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**QUESTION 1**

A company is expanding. The company plans to separate its resources into hundreds of different AWS accounts in multiple AWS Regions. A solutions architect must recommend a solution that denies access to any operations outside of specifically designated Regions.

Which solution will meet these requirements?

- A. Create IAM roles for each account. Create IAM policies with conditional allow permissions that include only approved Regions for the accounts.
- B. Create an organization in AWS Organizations. Create IAM users for each account. Attach a policy to each user to block access to Regions where an account cannot deploy infrastructure.
- C. Launch an AWS Control Tower landing zone. Create OUs and attach SCPs that deny access to run services outside of the approved Regions.
- D. Enable AWS Security Hub in each account. Create controls to specify the Regions where an account can deploy infrastructure.

Correct Answer: C

QUESTION 2

A company is running an application distributed over several Amazon EC2 instances in an Auto Scaling group behind an Application Load Balancer. The security team requires that all application access attempts be made available for analysis. Information about the client IP address, connection type, and user agent must be included.

Which solution will meet these requirements?

- A. Enable EC2 detailed monitoring, and include network logs. Send all logs through Amazon Kinesis Data Firehose to an Amazon Elasticsearch Service (Amazon ES) cluster that the security team uses for analysis.
- B. Enable VPC Flow Logs for all EC2 instance network interfaces. Publish VPC Flow Logs to an Amazon S3 bucket. Have the security team use Amazon Athena to query and analyze the logs.
- C. Enable access logs for the Application Load Balancer, and publish the logs to an Amazon S3 bucket. Have the security team use Amazon Athena to query and analyze the logs.
- D. Enable Traffic Mirroring and specify all EC2 instance network interfaces as the source. Send all traffic information through Amazon Kinesis Data Firehose to an Amazon Elasticsearch Service (Amazon ES) cluster that the security team uses for analysis.

Correct Answer: C

<https://docs.aws.amazon.com/elasticloadbalancing/latest/application/load-balancer-access-logs.html>

QUESTION 3

A company has more than 10,000 sensors that send data to an on-premises Apache Kafka server by using the Message Queuing Telemetry Transport (MQTT) protocol. The on-premises Kafka server transforms the data and then



stores the results as objects in an Amazon S3 bucket

Recently, the Kafka server crashed. The company lost sensor data while the server was being restored. A solutions architect must create a new design on AWS that is highly available and scalable to prevent a similar occurrence.

Which solution will meet these requirements?

- A. Launch two Amazon EC2 instances to host the Kafka server in an active/standby configuration across two Availability Zones. Create a domain name in Amazon Route 53. Create a Route 53 failover policy. Route the sensors to send the data to the domain name.
- B. Migrate the on-premises Kafka server to Amazon Managed Streaming for Apache Kafka (Amazon MSK). Create a Network Load Balancer (NLB) that points to the Amazon MSK broker. Enable NLB health checks. Route the sensors to send the data to the NLB.
- C. Deploy AWS IoT Core, and connect it to an Amazon Kinesis Data Firehose delivery stream. Use an AWS Lambda function to handle data transformation. Route the sensors to send the data to AWS IoT Core.
- D. Deploy AWS IoT Core, and launch an Amazon EC2 instance to host the Kafka server. Configure AWS IoT Core to send the data to the EC2 instance. Route the sensors to send the data to AWS IoT Core.

Correct Answer: C

Because MSK has a maximum number of client connections (1000 per second) and the company has 10,000 sensors, the MSK likely will not be able to handle all connections.

<https://docs.aws.amazon.com/msk/latest/developerguide/limits.html>

QUESTION 4

A security engineer determined that an existing application retrieves credentials to an Amazon RDS for MySQL database from an encrypted file in Amazon S3. For the next version of the application, the security engineer wants to implement

the following application design changes to improve security:

The database must use strong, randomly generated passwords stored in a secure AWS managed service.

The application resources must be deployed through AWS CloudFormation. The application must rotate credentials for the database every 90 days. A solutions architect will generate a CloudFormation template to deploy the application.

Which resources specified in the CloudFormation template will meet the security engineer's requirements with the LEAST amount of operational overhead?

- A. Generate the database password as a secret resource using AWS Secrets Manager. Create an AWS Lambda function resource to rotate the database password. Specify a Secrets Manager RotationSchedule resource to rotate the database password every 90 days.
- B. Generate the database password as a SecureString parameter type using AWS Systems Manager Parameter Store. Create an AWS Lambda function resource to rotate the database password. Specify a Parameter Store RotationSchedule resource to rotate the database password every 90 days.
- C. Generate the database password as a secret resource using AWS Secrets Manager. Create an AWS Lambda function resource to rotate the database password. Create an Amazon EventBridge scheduled rule resource to trigger the Lambda function password rotation every 90 days.



D. Generate the database password as a SecureString parameter type using AWS Systems Manager Parameter Store. Specify an AWS AppSync DataSource resource to automatically rotate the database password every 90 days.

Correct Answer: A

<https://aws.amazon.com/blogs/security/how-to-securely-provide-database-credentials-to-lambda-functions-by-using-aws-secrets-manager/> <https://docs.aws.amazon.com/secretsmanager/latest/userguide/rotating-secrets.html>
https://docs.aws.amazon.com/secretsmanager/latest/userguide/integrating_cloudformation.html

QUESTION 5

A company has an organization in AWS Organizations that includes a separate AWS account for each of the company's departments. Application teams from different departments develop and deploy solutions independently.

The company wants to reduce compute costs and manage costs appropriately across departments. The company also wants to improve visibility into billing for individual departments. The company does not want to lose operational flexibility when the company selects compute resources.

Which solution will meet these requirements?

- A. Use AWS Budgets for each department. Use Tag Editor to apply tags to appropriate resources. Purchase EC2 Instance Savings Plans.
- B. Configure AWS Organizations to use consolidated billing. Implement a tagging strategy that identifies departments. Use SCPs to apply tags to appropriate resources. Purchase EC2 Instance Savings Plans.
- C. Configure AWS Organizations to use consolidated billing. Implement a tagging strategy that identifies departments. Use Tag Editor to apply tags to appropriate resources. Purchase Compute Savings Plans.
- D. Use AWS Budgets for each department. Use SCPs to apply tags to appropriate resources. Purchase Compute Savings Plans.

Correct Answer: C

QUESTION 6

A company wants to containerize a multi-tier web application and move the application from an on-premises data center to AWS. The application includes web, application, and database tiers. The company needs to make the application fault tolerant and scalable. Some frequently accessed data must always be available across application servers. Frontend web servers need session persistence and must scale to meet increases in traffic.

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

- A. Run the application on Amazon Elastic Container Service (Amazon ECS) on AWS Fargate. Use Amazon Elastic File System (Amazon EFS) for data that is frequently accessed between the web and application tiers. Store the frontend web server session data in Amazon Simple Queue Service (Amazon SQS).
- B. Run the application on Amazon Elastic Container Service (Amazon ECS) on Amazon EC2. Use Amazon ElastiCache for Redis to cache frontend web server session data. Use Amazon Elastic Block Store (Amazon EBS) with Multi-Attach on EC2 instances that are distributed across multiple Availability Zones.
- C. Run the application on Amazon Elastic Kubernetes Service (Amazon EKS). Configure Amazon EKS to use managed node groups. Use ReplicaSets to run the web servers and applications. Create an Amazon Elastic File System (Amazon EFS).



EFS) Me system. Mount the EFS file system across all EKS pods to store frontend web server session data.

D. Deploy the application on Amazon Elastic Kubernetes Service (Amazon EKS) Configure Amazon EKS to use managed node groups. Run the web servers and application as Kubernetes deployments in the EKS cluster. Store the frontend web server session data in an Amazon DynamoDB table. Create an Amazon Elastic File System (Amazon EFS) volume that all applications will mount at the time of deployment.

Correct Answer: D

Deploying the application on Amazon EKS with managed node groups simplifies the operational overhead of managing the Kubernetes cluster. Running the web servers and application as Kubernetes deployments ensures that the desired number of pods are always running and can scale up or down as needed. Storing the frontend web server session data in an Amazon DynamoDB table provides a fast, scalable, and durable storage option that can be accessed across multiple Availability Zones. Creating an Amazon EFS volume that all applications will mount at the time of deployment allows the application to share data that is frequently accessed between the web and application tiers. References:

<https://docs.aws.amazon.com/eks/latest/userguide/managed-node-groups.html>

<https://docs.aws.amazon.com/eks/latest/userguide/deployments.html>

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

<https://docs.aws.amazon.com/efs/latest/ug/mounting-fs.html>

QUESTION 7

An AWS customer has a web application that runs on premises. The web application fetches data from a third-party API that is behind a firewall. The third party accepts only one public CIDR block in each client's allow list.

The customer wants to migrate their web application to the AWS Cloud. The application will be hosted on a set of Amazon EC2 instances behind an Application Load Balancer (ALB) in a VPC. The ALB is located in public subnets. The EC2 instances are located in private subnets. NAT gateways provide internet access to the private subnets.

How should a solutions architect ensure that the web application can continue to call the third-party API after the migration?

A. Associate a block of customer-owned public IP addresses to the VPC. Enable public IP addressing for public subnets in the VPC.

B. Register a block of customer-owned public IP addresses in the AWS account. Create Elastic IP addresses from the address block and assign them to the NAT gateways in the VPC.

C. Create Elastic IP addresses from the block of customer-owned IP addresses. Assign the static Elastic IP addresses to the ALB.

D. Register a block of customer-owned public IP addresses in the AWS account. Set up AWS Global Accelerator to use Elastic IP addresses from the address block. Set the ALB as the accelerator endpoint.

Correct Answer: B

When EC2 instances reach third-party API through internet, their private IP addresses will be masked by NAT Gateway public IP address. <https://aws.amazon.com/blogs/networking-and-content-delivery/introducing-bring-your-own-ip-byoipfor-amazon-vpc/>

QUESTION 8

A company wants to improve cost awareness for its Amazon EMR platform. The company has allocated budgets for



each team's Amazon EMR usage When a budgetary threshold is reached a notification should be sent by email to the budget office's distribution list Teams should be able to view their EMR cluster expenses to date A solutions architect needs to create a solution that ensures this policy is proactively and centrally enforced in a multi-account environment

Which combination of steps should the solutions architect take to meet these requirements? (Select TWO.)

- A. Update the AWS CloudFormation template to include the AWS Budgets Budget resource with the NotificationsWithSubscribers property
- B. Implement Amazon CloudWatch dashboards for Amazon EMR usage
- C. Create an EMR bootstrap action that runs at startup that calls the Cost Explorer API to set the budget on the cluster with the GetCostForecast and NotificationsWithSubscribers actions
- D. Create an AWS Service Catalog portfolio for each team. Add each team's Amazon EMR cluster as an AWS CloudFormation template to their Service Catalog portfolio as a Product
- E. Create an Amazon CloudWatch metric for billing Create a custom alert when costs exceed the budgetary threshold.

Correct Answer: BE

QUESTION 9

A utility company wants to collect usage data every 5 minutes from its smart meters to facilitate time-of-use metering. When a meter sends data to AWS, the data is sent to Amazon API Gateway, processed by an AWS Lambda function, and stored in an Amazon DynamoDB table. During the pilot phase, the Lambda functions took from 3 to 5 seconds to complete.

As more smart meters are deployed, the engineers notice the Lambda functions are taking from 1 to 2 minutes to complete. The functions are also increasing in duration as new types of metrics are collected from the devices. There are many ProvisionedThroughputExceededException errors while performing PUT operations on DynamoDB, and there are also many TooManyRequestsException errors from Lambda.

Which combination of changes will resolve these issues? (Choose two.)

- A. Increase the write capacity units to the DynamoDB table.
- B. Increase the memory available to the Lambda functions.
- C. Increase the payload size from the smart meters to send more data.
- D. Stream the data into an Amazon Kinesis data stream from API Gateway and process the data in batches.
- E. Collect data in an Amazon SQS FIFO queue, which triggers a Lambda function to process each message

Correct Answer: AD

QUESTION 10

A developer reports receiving an Error 403: Access Denied message when they try to download an object from an Amazon S3 bucket. The S3 bucket is accessed using an S3 endpoint inside a VPC, and is encrypted with an AWS KMS key. A solutions architect has verified that (he developer is assuming the correct IAM role in the account that allows the object to be downloaded. The S3 bucket policy and the NACL are also valid.



Which additional step should the solutions architect take to troubleshoot this issue?

- A. Ensure that blocking all public access has not been enabled in the S3 bucket.
- B. Verify that the IAM role has permission to decrypt the referenced KMS key.
- C. Verify that the IAM role has the correct trust relationship configured.
- D. Check that local firewall rules are not preventing access to the S3 endpoint.

Correct Answer: B

QUESTION 11

A company is migrating an on-premises content management system (CMS) to AWS Fargate. The company uses the CMS for blog posts that include text, images, and videos. The company has observed that traffic to blog posts drops by more than 80% after the posts are more than 30 days old

The CMS runs on multiple VMs and stores application state on disk. This application state is shared across all instances across multiple Availability Zones. Images and other media are stored on a separate NFS file share. The company needs to reduce the costs of the existing solution while minimizing the impact on performance.

Which combination of steps will meet these requirements MOST cost-effectively? (Select TWO.)

- A. Store media in an Amazon S3 Standard bucket. Create an S3 Lifecycle configuration that transitions objects that are older than 30 days to the S3 Standard-Infrequent Access (S3 Standard-IA) storage class.
- B. Store media on an Amazon Elastic File System (Amazon EFS) volume. Attach the EFS volume to all Fargate instances.
- C. Store application state on an Amazon Elastic File System (Amazon EFS) volume. Attach the EFS volume to all Fargate instances.
- D. Store application state on an Amazon Elastic Block Store (Amazon EBS) volume. Attach the EBS volume to all Fargate instances.
- E. Store media in an Amazon S3 Standard bucket. Create an S3 Lifecycle configuration that transitions objects that are older than 30 days to the S3 Glacier storage class.

Correct Answer: AC

QUESTION 12

A company is planning to migrate its on-premises data analysis application to AWS. The application is hosted across a fleet of servers and requires consistent system time.

The company has established an AWS Direct Connect connection from its on-premises data center to AWS. The company has a high-precision stratum-0 atomic clock network appliance that acts as an NTP source for all on-premises servers.

After the migration to AWS is complete, the clock on all Amazon EC2 instances that host the application must be synchronized with the on-premises atomic clock network appliance.



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

- A. Configure a DHCP options set with the on-premises NTP server address. Assign the options set to the VPC. Ensure that NTP traffic is allowed between AWS and the on-premises networks.
- B. Create a custom AMI to use the Amazon Time Sync Service at 169.254.169.123. Use this AMI for the application. Use AWS Config to audit the NTP configuration.
- C. Deploy a third-party time server from the AWS Marketplace. Configure the time server to synchronize with the on-premises atomic clock network appliance. Ensure that NTP traffic is allowed inbound in the network ACLs for the VPC that contains the third-party server.
- D. Create an IPsec VPN tunnel from the on-premises atomic clock network appliance to the VPC to encrypt the traffic over the Direct Connect connection. Configure the VPC route tables to direct NTP traffic over the tunnel.

Correct Answer: B

QUESTION 13

A solutions architect is designing a publicly accessible web application that is on an Amazon CloudFront distribution with an Amazon S3 website endpoint as the origin. When the solution is deployed, the website returns an Error 403: Access Denied message.

Which steps should the solutions architect take to correct the issue? (Select TWO.)

- A. Remove the S3 block public access option from the S3 bucket.
- B. Remove the requester pays option from the S3 bucket.
- C. Remove the origin access identity (OAI) from the CloudFront distribution.
- D. Change the storage class from S3 Standard to S3 One Zone-Infrequent Access (S3 One Zone-IA).
- E. Disable S3 object versioning.

Correct Answer: AB

See using S3 to host a static website with Cloudfront: <https://aws.amazon.com/premiumsupport/knowledge-center/cloudfront-serve-static-website/>

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Using a REST API endpoint as the origin, with access restricted by an origin access identity (OAI)

-

Using a website endpoint as the origin, with anonymous (public) access allowed

-

Using a website endpoint as the origin, with access restricted by a Referer header

QUESTION 14



A company runs a popular web application in an on-premises data center. The application receives four million views weekly. The company expects traffic to increase by 200% because of an advertisement that will be published soon. The company needs to decrease the load on the origin before the increase of traffic occurs. The company does not have enough time to move the entire application to the AWS Cloud.

Which solution will meet these requirements?

- A. Create an Amazon CloudFront content delivery network (CDN). Enable query forwarding to the origin. Create a managed cache policy that includes query strings. Use an on- premises load balancer as the origin. Offload the DNS querying to AWS to handle CloudFront CDN traffic.
- B. Create an Amazon CloudFront content delivery network (CDN) that uses a Real Time Messaging Protocol (RTMP) distribution. Enable query forwarding to the origin. Use an on- premises load balancer as the origin. Offload the DNS querying to AWS to handle CloudFront CDN traffic.
- C. Create an accelerator in AWS Global Accelerator. Add listeners for HTTP and HTTPS TCP ports. Create an endpoint group. Create a Network Load Balancer (NLB), and attach it to the endpoint group. Point the NLB to the on-premises servers. Offload the DNS querying to AWS to handle AWS Global Accelerator traffic.
- D. Create an accelerator in AWS Global Accelerator. Add listeners for HTTP and HTTPS TCP ports. Create an endpoint group. Create an Application Load Balancer (ALB), and attach it to the endpoint group. Point the ALB to the on-premises servers. Offload the DNS querying to AWS to handle AWS Global Accelerator traffic.

Correct Answer: D

QUESTION 15

A fleet of Amazon ECS instances is used to poll an Amazon SQS queue and update items in an Amazon DynamoDB database. Items in the table are not being updated, and the SQS queue is filling up. Amazon CloudWatch Logs are showing consistent 400 errors when attempting to update the table. The provisioned write capacity units are appropriately configured, and no throttling is occurring.

What is the LIKELY cause of the failure?

- A. The ECS service was deleted
- B. The ECS configuration does not contain an Auto Scaling group
- C. The ECS instance task execution IAM role was modified
- D. The ECS task role was modified

Correct Answer: D

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