ability to access the data from the cache when the DB instance is stopped. Invalidate the cache after the DB instance is started.
- C. Launch an Amazon EC2 instance. Create an IAM role that grants access to Amazon RDS. Attach the role to the EC2 instance. Configure a cron job to start and stop the EC2 instance on the desired schedule.
- D. Create AWS Lambda functions to start and stop the DB instance. Create Amazon EventBridge (Amazon CloudWatch Events) scheduled rules to invoke the Lambda functions. Configure the Lambda functions as event targets for the rules.

#### Question #153Topic 1

A company sells ringtones created from clips of popular songs. The files containing the ringtones are stored in Amazon S3 Standard and are at least 128 KB in size. The company has

millions of files, but downloads are infrequent for ringtones older than 90 days. The company needs to save money on storage while keeping the most accessed files readily available for its users.

Which action should the company take to meet these requirements MOST cost-effectively?

- A. Configure S3 Standard-Infrequent Access (S3 Standard-IA) storage for the initial storage tier of the objects.
- B. Move the files to S3 Intelligent-Tiering and configure it to move objects to a less expensive storage tier after 90 days.
- C. Configure S3 inventory to manage objects and move them to S3 Standard-Infrequent Access (S3 Standard-1A) after 90 days.
- D. Implement an S3 Lifecycle policy that moves the objects from S3 Standard to S3 Standard-Infrequent Access (S3 Standard-1A) after 90 days.

Question #154Topic 1

A company needs to save the results from a medical trial to an Amazon S3 repository. The repository must allow a few scientists to add new files and must restrict all other users to read-only access. No users can have the ability to modify or delete any files in the repository. The company must keep every file in the repository for a minimum of 1 year after its creation date.

Which solution will meet these requirements?

- A. Use S3 Object Lock in governance mode with a legal hold of 1 year.
- B. Use S3 Object Lock in compliance mode with a retention period of 365 days.
- C. Use an IAM role to restrict all users from deleting or changing objects in the S3 bucket. Use an S3 bucket policy to only allow the IAM role.
- D. Configure the S3 bucket to invoke an AWS Lambda function every time an object is added. Configure the function to track the hash of the saved object so that modified objects can be marked accordingly.

Question #155Topic 1

A large media company hosts a web application on AWS. The company wants to start caching confidential media files so that users around the world will have reliable access to the files. The content is stored in Amazon S3 buckets. The company must deliver the content quickly, regardless of where the requests originate geographically.

Which solution will meet these requirements?

- A. Use AWS DataSync to connect the S3 buckets to the web application.

- B. Deploy AWS Global Accelerator to connect the S3 buckets to the web application.
- C. Deploy Amazon CloudFront to connect the S3 buckets to CloudFront edge servers.
- D. Use Amazon Simple Queue Service (Amazon SQS) to connect the S3 buckets to the web application.

Question #156Topic 1

A company produces batch data that comes from different databases. The company also produces live stream data from network sensors and application APIs. The company needs to consolidate all the data into one place for business analytics. The company needs to process the incoming data and then stage the data in different Amazon S3 buckets. Teams will later run one-time queries and import the data into a business intelligence tool to show key performance indicators (KPIs).

Which combination of steps will meet these requirements with the LEAST operational overhead? (Choose two.)

- A. Use Amazon Athena for one-time queries. Use Amazon QuickSight to create dashboards for KPIs.
- B. Use Amazon Kinesis Data Analytics for one-time queries. Use Amazon QuickSight to create dashboards for KPIs.
- C. Create custom AWS Lambda functions to move the individual records from the databases to an Amazon Redshift cluster.
- D. Use an AWS Glue extract, transform, and load (ETL) job to convert the data into JSON format. Load the data into multiple Amazon OpenSearch Service (Amazon Elasticsearch Service) clusters.
- E. Use blueprints in AWS Lake Formation to identify the data that can be ingested into a data lake. Use AWS Glue to crawl the source, extract the data, and load the data into Amazon S3 in Apache Parquet format.

Question #157Topic 1

A company stores data in an Amazon Aurora PostgreSQL DB cluster. The company must store all the data for 5 years and must delete all the data after 5 years. The company also must indefinitely keep audit logs of actions that are performed within the database. Currently, the company has automated backups configured for Aurora.

Which combination of steps should a solutions architect take to meet these requirements? (Choose two.)

- A. Take a manual snapshot of the DB cluster.

- B. Create a lifecycle policy for the automated backups.
- C. Configure automated backup retention for 5 years.
- D. Configure an Amazon CloudWatch Logs export for the DB cluster.
- E. Use AWS Backup to take the backups and to keep the backups for 5 years.

Question #158Topic 1

A solutions architect is optimizing a website for an upcoming musical event. Videos of the performances will be streamed in real time and then will be available on demand. The event is expected to attract a global online audience.

Which service will improve the performance of both the real-time and on-demand streaming?

- A. Amazon CloudFront
- B. AWS Global Accelerator
- C. Amazon Route 53
- D. Amazon S3 Transfer Acceleration

Question #159Topic 1

A company is running a publicly accessible serverless application that uses Amazon API Gateway and AWS Lambda. The application's traffic recently spiked due to fraudulent requests from botnets.

Which steps should a solutions architect take to block requests from unauthorized users?  
(Choose two.)

- A. Create a usage plan with an API key that is shared with genuine users only.
- B. Integrate logic within the Lambda function to ignore the requests from fraudulent IP addresses.
- C. Implement an AWS WAF rule to target malicious requests and trigger actions to filter them out.
- D. Convert the existing public API to a private API. Update the DNS records to redirect users to the new API endpoint.
- E. Create an IAM role for each user attempting to access the API. A user will assume the role when making the API call.



Question #160Topic 1

An ecommerce company hosts its analytics application in the AWS Cloud. The application generates about 300 MB of data each month. The data is stored in JSON format. The company is evaluating a disaster recovery solution to back up the data. The data must be accessible in milliseconds if it is needed, and the data must be kept for 30 days.

Which solution meets these requirements MOST cost-effectively?

- A. Amazon OpenSearch Service (Amazon Elasticsearch Service)
- B. Amazon S3 Glacier
- C. Amazon S3 Standard
- D. Amazon RDS for PostgreSQL

Question #161Topic 1

A company has a small Python application that processes JSON documents and outputs the results to an on-premises SQL database. The application runs thousands of times each day. The company wants to move the application to the AWS Cloud. The company needs a highly available solution that maximizes scalability and minimizes operational overhead.

Which solution will meet these requirements?

- A. Place the JSON documents in an Amazon S3 bucket. Run the Python code on multiple Amazon EC2 instances to process the documents. Store the results in an Amazon Aurora DB cluster.
- B. Place the JSON documents in an Amazon S3 bucket. Create an AWS Lambda function that runs the Python code to process the documents as they arrive in the S3 bucket. Store the results in an Amazon Aurora DB cluster.
- C. Place the JSON documents in an Amazon Elastic Block Store (Amazon EBS) volume. Use the EBS Multi-Attach feature to attach the volume to multiple Amazon EC2 instances. Run the Python code on the EC2 instances to process the documents. Store the results on an Amazon RDS DB instance.
- D. Place the JSON documents in an Amazon Simple Queue Service (Amazon SQS) queue as messages. Deploy the Python code as a container on an Amazon Elastic Container Service (Amazon ECS) cluster that is configured with the Amazon EC2 launch type. Use the container to process the SQS messages. Store the results on an Amazon RDS DB instance.

Question #162Topic 1

A company wants to use high performance computing (HPC) infrastructure on AWS for financial risk modeling. The company's HPC workloads run on Linux. Each HPC workflow runs on hundreds of Amazon EC2 Spot Instances, is short-lived, and generates thousands of output files that are ultimately stored in persistent storage for analytics and long-term future use.

The company seeks a cloud storage solution that permits the copying of on-premises data to long-term persistent storage to make data available for processing by all EC2 instances. The solution should also be a high performance file system that is integrated with persistent storage to read and write datasets and output files.

Which combination of AWS services meets these requirements?

- A. Amazon FSx for Lustre integrated with Amazon S3
- B. Amazon FSx for Windows File Server integrated with Amazon S3
- C. Amazon S3 Glacier integrated with Amazon Elastic Block Store (Amazon EBS)
- D. Amazon S3 bucket with a VPC endpoint integrated with an Amazon Elastic Block Store (Amazon EBS) General Purpose SSD (gp2) volume

Question #163Topic 1

A company is building a containerized application on premises and decides to move the application to AWS. The application will have thousands of users soon after it is deployed. The company is unsure how to manage the deployment of containers at scale. The company needs to deploy the containerized application in a highly available architecture that minimizes operational overhead.

Which solution will meet these requirements?

- A. Store container images in an Amazon Elastic Container Registry (Amazon ECR) repository. Use an Amazon Elastic Container Service (Amazon ECS) cluster with the AWS Fargate launch type to run the containers. Use target tracking to scale automatically based on demand.
- B. Store container images in an Amazon Elastic Container Registry (Amazon ECR) repository. Use an Amazon Elastic Container Service (Amazon ECS) cluster with the Amazon EC2 launch type to run the containers. Use target tracking to scale automatically based on demand.
- C. Store container images in a repository that runs on an Amazon EC2 instance. Run the containers on EC2 instances that are spread across multiple Availability Zones. Monitor the average CPU utilization in Amazon CloudWatch. Launch new EC2 instances as needed.

D. Create an Amazon EC2 Amazon Machine Image (AMI) that contains the container image. Launch EC2 instances in an Auto Scaling group across multiple Availability Zones. Use an Amazon CloudWatch alarm to scale out EC2 instances when the average CPU utilization threshold is breached.

#### Question #164Topic 1

A company has two applications: a sender application that sends messages with payloads to be processed and a processing application intended to receive the messages with payloads. The company wants to implement an AWS service to handle messages between the two applications. The sender application can send about 1,000 messages each hour. The messages may take up to 2 days to be processed. If the messages fail to process, they must be retained so that they do not impact the processing of any remaining messages.

Which solution meets these requirements and is the MOST operationally efficient?

- A. Set up an Amazon EC2 instance running a Redis database. Configure both applications to use the instance. Store, process, and delete the messages, respectively.
- B. Use an Amazon Kinesis data stream to receive the messages from the sender application. Integrate the processing application with the Kinesis Client Library (KCL).
- C. Integrate the sender and processor applications with an Amazon Simple Queue Service (Amazon SQS) queue. Configure a dead-letter queue to collect the messages that failed to process.
- D. Subscribe the processing application to an Amazon Simple Notification Service (Amazon SNS) topic to receive notifications to process. Integrate the sender application to write to the SNS topic.

#### Question #165Topic 1

A solutions architect must design a solution that uses Amazon CloudFront with an Amazon S3 origin to store a static website. The company's security policy requires that all website traffic be inspected by AWS WAF.

How should the solutions architect comply with these requirements?

- A. Configure an S3 bucket policy to accept requests coming from the AWS WAF Amazon Resource Name (ARN) only.
- B. Configure Amazon CloudFront to forward all incoming requests to AWS WAF before requesting content from the S3 origin.

C. Configure a security group that allows Amazon CloudFront IP addresses to access Amazon S3 only. Associate AWS WAF to CloudFront.

D. Configure Amazon CloudFront and Amazon S3 to use an origin access identity (OAI) to restrict access to the S3 bucket. Enable AWS WAF on the distribution.

Question #166Topic 1

Organizers for a global event want to put daily reports online as static HTML pages. The pages are expected to generate millions of views from users around the world. The files are stored in an Amazon S3 bucket. A solutions architect has been asked to design an efficient and effective solution.

Which action should the solutions architect take to accomplish this?

A. Generate presigned URLs for the files.

B. Use cross-Region replication to all Regions.

C. Use the geoproximity feature of Amazon Route 53.

D. Use Amazon CloudFront with the S3 bucket as its origin.

Question #167Topic 1

A company runs a production application on a fleet of Amazon EC2 instances. The application reads the data from an Amazon SQS queue and processes the messages in parallel. The message volume is unpredictable and often has intermittent traffic. This application should continually process messages without any downtime.

Which solution meets these requirements MOST cost-effectively?

A. Use Spot Instances exclusively to handle the maximum capacity required.

B. Use Reserved Instances exclusively to handle the maximum capacity required.

C. Use Reserved Instances for the baseline capacity and use Spot Instances to handle additional capacity.

D. Use Reserved Instances for the baseline capacity and use On-Demand Instances to handle additional capacity.

Question #168Topic 1

A security team wants to limit access to specific services or actions in all of the team's AWS accounts. All accounts belong to a large organization in AWS Organizations. The solution must be scalable and there must be a single point where permissions can be maintained.

What should a solutions architect do to accomplish this?

- A. Create an ACL to provide access to the services or actions.
- B. Create a security group to allow accounts and attach it to user groups.
- C. Create cross-account roles in each account to deny access to the services or actions.
- D. Create a service control policy in the root organizational unit to deny access to the services or actions.

Question #169Topic 1

A company is concerned about the security of its public web application due to recent web attacks. The application uses an Application Load Balancer (ALB). A solutions architect must reduce the risk of DDoS attacks against the application.

What should the solutions architect do to meet this requirement?

- A. Add an Amazon Inspector agent to the ALB.
- B. Configure Amazon Macie to prevent attacks.
- C. Enable AWS Shield Advanced to prevent attacks.
- D. Configure Amazon GuardDuty to monitor the ALB.

Question #170Topic 1

A company's web application is running on Amazon EC2 instances behind an Application Load Balancer. The company recently changed its policy, which now requires the application to be accessed from one specific country only.

Which configuration will meet this requirement?

- A. Configure the security group for the EC2 instances.
- B. Configure the security group on the Application Load Balancer.
- C. Configure AWS WAF on the Application Load Balancer in a VPC.
- D. Configure the network ACL for the subnet that contains the EC2 instances.

Question #171Topic 1

A company provides an API to its users that automates inquiries for tax computations based on item prices. The company experiences a larger number of inquiries during the holiday season only that cause slower response times. A solutions architect needs to design a solution that is scalable and elastic.

What should the solutions architect do to accomplish this?

- A. Provide an API hosted on an Amazon EC2 instance. The EC2 instance performs the required computations when the API request is made.
- B. Design a REST API using Amazon API Gateway that accepts the item names. API Gateway passes item names to AWS Lambda for tax computations.
- C. Create an Application Load Balancer that has two Amazon EC2 instances behind it. The EC2 instances will compute the tax on the received item names.
- D. Design a REST API using Amazon API Gateway that connects with an API hosted on an Amazon EC2 instance. API Gateway accepts and passes the item names to the EC2 instance for tax computations.

Question #172Topic 1

A solutions architect is creating a new Amazon CloudFront distribution for an application. Some of the information submitted by users is sensitive. The application uses HTTPS but needs another layer of security. The sensitive information should be protected throughout the entire application stack, and access to the information should be restricted to certain applications.

Which action should the solutions architect take?

- A. Configure a CloudFront signed URL.
- B. Configure a CloudFront signed cookie.
- C. Configure a CloudFront field-level encryption profile.
- D. Configure CloudFront and set the Origin Protocol Policy setting to HTTPS Only for the Viewer Protocol Policy.

Question #173Topic 1

A gaming company hosts a browser-based application on AWS. The users of the application consume a large number of videos and images that are stored in Amazon S3. This content is the same for all users.

The application has increased in popularity, and millions of users worldwide accessing these media files. The company wants to provide the files to the users while reducing the load on the origin.

Which solution meets these requirements MOST cost-effectively?

- A. Deploy an AWS Global Accelerator accelerator in front of the web servers.
- B. Deploy an Amazon CloudFront web distribution in front of the S3 bucket.
- C. Deploy an Amazon ElastiCache for Redis instance in front of the web servers.
- D. Deploy an Amazon ElastiCache for Memcached instance in front of the web servers.

#### Question #174Topic 1

A company has a multi-tier application that runs six front-end web servers in an Amazon EC2 Auto Scaling group in a single Availability Zone behind an Application Load Balancer (ALB). A solutions architect needs to modify the infrastructure to be highly available without modifying the application.

Which architecture should the solutions architect choose that provides high availability?

- A. Create an Auto Scaling group that uses three instances across each of two Regions.
- B. Modify the Auto Scaling group to use three instances across each of two Availability Zones.
- C. Create an Auto Scaling template that can be used to quickly create more instances in another Region.
- D. Change the ALB in front of the Amazon EC2 instances in a round-robin configuration to balance traffic to the web tier.

#### Question #175Topic 1

An ecommerce company has an order-processing application that uses Amazon API Gateway and an AWS Lambda function. The application stores data in an Amazon Aurora PostgreSQL database. During a recent sales event, a sudden surge in customer orders occurred. Some customers experienced timeouts, and the application did not process the orders of those customers.

A solutions architect determined that the CPU utilization and memory utilization were high on the database because of a large number of open connections. The solutions architect needs to prevent the timeout errors while making the least possible changes to the application.

Which solution will meet these requirements?

- A. Configure provisioned concurrency for the Lambda function. Modify the database to be a global database in multiple AWS Regions.
- B. Use Amazon RDS Proxy to create a proxy for the database. Modify the Lambda function to use the RDS Proxy endpoint instead of the database endpoint.
- C. Create a read replica for the database in a different AWS Region. Use query string parameters in API Gateway to route traffic to the read replica.
- D. Migrate the data from Aurora PostgreSQL to Amazon DynamoDB by using AWS Database Migration Service (AWS DMS). Modify the Lambda function to use the DynamoDB table.

Question #176Topic 1

An application runs on Amazon EC2 instances in private subnets. The application needs to access an Amazon DynamoDB table.

What is the MOST secure way to access the table while ensuring that the traffic does not leave the AWS network?

- A. Use a VPC endpoint for DynamoDB.
- B. Use a NAT gateway in a public subnet.
- C. Use a NAT instance in a private subnet.
- D. Use the internet gateway attached to the VPC.

Question #177Topic 1

An entertainment company is using Amazon DynamoDB to store media metadata. The application is read intensive and experiencing delays. The company does not have staff to handle additional operational overhead and needs to improve the performance efficiency of DynamoDB without reconfiguring the application.

What should a solutions architect recommend to meet this requirement?

- A. Use Amazon ElastiCache for Redis.
- B. Use Amazon DynamoDB Accelerator (DAX).



- C. Replicate data by using DynamoDB global tables.
- D. Use Amazon ElastiCache for Memcached with Auto Discovery enabled.

Question #178Topic 1

A company's infrastructure consists of Amazon EC2 instances and an Amazon RDS DB instance in a single AWS Region. The company wants to back up its data in a separate Region.

Which solution will meet these requirements with the LEAST operational overhead?

- A. Use AWS Backup to copy EC2 backups and RDS backups to the separate Region.
- B. Use Amazon Data Lifecycle Manager (Amazon DLM) to copy EC2 backups and RDS backups to the separate Region.
- C. Create Amazon Machine Images (AMIs) of the EC2 instances. Copy the AMIs to the separate Region. Create a read replica for the RDS DB instance in the separate Region.
- D. Create Amazon Elastic Block Store (Amazon EBS) snapshots. Copy the EBS snapshots to the separate Region. Create RDS snapshots. Export the RDS snapshots to Amazon S3. Configure S3 Cross-Region Replication (CRR) to the separate Region.

Question #179Topic 1

A solutions architect needs to securely store a database user name and password that an application uses to access an Amazon RDS DB instance. The application that accesses the database runs on an Amazon EC2 instance. The solutions architect wants to create a secure parameter in AWS Systems Manager Parameter Store.

What should the solutions architect do to meet this requirement?

- A. Create an IAM role that has read access to the Parameter Store parameter. Allow Decrypt access to an AWS Key Management Service (AWS KMS) key that is used to encrypt the parameter. Assign this IAM role to the EC2 instance.
- B. Create an IAM policy that allows read access to the Parameter Store parameter. Allow Decrypt access to an AWS Key Management Service (AWS KMS) key that is used to encrypt the parameter. Assign this IAM policy to the EC2 instance.
- C. Create an IAM trust relationship between the Parameter Store parameter and the EC2 instance. Specify Amazon RDS as a principal in the trust policy.
- D. Create an IAM trust relationship between the DB instance and the EC2 instance. Specify Systems Manager as a principal in the trust policy.

Question #180Topic 1

A company is designing a cloud communications platform that is driven by APIs. The application is hosted on Amazon EC2 instances behind a Network Load Balancer (NLB). The company uses Amazon API Gateway to provide external users with access to the application through APIs. The company wants to protect the platform against web exploits like SQL injection and also wants to detect and mitigate large, sophisticated DDoS attacks.

Which combination of solutions provides the MOST protection? (Choose two.)

- A. Use AWS WAF to protect the NLB.
- B. Use AWS Shield Advanced with the NLB.
- C. Use AWS WAF to protect Amazon API Gateway.
- D. Use Amazon GuardDuty with AWS Shield Standard
- E. Use AWS Shield Standard with Amazon API Gateway.

Question #181Topic 1

A company has a legacy data processing application that runs on Amazon EC2 instances. Data is processed sequentially, but the order of results does not matter. The application uses a monolithic architecture. The only way that the company can scale the application to meet increased demand is to increase the size of the instances.

The company's developers have decided to rewrite the application to use a microservices architecture on Amazon Elastic Container Service (Amazon ECS).

What should a solutions architect recommend for communication between the microservices?

- A. Create an Amazon Simple Queue Service (Amazon SQS) queue. Add code to the data producers, and send data to the queue. Add code to the data consumers to process data from the queue.
- B. Create an Amazon Simple Notification Service (Amazon SNS) topic. Add code to the data producers, and publish notifications to the topic. Add code to the data consumers to subscribe to the topic.
- C. Create an AWS Lambda function to pass messages. Add code to the data producers to call the Lambda function with a data object. Add code to the data consumers to receive a data object that is passed from the Lambda function.

D. Create an Amazon DynamoDB table. Enable DynamoDB Streams. Add code to the data producers to insert data into the table. Add code to the data consumers to use the DynamoDB Streams API to detect new table entries and retrieve the data.

#### Question #182Topic 1

A company wants to migrate its MySQL database from on premises to AWS. The company recently experienced a database outage that significantly impacted the business. To ensure this does not happen again, the company wants a reliable database solution on AWS that minimizes data loss and stores every transaction on at least two nodes.

Which solution meets these requirements?

A. Create an Amazon RDS DB instance with synchronous replication to three nodes in three Availability Zones.

B. Create an Amazon RDS MySQL DB instance with Multi-AZ functionality enabled to synchronously replicate the data.

C. Create an Amazon RDS MySQL DB instance and then create a read replica in a separate AWS Region that synchronously replicates the data.

D. Create an Amazon EC2 instance with a MySQL engine installed that triggers an AWS Lambda function to synchronously replicate the data to an Amazon RDS MySQL DB instance.

#### Question #183Topic 1

A company is building a new dynamic ordering website. The company wants to minimize server maintenance and patching. The website must be highly available and must scale read and write capacity as quickly as possible to meet changes in user demand.

Which solution will meet these requirements?

A. Host static content in Amazon S3. Host dynamic content by using Amazon API Gateway and AWS Lambda. Use Amazon DynamoDB with on-demand capacity for the database. Configure Amazon CloudFront to deliver the website content.

B. Host static content in Amazon S3. Host dynamic content by using Amazon API Gateway and AWS Lambda. Use Amazon Aurora with Aurora Auto Scaling for the database. Configure Amazon CloudFront to deliver the website content.

C. Host all the website content on Amazon EC2 instances. Create an Auto Scaling group to scale the EC2 instances. Use an Application Load Balancer to distribute traffic. Use Amazon DynamoDB with provisioned write capacity for the database.

D. Host all the website content on Amazon EC2 instances. Create an Auto Scaling group to scale the EC2 instances. Use an Application Load Balancer to distribute traffic. Use Amazon Aurora with Aurora Auto Scaling for the database.

#### Question #184Topic 1

A company has an AWS account used for software engineering. The AWS account has access to the company's on-premises data center through a pair of AWS Direct Connect connections. All non-VPC traffic routes to the virtual private gateway.

A development team recently created an AWS Lambda function through the console. The development team needs to allow the function to access a database that runs in a private subnet in the company's data center.

Which solution will meet these requirements?

- A. Configure the Lambda function to run in the VPC with the appropriate security group.
- B. Set up a VPN connection from AWS to the data center. Route the traffic from the Lambda function through the VPN.
- C. Update the route tables in the VPC to allow the Lambda function to access the on-premises data center through Direct Connect.
- D. Create an Elastic IP address. Configure the Lambda function to send traffic through the Elastic IP address without an elastic network interface.

#### Question #185Topic 1

A company runs an application using Amazon ECS. The application creates resized versions of an original image and then makes Amazon S3 API calls to store the resized images in Amazon S3.

How can a solutions architect ensure that the application has permission to access Amazon S3?

- A. Update the S3 role in AWS IAM to allow read/write access from Amazon ECS, and then relaunch the container.
- B. Create an IAM role with S3 permissions, and then specify that role as the taskRoleArn in the task definition.

- C. Create a security group that allows access from Amazon ECS to Amazon S3, and update the launch configuration used by the ECS cluster.
- D. Create an IAM user with S3 permissions, and then relaunch the Amazon EC2 instances for the ECS cluster while logged in as this account.

Question #186Topic 1

A company has a Windows-based application that must be migrated to AWS. The application requires the use of a shared Windows file system attached to multiple Amazon EC2 Windows instances that are deployed across multiple Availability Zone:

What should a solutions architect do to meet this requirement?

- A. Configure AWS Storage Gateway in volume gateway mode. Mount the volume to each Windows instance.
- B. Configure Amazon FSx for Windows File Server. Mount the Amazon FSx file system to each Windows instance.
- C. Configure a file system by using Amazon Elastic File System (Amazon EFS). Mount the EFS file system to each Windows instance.
- D. Configure an Amazon Elastic Block Store (Amazon EBS) volume with the required size. Attach each EC2 instance to the volume. Mount the file system within the volume to each Windows instance.

Question #187Topic 1

A company is developing an ecommerce application that will consist of a load-balanced front end, a container-based application, and a relational database. A solutions architect needs to create a highly available solution that operates with as little manual intervention as possible.

Which solutions meet these requirements? (Choose two.)

- A. Create an Amazon RDS DB instance in Multi-AZ mode.
- B. Create an Amazon RDS DB instance and one or more replicas in another Availability Zone.
- C. Create an Amazon EC2 instance-based Docker cluster to handle the dynamic application load.
- D. Create an Amazon Elastic Container Service (Amazon ECS) cluster with a Fargate launch type to handle the dynamic application load.

E. Create an Amazon Elastic Container Service (Amazon ECS) cluster with an Amazon EC2 launch type to handle the dynamic application load.

Question #188Topic 1

A company uses Amazon S3 as its data lake. The company has a new partner that must use SFTP to upload data files. A solutions architect needs to implement a highly available SFTP solution that minimizes operational overhead.

Which solution will meet these requirements?

- A. Use AWS Transfer Family to configure an SFTP-enabled server with a publicly accessible endpoint. Choose the S3 data lake as the destination.
- B. Use Amazon S3 File Gateway as an SFTP server. Expose the S3 File Gateway endpoint URL to the new partner. Share the S3 File Gateway endpoint with the new partner.
- C. Launch an Amazon EC2 instance in a private subnet in a VPC. Instruct the new partner to upload files to the EC2 instance by using a VPN. Run a cron job script, on the EC2 instance to upload files to the S3 data lake.
- D. Launch Amazon EC2 instances in a private subnet in a VPC. Place a Network Load Balancer (NLB) in front of the EC2 instances. Create an SFTP listener port for the NLB. Share the NLB hostname with the new partner. Run a cron job script on the EC2 instances to upload files to the S3 data lake.

Question #189Topic 1

A company needs to store contract documents. A contract lasts for 5 years. During the 5-year period, the company must ensure that the documents cannot be overwritten or deleted. The company needs to encrypt the documents at rest and rotate the encryption keys automatically every year.

Which combination of steps should a solutions architect take to meet these requirements with the LEAST operational overhead? (Choose two.)

- A. Store the documents in Amazon S3. Use S3 Object Lock in governance mode.
- B. Store the documents in Amazon S3. Use S3 Object Lock in compliance mode.
- C. Use server-side encryption with Amazon S3 managed encryption keys (SSE-S3). Configure key rotation.
- D. Use server-side encryption with AWS Key Management Service (AWS KMS) customer managed keys. Configure key rotation.

E. Use server-side encryption with AWS Key Management Service (AWS KMS) customer provided (imported) keys. Configure key rotation.

#### Question #190Topic 1

A company has a web application that is based on Java and PHP. The company plans to move the application from on premises to AWS. The company needs the ability to test new site features frequently. The company also needs a highly available and managed solution that requires minimum operational overhead.

Which solution will meet these requirements?

- A. Create an Amazon S3 bucket. Enable static web hosting on the S3 bucket. Upload the static content to the S3 bucket. Use AWS Lambda to process all dynamic content.
- B. Deploy the web application to an AWS Elastic Beanstalk environment. Use URL swapping to switch between multiple Elastic Beanstalk environments for feature testing.
- C. Deploy the web application to Amazon EC2 instances that are configured with Java and PHP. Use Auto Scaling groups and an Application Load Balancer to manage the website's availability.
- D. Containerize the web application. Deploy the web application to Amazon EC2 instances. Use the AWS Load Balancer Controller to dynamically route traffic between containers that contain the new site features for testing.

#### Question #191Topic 1

A company has an ordering application that stores customer information in Amazon RDS for MySQL. During regular business hours, employees run one-time queries for reporting purposes. Timeouts are occurring during order processing because the reporting queries are taking a long time to run. The company needs to eliminate the timeouts without preventing employees from performing queries.

What should a solutions architect do to meet these requirements?

- A. Create a read replica. Move reporting queries to the read replica.
- B. Create a read replica. Distribute the ordering application to the primary DB instance and the read replica.
- C. Migrate the ordering application to Amazon DynamoDB with on-demand capacity.
- D. Schedule the reporting queries for non-peak hours.

Question #192Topic 1

A hospital wants to create digital copies for its large collection of historical written records. The hospital will continue to add hundreds of new documents each day. The hospital's data team will scan the documents and will upload the documents to the AWS Cloud.

A solutions architect must implement a solution to analyze the documents, extract the medical information, and store the documents so that an application can run SQL queries on the data. The solution must maximize scalability and operational efficiency.

Which combination of steps should the solutions architect take to meet these requirements? (Choose two.)

- A. Write the document information to an Amazon EC2 instance that runs a MySQL database.
- B. Write the document information to an Amazon S3 bucket. Use Amazon Athena to query the data.
- C. Create an Auto Scaling group of Amazon EC2 instances to run a custom application that processes the scanned files and extracts the medical information.
- D. Create an AWS Lambda function that runs when new documents are uploaded. Use Amazon Rekognition to convert the documents to raw text. Use Amazon Transcribe Medical to detect and extract relevant medical information from the text.
- E. Create an AWS Lambda function that runs when new documents are uploaded. Use Amazon Textract to convert the documents to raw text. Use Amazon Comprehend Medical to detect and extract relevant medical information from the text.

Question #193Topic 1

A company is running a batch application on Amazon EC2 instances. The application consists of a backend with multiple Amazon RDS databases. The application is causing a high number of reads on the databases. A solutions architect must reduce the number of database reads while ensuring high availability.

What should the solutions architect do to meet this requirement?

- A. Add Amazon RDS read replicas.
- B. Use Amazon ElastiCache for Redis.
- C. Use Amazon Route 53 DNS caching
- D. Use Amazon ElastiCache for Memcached.



Question #194Topic 1

A company needs to run a critical application on AWS. The company needs to use Amazon EC2 for the application's database. The database must be highly available and must fail over automatically if a disruptive event occurs.

Which solution will meet these requirements?

- A. Launch two EC2 instances, each in a different Availability Zone in the same AWS Region. Install the database on both EC2 instances. Configure the EC2 instances as a cluster. Set up database replication.
- B. Launch an EC2 instance in an Availability Zone. Install the database on the EC2 instance. Use an Amazon Machine Image (AMI) to back up the data. Use AWS CloudFormation to automate provisioning of the EC2 instance if a disruptive event occurs.
- C. Launch two EC2 instances, each in a different AWS Region. Install the database on both EC2 instances. Set up database replication. Fail over the database to a second Region.
- D. Launch an EC2 instance in an Availability Zone. Install the database on the EC2 instance. Use an Amazon Machine Image (AMI) to back up the data. Use EC2 automatic recovery to recover the instance if a disruptive event occurs.

Question #195Topic 1

A company's order system sends requests from clients to Amazon EC2 instances. The EC2 instances process the orders and then store the orders in a database on Amazon RDS. Users report that they must reprocess orders when the system fails. The company wants a resilient solution that can process orders automatically if a system outage occurs.

What should a solutions architect do to meet these requirements?

- A. Move the EC2 instances into an Auto Scaling group. Create an Amazon EventBridge (Amazon CloudWatch Events) rule to target an Amazon Elastic Container Service (Amazon ECS) task.
- B. Move the EC2 instances into an Auto Scaling group behind an Application Load Balancer (ALB). Update the order system to send messages to the ALB endpoint.
- C. Move the EC2 instances into an Auto Scaling group. Configure the order system to send messages to an Amazon Simple Queue Service (Amazon SQS) queue. Configure the EC2 instances to consume messages from the queue.
- D. Create an Amazon Simple Notification Service (Amazon SNS) topic. Create an AWS Lambda function, and subscribe the function to the SNS topic. Configure the order system to send messages to the SNS topic. Send a command to the EC2 instances to process the messages by using AWS Systems Manager Run Command.

Question #196Topic 1

A company runs an application on a large fleet of Amazon EC2 instances. The application reads and writes entries into an Amazon DynamoDB table. The size of the DynamoDB table continuously grows, but the application needs only data from the last 30 days. The company needs a solution that minimizes cost and development effort.

Which solution meets these requirements?

- A. Use an AWS CloudFormation template to deploy the complete solution. Redeploy the CloudFormation stack every 30 days, and delete the original stack.
- B. Use an EC2 instance that runs a monitoring application from AWS Marketplace. Configure the monitoring application to use Amazon DynamoDB Streams to store the timestamp when a new item is created in the table. Use a script that runs on the EC2 instance to delete items that have a timestamp that is older than 30 days.
- C. Configure Amazon DynamoDB Streams to invoke an AWS Lambda function when a new item is created in the table. Configure the Lambda function to delete items in the table that are older than 30 days.
- D. Extend the application to add an attribute that has a value of the current timestamp plus 30 days to each new item that is created in the table. Configure DynamoDB to use the attribute as the TTL attribute.

Question #197Topic 1

A company has a Microsoft .NET application that runs on an on-premises Windows Server. The application stores data by using an Oracle Database Standard Edition server. The company is planning a migration to AWS and wants to minimize development changes while moving the application. The AWS application environment should be highly available.

Which combination of actions should the company take to meet these requirements? (Choose two.)

- A. Refactor the application as serverless with AWS Lambda functions running .NET Core.
- B. Rehost the application in AWS Elastic Beanstalk with the .NET platform in a Multi-AZ deployment.
- C. Replatform the application to run on Amazon EC2 with the Amazon Linux Amazon Machine Image (AMI).
- D. Use AWS Database Migration Service (AWS DMS) to migrate from the Oracle database to Amazon DynamoDB in a Multi-AZ deployment.

E. Use AWS Database Migration Service (AWS DMS) to migrate from the Oracle database to Oracle on Amazon RDS in a Multi-AZ deployment.

Question #198Topic 1

A company runs a containerized application on a Kubernetes cluster in an on-premises data center. The company is using a MongoDB database for data storage. The company wants to migrate some of these environments to AWS, but no code changes or deployment method changes are possible at this time. The company needs a solution that minimizes operational overhead.

Which solution meets these requirements?

- A. Use Amazon Elastic Container Service (Amazon ECS) with Amazon EC2 worker nodes for compute and MongoDB on EC2 for data storage.
- B. Use Amazon Elastic Container Service (Amazon ECS) with AWS Fargate for compute and Amazon DynamoDB for data storage
- C. Use Amazon Elastic Kubernetes Service (Amazon EKS) with Amazon EC2 worker nodes for compute and Amazon DynamoDB for data storage.
- D. Use Amazon Elastic Kubernetes Service (Amazon EKS) with AWS Fargate for compute and Amazon DocumentDB (with MongoDB compatibility) for data storage.

Question #199Topic 1

A telemarketing company is designing its customer call center functionality on AWS. The company needs a solution that provides multiple speaker recognition and generates transcript files. The company wants to query the transcript files to analyze the business patterns. The transcript files must be stored for 7 years for auditing purposes.

Which solution will meet these requirements?

- A. Use Amazon Rekognition for multiple speaker recognition. Store the transcript files in Amazon S3. Use machine learning models for transcript file analysis.
- B. Use Amazon Transcribe for multiple speaker recognition. Use Amazon Athena for transcript file analysis.
- C. Use Amazon Translate for multiple speaker recognition. Store the transcript files in Amazon Redshift. Use SQL queries for transcript file analysis.
- D. Use Amazon Rekognition for multiple speaker recognition. Store the transcript files in Amazon S3. Use Amazon Textract for transcript file analysis.

Question #200Topic 1

A company hosts its application on AWS. The company uses Amazon Cognito to manage users. When users log in to the application, the application fetches required data from Amazon DynamoDB by using a REST API that is hosted in Amazon API Gateway. The company wants an AWS managed solution that will control access to the REST API to reduce development efforts.

Which solution will meet these requirements with the LEAST operational overhead?

- A. Configure an AWS Lambda function to be an authorizer in API Gateway to validate which user made the request.
- B. For each user, create and assign an API key that must be sent with each request. Validate the key by using an AWS Lambda function.
- C. Send the user's email address in the header with every request. Invoke an AWS Lambda function to validate that the user with that email address has proper access.
- D. Configure an Amazon Cognito user pool authorizer in API Gateway to allow Amazon Cognito to validate each request.

#### Question #201Topic 1

A company is developing a marketing communications service that targets mobile app users. The company needs to send confirmation messages with Short Message Service (SMS) to its users. The users must be able to reply to the SMS messages. The company must store the responses for a year for analysis.

What should a solutions architect do to meet these requirements?

- A. Create an Amazon Connect contact flow to send the SMS messages. Use AWS Lambda to process the responses.
- B. Build an Amazon Pinpoint journey. Configure Amazon Pinpoint to send events to an Amazon Kinesis data stream for analysis and archiving.
- C. Use Amazon Simple Queue Service (Amazon SQS) to distribute the SMS messages. Use AWS Lambda to process the responses.
- D. Create an Amazon Simple Notification Service (Amazon SNS) FIFO topic. Subscribe an Amazon Kinesis data stream to the SNS topic for analysis and archiving.

#### Question #202Topic 1

A company is planning to move its data to an Amazon S3 bucket. The data must be encrypted when it is stored in the S3 bucket. Additionally, the encryption key must be automatically rotated every year.

Which solution will meet these requirements with the LEAST operational overhead?

- A. Move the data to the S3 bucket. Use server-side encryption with Amazon S3 managed encryption keys (SSE-S3). Use the built-in key rotation behavior of SSE-S3 encryption keys.
- B. Create an AWS Key Management Service (AWS KMS) customer managed key. Enable automatic key rotation. Set the S3 bucket's default encryption behavior to use the customer managed KMS key. Move the data to the S3 bucket.
- C. Create an AWS Key Management Service (AWS KMS) customer managed key. Set the S3 bucket's default encryption behavior to use the customer managed KMS key. Move the data to the S3 bucket. Manually rotate the KMS key every year.
- D. Encrypt the data with customer key material before moving the data to the S3 bucket. Create an AWS Key Management Service (AWS KMS) key without key material. Import the customer key material into the KMS key. Enable automatic key rotation.

#### Question #203Topic 1

The customers of a finance company request appointments with financial advisors by sending text messages. A web application that runs on Amazon EC2 instances accepts the appointment requests. The text messages are published to an Amazon Simple Queue Service (Amazon SQS) queue through the web application. Another application that runs on EC2 instances then sends meeting invitations and meeting confirmation email messages to the customers. After successful scheduling, this application stores the meeting information in an Amazon DynamoDB database.

As the company expands, customers report that their meeting invitations are taking longer to arrive.

What should a solutions architect recommend to resolve this issue?

- A. Add a DynamoDB Accelerator (DAX) cluster in front of the DynamoDB database.
- B. Add an Amazon API Gateway API in front of the web application that accepts the appointment requests.
- C. Add an Amazon CloudFront distribution. Set the origin as the web application that accepts the appointment requests.
- D. Add an Auto Scaling group for the application that sends meeting invitations. Configure the Auto Scaling group to scale based on the depth of the SQS queue.

#### Question #204Topic 1

An online retail company has more than 50 million active customers and receives more than 25,000 orders each day. The company collects purchase data for customers and stores this data in Amazon S3. Additional customer data is stored in Amazon RDS.

The company wants to make all the data available to various teams so that the teams can perform analytics. The solution must provide the ability to manage fine-grained permissions for the data and must minimize operational overhead.

Which solution will meet these requirements?

A. Migrate the purchase data to write directly to Amazon RDS. Use RDS access controls to limit access.

B. Schedule an AWS Lambda function to periodically copy data from Amazon RDS to Amazon S3. Create an AWS Glue crawler. Use Amazon Athena to query the data. Use S3 policies to limit access.

C. Create a data lake by using AWS Lake Formation. Create an AWS Glue JDBC connection to Amazon RDS. Register the S3 bucket in Lake Formation. Use Lake Formation access controls to limit access.

D. Create an Amazon Redshift cluster. Schedule an AWS Lambda function to periodically copy data from Amazon S3 and Amazon RDS to Amazon Redshift. Use Amazon Redshift access controls to limit access.

Question #205Topic 1

A company hosts a marketing website in an on-premises data center. The website consists of static documents and runs on a single server. An administrator updates the website content infrequently and uses an SFTP client to upload new documents.

The company decides to host its website on AWS and to use Amazon CloudFront. The company's solutions architect creates a CloudFront distribution. The solutions architect must design the most cost-effective and resilient architecture for website hosting to serve as the CloudFront origin.

Which solution will meet these requirements?

A. Create a virtual server by using Amazon Lightsail. Configure the web server in the Lightsail instance. Upload website content by using an SFTP client.

- B. Create an AWS Auto Scaling group for Amazon EC2 instances. Use an Application Load Balancer. Upload website content by using an SFTP client.
- C. Create a private Amazon S3 bucket. Use an S3 bucket policy to allow access from a CloudFront origin access identity (OAI). Upload website content by using the AWS CLI.
- D. Create a public Amazon S3 bucket. Configure AWS Transfer for SFTP. Configure the S3 bucket for website hosting. Upload website content by using the SFTP client.

#### Question #206Topic 1

A company wants to manage Amazon Machine Images (AMIs). The company currently copies AMIs to the same AWS Region where the AMIs were created. The company needs to design an application that captures AWS API calls and sends alerts whenever the Amazon EC2 CreateImage API operation is called within the company's account.

Which solution will meet these requirements with the LEAST operational overhead?

- A. Create an AWS Lambda function to query AWS CloudTrail logs and to send an alert when a CreateImage API call is detected.
- B. Configure AWS CloudTrail with an Amazon Simple Notification Service (Amazon SNS) notification that occurs when updated logs are sent to Amazon S3. Use Amazon Athena to create a new table and to query on CreateImage when an API call is detected.
- C. Create an Amazon EventBridge (Amazon CloudWatch Events) rule for the CreateImage API call. Configure the target as an Amazon Simple Notification Service (Amazon SNS) topic to send an alert when a CreateImage API call is detected.
- D. Configure an Amazon Simple Queue Service (Amazon SQS) FIFO queue as a target for AWS CloudTrail logs. Create an AWS Lambda function to send an alert to an Amazon Simple Notification Service (Amazon SNS) topic when a CreateImage API call is detected.

#### Question #207Topic 1

A company owns an asynchronous API that is used to ingest user requests and, based on the request type, dispatch requests to the appropriate microservice for processing. The company is using Amazon API Gateway to deploy the API front end, and an AWS Lambda function that invokes Amazon DynamoDB to store user requests before dispatching them to the processing microservices.

The company provisioned as much DynamoDB throughput as its budget allows, but the company is still experiencing availability issues and is losing user requests.

What should a solutions architect do to address this issue without impacting existing users?

- A. Add throttling on the API Gateway with server-side throttling limits.
- B. Use DynamoDB Accelerator (DAX) and Lambda to buffer writes to DynamoDB.
- C. Create a secondary index in DynamoDB for the table with the user requests.
- D. Use the Amazon Simple Queue Service (Amazon SQS) queue and Lambda to buffer writes to DynamoDB.

Question #208Topic 1

A company needs to move data from an Amazon EC2 instance to an Amazon S3 bucket. The company must ensure that no API calls and no data are routed through public internet routes. Only the EC2 instance can have access to upload data to the S3 bucket.

Which solution will meet these requirements?

- A. Create an interface VPC endpoint for Amazon S3 in the subnet where the EC2 instance is located. Attach a resource policy to the S3 bucket to only allow the EC2 instance's IAM role for access.
- B. Create a gateway VPC endpoint for Amazon S3 in the Availability Zone where the EC2 instance is located. Attach appropriate security groups to the endpoint. Attach a resource policy to the S3 bucket to only allow the EC2 instance's IAM role for access.
- C. Run the nslookup tool from inside the EC2 instance to obtain the private IP address of the S3 bucket's service API endpoint. Create a route in the VPC route table to provide the EC2 instance with access to the S3 bucket. Attach a resource policy to the S3 bucket to only allow the EC2 instance's IAM role for access.
- D. Use the AWS provided, publicly available ip-ranges.json file to obtain the private IP address of the S3 bucket's service API endpoint. Create a route in the VPC route table to provide the EC2 instance with access to the S3 bucket. Attach a resource policy to the S3 bucket to only allow the EC2 instance's IAM role for access.

Question #209Topic 1

A solutions architect is designing the architecture of a new application being deployed to the AWS Cloud. The application will run on Amazon EC2 On-Demand Instances and will automatically scale across multiple Availability Zones. The EC2 instances will scale up and down frequently throughout the day. An Application Load Balancer (ALB) will handle the load distribution. The architecture needs to support distributed session data management. The company is willing to make changes to code if needed.



What should the solutions architect do to ensure that the architecture supports distributed session data management?

- A. Use Amazon ElastiCache to manage and store session data.
- B. Use session affinity (sticky sessions) of the ALB to manage session data.
- C. Use Session Manager from AWS Systems Manager to manage the session.
- D. Use the GetSessionToken API operation in AWS Security Token Service (AWS STS) to manage the session.

#### Question #210Topic 1

A company offers a food delivery service that is growing rapidly. Because of the growth, the company's order processing system is experiencing scaling problems during peak traffic hours. The current architecture includes the following:

- A group of Amazon EC2 instances that run in an Amazon EC2 Auto Scaling group to collect orders from the application
- Another group of EC2 instances that run in an Amazon EC2 Auto Scaling group to fulfill orders

The order collection process occurs quickly, but the order fulfillment process can take longer. Data must not be lost because of a scaling event.

A solutions architect must ensure that the order collection process and the order fulfillment process can both scale properly during peak traffic hours. The solution must optimize utilization of the company's AWS resources.

Which solution meets these requirements?

- A. Use Amazon CloudWatch metrics to monitor the CPU of each instance in the Auto Scaling groups. Configure each Auto Scaling group's minimum capacity according to peak workload values.
- B. Use Amazon CloudWatch metrics to monitor the CPU of each instance in the Auto Scaling groups. Configure a CloudWatch alarm to invoke an Amazon Simple Notification Service (Amazon SNS) topic that creates additional Auto Scaling groups on demand.
- C. Provision two Amazon Simple Queue Service (Amazon SQS) queues: one for order collection and another for order fulfillment. Configure the EC2 instances to poll their respective queue. Scale the Auto Scaling groups based on notifications that the queues send.

D. Provision two Amazon Simple Queue Service (Amazon SQS) queues: one for order collection and another for order fulfillment. Configure the EC2 instances to poll their respective queue. Create a metric based on a backlog per instance calculation. Scale the Auto Scaling groups based on this metric.

#### Question #211Topic 1

A company hosts multiple production applications. One of the applications consists of resources from Amazon EC2, AWS Lambda, Amazon RDS, Amazon Simple Notification Service (Amazon SNS), and Amazon Simple Queue Service (Amazon SQS) across multiple AWS Regions. All company resources are tagged with a tag name of “application” and a value that corresponds to each application. A solutions architect must provide the quickest solution for identifying all of the tagged components.

Which solution meets these requirements?

- A. Use AWS CloudTrail to generate a list of resources with the application tag.
- B. Use the AWS CLI to query each service across all Regions to report the tagged components.
- C. Run a query in Amazon CloudWatch Logs Insights to report on the components with the application tag.
- D. Run a query with the AWS Resource Groups Tag Editor to report on the resources globally with the application tag.

#### Question #212Topic 1

A company needs to export its database once a day to Amazon S3 for other teams to access. The exported object size varies between 2 GB and 5 GB. The S3 access pattern for the data is variable and changes rapidly. The data must be immediately available and must remain accessible for up to 3 months. The company needs the most cost-effective solution that will not increase retrieval time.

Which S3 storage class should the company use to meet these requirements?

- A. S3 Intelligent-Tiering
- B. S3 Glacier Instant Retrieval
- C. S3 Standard
- D. S3 Standard-Infrequent Access (S3 Standard-IA)

#### Question #213Topic 1

A company is developing a new mobile app. The company must implement proper traffic filtering to protect its Application Load Balancer (ALB) against common application-level attacks, such as cross-site scripting or SQL injection. The company has minimal infrastructure and operational staff. The company needs to reduce its share of the responsibility in managing, updating, and securing servers for its AWS environment.

What should a solutions architect recommend to meet these requirements?

- A. Configure AWS WAF rules and associate them with the ALB.
- B. Deploy the application using Amazon S3 with public hosting enabled.
- C. Deploy AWS Shield Advanced and add the ALB as a protected resource.
- D. Create a new ALB that directs traffic to an Amazon EC2 instance running a third-party firewall, which then passes the traffic to the current ALB.

Question #214Topic 1

A company's reporting system delivers hundreds of .csv files to an Amazon S3 bucket each day. The company must convert these files to Apache Parquet format and must store the files in a transformed data bucket.

Which solution will meet these requirements with the LEAST development effort?

- A. Create an Amazon EMR cluster with Apache Spark installed. Write a Spark application to transform the data. Use EMR File System (EMRFS) to write files to the transformed data bucket.
- B. Create an AWS Glue crawler to discover the data. Create an AWS Glue extract, transform, and load (ETL) job to transform the data. Specify the transformed data bucket in the output step.
- C. Use AWS Batch to create a job definition with Bash syntax to transform the data and output the data to the transformed data bucket. Use the job definition to submit a job. Specify an array job as the job type.
- D. Create an AWS Lambda function to transform the data and output the data to the transformed data bucket. Configure an event notification for the S3 bucket. Specify the Lambda function as the destination for the event notification.

Question #215Topic 1

A company has 700 TB of backup data stored in network attached storage (NAS) in its data center. This backup data need to be accessible for infrequent regulatory requests and must be retained 7 years. The company has decided to migrate this backup data from its data center to

AWS. The migration must be complete within 1 month. The company has 500 Mbps of dedicated bandwidth on its public internet connection available for data transfer.

What should a solutions architect do to migrate and store the data at the LOWEST cost?

- A. Order AWS Snowball devices to transfer the data. Use a lifecycle policy to transition the files to Amazon S3 Glacier Deep Archive.
- B. Deploy a VPN connection between the data center and Amazon VPC. Use the AWS CLI to copy the data from on premises to Amazon S3 Glacier.
- C. Provision a 500 Mbps AWS Direct Connect connection and transfer the data to Amazon S3. Use a lifecycle policy to transition the files to Amazon S3 Glacier Deep Archive.
- D. Use AWS DataSync to transfer the data and deploy a DataSync agent on premises. Use the DataSync task to copy files from the on-premises NAS storage to Amazon S3 Glacier.

Question #216Topic 1

A company has a serverless website with millions of objects in an Amazon S3 bucket. The company uses the S3 bucket as the origin for an Amazon CloudFront distribution. The company did not set encryption on the S3 bucket before the objects were loaded. A solutions architect needs to enable encryption for all existing objects and for all objects that are added to the S3 bucket in the future.

Which solution will meet these requirements with the LEAST amount of effort?

- A. Create a new S3 bucket. Turn on the default encryption settings for the new S3 bucket. Download all existing objects to temporary local storage. Upload the objects to the new S3 bucket.
- B. Turn on the default encryption settings for the S3 bucket. Use the S3 Inventory feature to create a .csv file that lists the unencrypted objects. Run an S3 Batch Operations job that uses the copy command to encrypt those objects.
- C. Create a new encryption key by using AWS Key Management Service (AWS KMS). Change the settings on the S3 bucket to use server-side encryption with AWS KMS managed encryption keys (SSE-KMS). Turn on versioning for the S3 bucket.
- D. Navigate to Amazon S3 in the AWS Management Console. Browse the S3 bucket's objects. Sort by the encryption field. Select each unencrypted object. Use the Modify button to apply default encryption settings to every unencrypted object in the S3 bucket.

Question #217Topic 1

A company runs a global web application on Amazon EC2 instances behind an Application Load Balancer. The application stores data in Amazon Aurora. The company needs to create a disaster recovery solution and can tolerate up to 30 minutes of downtime and potential data loss. The solution does not need to handle the load when the primary infrastructure is healthy.

What should a solutions architect do to meet these requirements?

- A. Deploy the application with the required infrastructure elements in place. Use Amazon Route 53 to configure active-passive failover. Create an Aurora Replica in a second AWS Region.
- B. Host a scaled-down deployment of the application in a second AWS Region. Use Amazon Route 53 to configure active-active failover. Create an Aurora Replica in the second Region.
- C. Replicate the primary infrastructure in a second AWS Region. Use Amazon Route 53 to configure active-active failover. Create an Aurora database that is restored from the latest snapshot.
- D. Back up data with AWS Backup. Use the backup to create the required infrastructure in a second AWS Region. Use Amazon Route 53 to configure active-passive failover. Create an Aurora second primary instance in the second Region.

#### Question #218Topic 1

A company has a web server running on an Amazon EC2 instance in a public subnet with an Elastic IP address. The default security group is assigned to the EC2 instance. The default network ACL has been modified to block all traffic. A solutions architect needs to make the web server accessible from everywhere on port 443.

Which combination of steps will accomplish this task? (Choose two.)

- A. Create a security group with a rule to allow TCP port 443 from source 0.0.0.0/0.
- B. Create a security group with a rule to allow TCP port 443 to destination 0.0.0.0/0.
- C. Update the network ACL to allow TCP port 443 from source 0.0.0.0/0.
- D. Update the network ACL to allow inbound/outbound TCP port 443 from source 0.0.0.0/0 and to destination 0.0.0.0/0.
- E. Update the network ACL to allow inbound TCP port 443 from source 0.0.0.0/0 and outbound TCP port 32768-65535 to destination 0.0.0.0/0.

#### Question #219Topic 1

A company's application is having performance issues. The application is stateful and needs to complete in-memory tasks on Amazon EC2 instances. The company used AWS CloudFormation to deploy infrastructure and used the M5 EC2 instance family. As traffic increased, the

application performance degraded. Users are reporting delays when the users attempt to access the application.

Which solution will resolve these issues in the MOST operationally efficient way?

- A. Replace the EC2 instances with T3 EC2 instances that run in an Auto Scaling group. Make the changes by using the AWS Management Console.
- B. Modify the CloudFormation templates to run the EC2 instances in an Auto Scaling group. Increase the desired capacity and the maximum capacity of the Auto Scaling group manually when an increase is necessary.
- C. Modify the CloudFormation templates. Replace the EC2 instances with R5 EC2 instances. Use Amazon CloudWatch built-in EC2 memory metrics to track the application performance for future capacity planning.
- D. Modify the CloudFormation templates. Replace the EC2 instances with R5 EC2 instances. Deploy the Amazon CloudWatch agent on the EC2 instances to generate custom application latency metrics for future capacity planning.

Question #220Topic 1

A solutions architect is designing a new API using Amazon API Gateway that will receive requests from users. The volume of requests is highly variable; several hours can pass without receiving a single request. The data processing will take place asynchronously, but should be completed within a few seconds after a request is made.

Which compute service should the solutions architect have the API invoke to deliver the requirements at the lowest cost?

- A. An AWS Glue job
- B. An AWS Lambda function
- C. A containerized service hosted in Amazon Elastic Kubernetes Service (Amazon EKS)
- D. A containerized service hosted in Amazon ECS with Amazon EC2

Question #221Topic 1

A company runs an application on a group of Amazon Linux EC2 instances. For compliance reasons, the company must retain all application log files for 7 years. The log files will be analyzed by a reporting tool that must be able to access all the files concurrently.

Which storage solution meets these requirements MOST cost-effectively?

- A. Amazon Elastic Block Store (Amazon EBS)
- B. Amazon Elastic File System (Amazon EFS)
- C. Amazon EC2 instance store
- D. Amazon S3

Question #222Topic 1

A company has hired an external vendor to perform work in the company's AWS account. The vendor uses an automated tool that is hosted in an AWS account that the vendor owns. The vendor does not have IAM access to the company's AWS account.

How should a solutions architect grant this access to the vendor?

- A. Create an IAM role in the company's account to delegate access to the vendor's IAM role. Attach the appropriate IAM policies to the role for the permissions that the vendor requires.
- B. Create an IAM user in the company's account with a password that meets the password complexity requirements. Attach the appropriate IAM policies to the user for the permissions that the vendor requires.
- C. Create an IAM group in the company's account. Add the tool's IAM user from the vendor account to the group. Attach the appropriate IAM policies to the group for the permissions that the vendor requires.
- D. Create a new identity provider by choosing "AWS account" as the provider type in the IAM console. Supply the vendor's AWS account ID and user name. Attach the appropriate IAM policies to the new provider for the permissions that the vendor requires.

Question #223Topic 1

A company has deployed a Java Spring Boot application as a pod that runs on Amazon Elastic Kubernetes Service (Amazon EKS) in private subnets. The application needs to write data to an Amazon DynamoDB table. A solutions architect must ensure that the application can interact with the DynamoDB table without exposing traffic to the internet.

Which combination of steps should the solutions architect take to accomplish this goal?  
(Choose two.)

- A. Attach an IAM role that has sufficient privileges to the EKS pod.
- B. Attach an IAM user that has sufficient privileges to the EKS pod.

- C. Allow outbound connectivity to the DynamoDB table through the private subnets' network ACLs.
- D. Create a VPC endpoint for DynamoDB.
- E. Embed the access keys in the Java Spring Boot code.

Question #224Topic 1

A company recently migrated its web application to AWS by rehosting the application on Amazon EC2 instances in a single AWS Region. The company wants to redesign its application architecture to be highly available and fault tolerant. Traffic must reach all running EC2 instances randomly.

Which combination of steps should the company take to meet these requirements? (Choose two.)

- A. Create an Amazon Route 53 failover routing policy.
- B. Create an Amazon Route 53 weighted routing policy.
- C. Create an Amazon Route 53 multivalue answer routing policy.
- D. Launch three EC2 instances: two instances in one Availability Zone and one instance in another Availability Zone.
- E. Launch four EC2 instances: two instances in one Availability Zone and two instances in another Availability Zone.

Question #225Topic 1

A media company collects and analyzes user activity data on premises. The company wants to migrate this capability to AWS. The user activity data store will continue to grow and will be petabytes in size. The company needs to build a highly available data ingestion solution that facilitates on-demand analytics of existing data and new data with SQL.

Which solution will meet these requirements with the LEAST operational overhead?

- A. Send activity data to an Amazon Kinesis data stream. Configure the stream to deliver the data to an Amazon S3 bucket.
- B. Send activity data to an Amazon Kinesis Data Firehose delivery stream. Configure the stream to deliver the data to an Amazon Redshift cluster.
- C. Place activity data in an Amazon S3 bucket. Configure Amazon S3 to run an AWS Lambda function on the data as the data arrives in the S3 bucket.



D. Create an ingestion service on Amazon EC2 instances that are spread across multiple Availability Zones. Configure the service to forward data to an Amazon RDS Multi-AZ database.

Question #226Topic 1

A company collects data from thousands of remote devices by using a RESTful web services application that runs on an Amazon EC2 instance. The EC2 instance receives the raw data, transforms the raw data, and stores all the data in an Amazon S3 bucket. The number of remote devices will increase into the millions soon. The company needs a highly scalable solution that minimizes operational overhead.

Which combination of steps should a solutions architect take to meet these requirements? (Choose two.)

- A. Use AWS Glue to process the raw data in Amazon S3.
- B. Use Amazon Route 53 to route traffic to different EC2 instances.
- C. Add more EC2 instances to accommodate the increasing amount of incoming data.
- D. Send the raw data to Amazon Simple Queue Service (Amazon SQS). Use EC2 instances to process the data.
- E. Use Amazon API Gateway to send the raw data to an Amazon Kinesis data stream. Configure Amazon Kinesis Data Firehose to use the data stream as a source to deliver the data to Amazon S3.

Question #227Topic 1

A company needs to retain its AWS CloudTrail logs for 3 years. The company is enforcing CloudTrail across a set of AWS accounts by using AWS Organizations from the parent account. The CloudTrail target S3 bucket is configured with S3 Versioning enabled. An S3 Lifecycle policy is in place to delete current objects after 3 years.

After the fourth year of use of the S3 bucket, the S3 bucket metrics show that the number of objects has continued to rise. However, the number of new CloudTrail logs that are delivered to the S3 bucket has remained consistent.

Which solution will delete objects that are older than 3 years in the MOST cost-effective manner?

- A. Configure the organization's centralized CloudTrail trail to expire objects after 3 years.
- B. Configure the S3 Lifecycle policy to delete previous versions as well as current versions.

C. Create an AWS Lambda function to enumerate and delete objects from Amazon S3 that are older than 3 years.

D. Configure the parent account as the owner of all objects that are delivered to the S3 bucket.

#### Question #228Topic 1

A company has an API that receives real-time data from a fleet of monitoring devices. The API stores this data in an Amazon RDS DB instance for later analysis. The amount of data that the monitoring devices send to the API fluctuates. During periods of heavy traffic, the API often returns timeout errors.

After an inspection of the logs, the company determines that the database is not capable of processing the volume of write traffic that comes from the API. A solutions architect must minimize the number of connections to the database and must ensure that data is not lost during periods of heavy traffic.

Which solution will meet these requirements?

A. Increase the size of the DB instance to an instance type that has more available memory.

B. Modify the DB instance to be a Multi-AZ DB instance. Configure the application to write to all active RDS DB instances.

C. Modify the API to write incoming data to an Amazon Simple Queue Service (Amazon SQS) queue. Use an AWS Lambda function that Amazon SQS invokes to write data from the queue to the database.

D. Modify the API to write incoming data to an Amazon Simple Notification Service (Amazon SNS) topic. Use an AWS Lambda function that Amazon SNS invokes to write data from the topic to the database.

#### Question #229Topic 1

A company manages its own Amazon EC2 instances that run MySQL databases. The company is manually managing replication and scaling as demand increases or decreases. The company needs a new solution that simplifies the process of adding or removing compute capacity to or from its database tier as needed. The solution also must offer improved performance, scaling, and durability with minimal effort from operations.

Which solution meets these requirements?

A. Migrate the databases to Amazon Aurora Serverless for Aurora MySQL.

- B. Migrate the databases to Amazon Aurora Serverless for Aurora PostgreSQL.
- C. Combine the databases into one larger MySQL database. Run the larger database on larger EC2 instances.
- D. Create an EC2 Auto Scaling group for the database tier. Migrate the existing databases to the new environment.

Question #230Topic 1

A company is concerned that two NAT instances in use will no longer be able to support the traffic needed for the company's application. A solutions architect wants to implement a solution that is highly available, fault tolerant, and automatically scalable.

What should the solutions architect recommend?

- A. Remove the two NAT instances and replace them with two NAT gateways in the same Availability Zone.
- B. Use Auto Scaling groups with Network Load Balancers for the NAT instances in different Availability Zones.
- C. Remove the two NAT instances and replace them with two NAT gateways in different Availability Zones.
- D. Replace the two NAT instances with Spot Instances in different Availability Zones and deploy a Network Load Balancer.

Question #231Topic 1

An application runs on an Amazon EC2 instance that has an Elastic IP address in VPC A. The application requires access to a database in VPC B. Both VPCs are in the same AWS account.

Which solution will provide the required access MOST securely?

- A. Create a DB instance security group that allows all traffic from the public IP address of the application server in VPC A.
- B. Configure a VPC peering connection between VPC A and VPC B.
- C. Make the DB instance publicly accessible. Assign a public IP address to the DB instance.
- D. Launch an EC2 instance with an Elastic IP address into VPC B. Proxy all requests through the new EC2 instance.

Question #232Topic 1

A company runs demonstration environments for its customers on Amazon EC2 instances. Each environment is isolated in its own VPC. The company's operations team needs to be notified when RDP or SSH access to an environment has been established.

- A. Configure Amazon CloudWatch Application Insights to create AWS Systems Manager OpsItems when RDP or SSH access is detected.
- B. Configure the EC2 instances with an IAM instance profile that has an IAM role with the AmazonSSMManagedInstanceCore policy attached.
- C. Publish VPC flow logs to Amazon CloudWatch Logs. Create required metric filters. Create an Amazon CloudWatch metric alarm with a notification action for when the alarm is in the ALARM state.
- D. Configure an Amazon EventBridge rule to listen for events of type EC2 Instance State-change Notification. Configure an Amazon Simple Notification Service (Amazon SNS) topic as a target. Subscribe the operations team to the topic.

Question #233Topic 1

A solutions architect has created a new AWS account and must secure AWS account root user access.

Which combination of actions will accomplish this? (Choose two.)

- A. Ensure the root user uses a strong password.
- B. Enable multi-factor authentication to the root user.
- C. Store root user access keys in an encrypted Amazon S3 bucket.
- D. Add the root user to a group containing administrative permissions.
- E. Apply the required permissions to the root user with an inline policy document.

Question #234Topic 1

A company is building a new web-based customer relationship management application. The application will use several Amazon EC2 instances that are backed by Amazon Elastic Block Store (Amazon EBS) volumes behind an Application Load Balancer (ALB). The application will also use an Amazon Aurora database. All data for the application must be encrypted at rest and in transit.

Which solution will meet these requirements?

- A. Use AWS Key Management Service (AWS KMS) certificates on the ALB to encrypt data in transit. Use AWS Certificate Manager (ACM) to encrypt the EBS volumes and Aurora database storage at rest.
- B. Use the AWS root account to log in to the AWS Management Console. Upload the company's encryption certificates. While in the root account, select the option to turn on encryption for all data at rest and in transit for the account.
- C. Use AWS Key Management Service (AWS KMS) to encrypt the EBS volumes and Aurora database storage at rest. Attach an AWS Certificate Manager (ACM) certificate to the ALB to encrypt data in transit.
- D. Use BitLocker to encrypt all data at rest. Import the company's TLS certificate keys to AWS Key Management Service (AWS KMS) Attach the KMS keys to the ALB to encrypt data in transit.

#### Question #235Topic 1

A company is moving its on-premises Oracle database to Amazon Aurora PostgreSQL. The database has several applications that write to the same tables. The applications need to be migrated one by one with a month in between each migration. Management has expressed concerns that the database has a high number of reads and writes. The data must be kept in sync across both databases throughout the migration.

What should a solutions architect recommend?

- A. Use AWS DataSync for the initial migration. Use AWS Database Migration Service (AWS DMS) to create a change data capture (CDC) replication task and a table mapping to select all tables.
- B. Use AWS DataSync for the initial migration. Use AWS Database Migration Service (AWS DMS) to create a full load plus change data capture (CDC) replication task and a table mapping to select all tables.
- C. Use the AWS Schema Conversion Tool with AWS Database Migration Service (AWS DMS) using a memory optimized replication instance. Create a full load plus change data capture (CDC) replication task and a table mapping to select all tables.
- D. Use the AWS Schema Conversion Tool with AWS Database Migration Service (AWS DMS) using a compute optimized replication instance. Create a full load plus change data capture (CDC) replication task and a table mapping to select the largest tables.

#### Question #236Topic 1

A company has a three-tier application for image sharing. The application uses an Amazon EC2 instance for the front-end layer, another EC2 instance for the application layer, and a third EC2 instance for a MySQL database. A solutions architect must design a scalable and highly available solution that requires the least amount of change to the application.

Which solution meets these requirements?

- A. Use Amazon S3 to host the front-end layer. Use AWS Lambda functions for the application layer. Move the database to an Amazon DynamoDB table. Use Amazon S3 to store and serve users' images.
- B. Use load-balanced Multi-AZ AWS Elastic Beanstalk environments for the front-end layer and the application layer. Move the database to an Amazon RDS DB instance with multiple read replicas to serve users' images.
- C. Use Amazon S3 to host the front-end layer. Use a fleet of EC2 instances in an Auto Scaling group for the application layer. Move the database to a memory optimized instance type to store and serve users' images.
- D. Use load-balanced Multi-AZ AWS Elastic Beanstalk environments for the front-end layer and the application layer. Move the database to an Amazon RDS Multi-AZ DB instance. Use Amazon S3 to store and serve users' images.

Question #237Topic 1

An application running on an Amazon EC2 instance in VPC-A needs to access files in another EC2 instance in VPC-B. Both VPCs are in separate AWS accounts. The network administrator needs to design a solution to configure secure access to EC2 instance in VPC-B from VPC-A. The connectivity should not have a single point of failure or bandwidth concerns.

Which solution will meet these requirements?

- A. Set up a VPC peering connection between VPC-A and VPC-B.
- B. Set up VPC gateway endpoints for the EC2 instance running in VPC-B.
- C. Attach a virtual private gateway to VPC-B and set up routing from VPC-A.
- D. Create a private virtual interface (VIF) for the EC2 instance running in VPC-B and add appropriate routes from VPC-A.

Question #238Topic 1

A company wants to experiment with individual AWS accounts for its engineer team. The company wants to be notified as soon as the Amazon EC2 instance usage for a given month exceeds a specific threshold for each account.

What should a solutions architect do to meet this requirement MOST cost-effectively?

- A. Use Cost Explorer to create a daily report of costs by service. Filter the report by EC2 instances. Configure Cost Explorer to send an Amazon Simple Email Service (Amazon SES) notification when a threshold is exceeded.
- B. Use Cost Explorer to create a monthly report of costs by service. Filter the report by EC2 instances. Configure Cost Explorer to send an Amazon Simple Email Service (Amazon SES) notification when a threshold is exceeded.
- C. Use AWS Budgets to create a cost budget for each account. Set the period to monthly. Set the scope to EC2 instances. Set an alert threshold for the budget. Configure an Amazon Simple Notification Service (Amazon SNS) topic to receive a notification when a threshold is exceeded.
- D. Use AWS Cost and Usage Reports to create a report with hourly granularity. Integrate the report data with Amazon Athena. Use Amazon EventBridge to schedule an Athena query. Configure an Amazon Simple Notification Service (Amazon SNS) topic to receive a notification when a threshold is exceeded.

Question #239Topic 1

A solutions architect needs to design a new microservice for a company's application. Clients must be able to call an HTTPS endpoint to reach the microservice. The microservice also must use AWS Identity and Access Management (IAM) to authenticate calls. The solutions architect will write the logic for this microservice by using a single AWS Lambda function that is written in Go 1.x.

Which solution will deploy the function in the MOST operationally efficient way?

- A. Create an Amazon API Gateway REST API. Configure the method to use the Lambda function. Enable IAM authentication on the API.
- B. Create a Lambda function URL for the function. Specify AWS\_IAM as the authentication type.
- C. Create an Amazon CloudFront distribution. Deploy the function to Lambda@Edge. Integrate IAM authentication logic into the Lambda@Edge function.
- D. Create an Amazon CloudFront distribution. Deploy the function to CloudFront Functions. Specify AWS\_IAM as the authentication type.

Question #240Topic 1

A company previously migrated its data warehouse solution to AWS. The company also has an AWS Direct Connect connection. Corporate office users query the data warehouse using a visualization tool. The average size of a query returned by the data warehouse is 50 MB and each webpage sent by the visualization tool is approximately 500 KB. Result sets returned by the data warehouse are not cached.

Which solution provides the LOWEST data transfer egress cost for the company?

- A. Host the visualization tool on premises and query the data warehouse directly over the internet.
- B. Host the visualization tool in the same AWS Region as the data warehouse. Access it over the internet.
- C. Host the visualization tool on premises and query the data warehouse directly over a Direct Connect connection at a location in the same AWS Region.
- D. Host the visualization tool in the same AWS Region as the data warehouse and access it over a Direct Connect connection at a location in the same Region.