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Amazon AWS SAP-C02

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## Topic Break Down

Topic	No. of Questions
Topic 1, Exam Pool A	143
Topic 2, Exam Pool B	278
<b>Total</b>	<b>421</b>

## QUESTION NO: 1

A company's site reliability engineer is performing a review of Amazon FSx for Windows File Server deployments within an account that the company acquired. Company policy states that all Amazon FSx file systems must be configured to be highly available across Availability Zones.

During the review, the site reliability engineer discovers that one of the Amazon FSx file systems used a deployment type of Single-AZ. A solutions architect needs to minimize downtime while aligning this Amazon FSx file system with company policy.

What should the solutions architect do to meet these requirements?

- A.** Reconfigure the deployment type to Multi-AZ for this Amazon FSx file system
- B.** Create a new Amazon FSx file system with a deployment type of Multi-AZ. Use AWS DataSync to transfer data to the new Amazon FSx file system. Point users to the new location
- C.** Create a second Amazon FSx file system with a deployment type of Single-AZ. Use AWS DataSync to keep the data in sync. Switch users to the second Amazon FSx file system in the event of failure
- D.** Use the AWS Management Console to take a backup of the Amazon FSx file system. Create a new Amazon FSx file system with a deployment type of Multi-AZ. Restore the backup to the new Amazon FSx file system. Point users to the new location.

**ANSWER: B**

## QUESTION NO: 2

A company wants to migrate its workloads from on-premises to AWS. The workloads run on Linux and Windows. The company has a large on-premises infrastructure that consists of physical machines and VMs that host numerous applications.

The company must capture details about the system configuration, system performance, running processes, and network connections of its on-premises infrastructure. The company also must divide the on-premises applications into groups for AWS migrations. The company needs recommendations for Amazon EC2 instance types so that the company can run its workloads on AWS in the most cost-effective manner.

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

- A.** Assess the existing applications by installing AWS Application Discovery Agent on the physical machines and VMs. The AWS Application Discovery Service (ADS) is a service that helps you plan your migration to AWS by identifying the servers and applications running in your on-premises data centers. By installing the ADS agent on your physical machines and VMs, you can collect information about the system configuration, performance metrics, and running processes of your workloads.
- B.** Assess the existing applications by installing AWS Systems Manager Agent on the physical machines and VMs. The AWS Systems Manager Agent (SSM) is a lightweight agent that you can install on your on-premises servers and VMs to collect operational data and automate management tasks such as software inventory and patch management.
- C.** Group servers into applications for migration by using AWS Systems Manager Application Manager.

**D.** Group servers into applications for migration by using AWS Migration Hub.

AWS Migration Hub is a service that provides a central location to track the status of your migration and group servers into applications for migration. This can help you organize your migration effort and ensure that all the necessary steps are taken to migrate each application.

Reference:

**E.** Generate recommended instance types and associated costs by using AWS Migration Hub.

**F.** Import data about server sizes into AWS Trusted Advisor. Follow the recommendations for cost optimization.

**ANSWER: A B D**

**Explanation:**

**A.** The AWS Application Discovery Service (ADF) is a service that helps you plan your migration to AWS by identifying the servers and applications running in your on-premises data centers. By installing the ADF agent on your physical machines and VMs, you can collect information about the system configuration, performance metrics, and running processes of your workloads.

**B.** The AWS Systems Manager Agent (SSM) is a lightweight agent that you can install on your on-premises servers and VMs to collect operational data and automate management tasks such as software inventory and patch management.

**D.** AWS Migration Hub is a service that provides a central location to track the status of your migration and group servers into applications for migration. This can help you organize your migration effort and ensure that all the necessary steps are taken to migrate each application.

Reference:

**QUESTION NO: 3**

A solutions architect needs to review the design of an Amazon EMR cluster that is using the EMR File System (EMRFS). The cluster performs tasks that are critical to business needs. The cluster is running Amazon EC2 On-Demand Instances at all times for all task, master, and core nodes. The EMR tasks run each morning, starting at 1:00 AM, and take 6 hours to finish running. The amount of time to complete the processing is not a priority because the data is not referenced until late in the day.

The solutions architect must review the architecture and suggest a solution to minimize the compute costs.

Which solution should the solutions architect recommend to meet these requirements?

**A.** Launch all task, master, and core nodes on Spot Instances in an instance fleet. Terminate the cluster, including all instances, when the processing is completed.

**B.** Launch the master and core nodes on On-Demand Instances. Launch the task nodes on Spot Instances in an instance fleet. Terminate the cluster, including all instances, when the processing is completed. Purchase Compute Savings Plans to cover the On-Demand Instance usage.

**C.** Continue to launch all nodes on On-Demand Instances. Terminate the cluster, including all instances, when the processing is completed. Purchase Compute Savings Plans to cover the On-Demand Instance usage.

**D.** Launch the master and core nodes on On-Demand Instances. Launch the task nodes on Spot Instances in an instance fleet. Terminate only the task node Instances when the processing is completed. Purchase Compute Savings Plans to cover the On-Demand Instance usage.

**ANSWER: B**

## QUESTION NO: 4

A company is deploying a third-party firewall appliance solution from AWS Marketplace to monitor and protect traffic that leaves the company's AWS environments. The company wants to deploy this appliance into a shared services VPC and route all outbound internet-bound traffic through the appliances.

A solutions architect needs to recommend a deployment method that prioritizes reliability and minimizes failover time between firewall appliances within a single AWS Region. The company has set up routing from the shared services VPC to other VPCs.

Which steps should the solutions architect recommend to meet these requirements? (Select THREE)

- A. Deploy two firewall appliances into the shared services VPC, each in a separate Availability Zone.
- B. Create a new Network Load Balancer in the shared services VPC. Create a new target group, and attach it to the new Network Load Balancer. Add each of the firewall appliance instances to the target group.
- C. Create a new Gateway Load Balancer in the shared services VPC. Create a new target group, and attach it to the new Gateway Load Balancer. Add each of the firewall appliance instances to the target group.
- D. Create a VPC interface endpoint. Add a route to the route table in the shared services VPC. Designate the new endpoint as the next hop for traffic that enters the shared services VPC from other VPCs.
- E. Deploy two firewall appliances into the shared services VPC, each in the same Availability Zone.
- F. Create a VPC Gateway Load Balancer endpoint. Add a route to the route table in the shared services VPC. Designate the new endpoint as the next hop for traffic that enters the shared services VPC from other VPCs.

**ANSWER: A C F**

### Explanation:

<https://docs.aws.amazon.com/vpc/latest/privatelink/vpc-endpoint-services-gwlbe.html>  
<https://docs.aws.amazon.com/vpc/latest/privatelink/vpce-gateway-load-balancer.html>

## QUESTION NO: 5

A company wants to migrate to AWS. The company wants to use a multi-account structure with centrally managed access to all accounts and applications. The company also wants to keep the traffic on a private network. Multi-factor authentication (MFA) is required at login, and specific roles are assigned to user groups.

The company must create separate accounts for development, staging, production, and shared network. The production account and the shared network account must have connectivity to all accounts. The development account and the staging account must have access only to each other.

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

- A. Deploy a landing zone environment by using AWS Control Tower. Enroll accounts and invite existing accounts into the resulting organization in AWS Organizations.

- B.** Enable AWS Security Hub in all accounts to manage cross-account access. Collect findings through AWS CloudTrail to force MFA login.
- C.** Create transit gateways and transit gateway VPC attachments in each account. Configure appropriate route tables.
- D.** Set up and enable AWS IAM Identity Center (AWS Single Sign-On). Create appropriate permission sets with required MFA for existing accounts.
- E.** Enable AWS Control Tower in all Recounts to manage routing between accounts. Collect findings through AWS CloudTrail to force MFA login.
- F.** Create IAM users and groups. Configure MFA for all users. Set up Amazon Cognito user pools and identity pools to manage access to accounts and between accounts.

**ANSWER: B D F**

## QUESTION NO: 6

A company is launching a web-based application in multiple regions around the world The application consists of both static content stored in a private Amazon S3 bucket and dyna ECS containers behind an Application Load Balancer (ALB) The company requires that the static and dynamic application content be accessible through Amazon CloudFront only

Which combination of steps should a solutions architect recommend to restrict direct content access to CloudFront? (Select THREE)

- A.** Create a web ACL in AWS WAF with a rule to validate the presence of a custom header and associate the web ACL with the ALB
- B.** Create a web ACL in AWS WAF with a rule to validate the presence of a custom header and associate the web ACL with the CloudFront distribution
- C.** Configure CloudFront to add a custom header to origin requests
- D.** Configure the ALB to add a custom header to HTTP requests
- E.** Update the S3 bucket ACL to allow access from the CloudFront distribution only
- F.** Create a CloudFront Origin Access Identity (OAI) and add it to the CloudFront distribution Update the S3 bucket policy to allow access to the OAI only

**ANSWER: A C F**

**Explanation:**

<https://aws.amazon.com/blogs/security/how-to-enhance-amazon-cloudfront-origin-security-with-aws-waf-and-aws-secrets-manager/#:~:text=In%20this%20blog%20post%2C%20you,it%20sends%20to%20your%20origin.>

## QUESTION NO: 7

A company is planning to set up a REST API application on AWS. The application team wants to set up a new identity store on AWS The IT team does not want to maintain any infrastructure or servers for this deployment.

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

- A.** Deploy the application as AWS Lambda functions. Set up Amazon API Gateway REST API endpoints for the application. Create a Lambda function, and configure a Lambda authorizer.
- B.** Deploy the application in AWS AppSync, and configure AWS Lambda resolvers. Set up an Amazon Cognito user pool, and configure AWS AppSync to use the user pool for authorization.
- C.** Deploy the application as AWS Lambda functions. Set up Amazon API Gateway REST API endpoints for the application. Set up an Amazon Cognito user pool, and configure an Amazon Cognito authorizer.
- D.** Deploy the application in Amazon Elastic Kubernetes Service (Amazon EKS) clusters. Set up an Application Load Balancer for the EKS pods. Set up an Amazon Cognito user pool and service pod for authentication.

**ANSWER: C**

## QUESTION NO: 8

A company wants to send data from its on-premises systems to Amazon S3 buckets. The company created the S3 buckets in three different accounts. The company must send the data privately without the data traveling across the internet. The company has no existing dedicated connectivity to AWS.

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

- A.** Establish a networking account in the AWS Cloud. Create a private VPC in the networking account. Set up an AWS Direct Connect connection with a private VIF between the on-premises environment and the private VPC.
- B.** Establish a networking account in the AWS Cloud. Create a private VPC in the networking account. Set up an AWS Direct Connect connection with a public VIF between the on-premises environment and the private VPC.
- C.** Create an Amazon S3 interface endpoint in the networking account.
- D.** Create an Amazon S3 gateway endpoint in the networking account.
- E.** Establish a networking account in the AWS Cloud. Create a private VPC in the networking account. Peer VPCs from the accounts that host the S3 buckets with the VPC in the network account.

**ANSWER: A C**

**Explanation:**

<https://aws.amazon.com/premiumsupport/knowledge-center/s3-bucket-access-direct-connect/>

## QUESTION NO: 9

A weather service provides high-resolution weather maps from a web application hosted on AWS in the eu-west-1 Region. The weather maps are updated frequently and stored in Amazon S3 along with static HTML content. The web application is fronted by Amazon CloudFront.

The company recently expanded to serve users in the us-east-1 Region, and these new users report that viewing their respective weather maps is slow from time to time.

Which combination of steps will resolve the us-east-1 performance issues? (Choose two.)

- A. Configure the AWS Global Accelerator endpoint for the S3 bucket in eu-west-1. Configure endpoint groups for TCP ports 80 and 443 in us-east-1.
- B. Create a new S3 bucket in us-east-1. Configure S3 cross-Region replication to synchronize from the S3 bucket in eu-west-1. Most Voted
- C. Use Lambda@Edge to modify requests from North America to use the S3 Transfer Acceleration endpoint in us-east-1.
- D. Use Lambda@Edge to modify requests from North America to use the S3 bucket in us-east-1. Most Voted
- E. Configure the AWS Global Accelerator endpoint for us-east-1 as an origin on the CloudFront distribution. Use Lambda@Edge to modify requests from North America to use the new origin.

**ANSWER: B D**

**Explanation:**

<https://aws.amazon.com/about-aws/whats-new/2016/04/transfer-files-into-amazon-s3-up-to-300-percent-faster/>

## QUESTION NO: 10

The company needs to determine which costs on the monthly AWS bill are attributable to each application or team. The company also must be able to create reports to compare costs from the last 12 months and to help forecast costs for the next 12 months. A solutions architect must recommend an AWS Billing and Cost Management solution that provides these cost reports.

Which combination of actions will meet these requirements? (Select THREE.)

- A. Activate the user-defined cost allocation tags that represent the application and the team.
- B. Activate the AWS generated cost allocation tags that represent the application and the team.
- C. Create a cost category for each application in Billing and Cost Management.
- D. Activate IAM access to Billing and Cost Management.
- E. Create a cost budget.
- F. Enable Cost Explorer.

**ANSWER: A C F**

**Explanation:**

<https://docs.aws.amazon.com/awsaccountbilling/latest/aboutv2/manage-cost-categories.html>

<https://aws.amazon.com/premiumsupport/knowledge-center/cost-explorer-analyze-spending-and-usage/>

<https://docs.aws.amazon.com/awsaccountbilling/latest/aboutv2/manage-cost-categories.html>

<https://docs.aws.amazon.com/cost-management/latest/userguide/ce-enable.html>

The best combination of actions to meet the company's requirements is Options A, C, and F.

Option A involves activating the user-defined cost allocation tags that represent the application and the team. This will allow the company to assign costs to different applications or teams, and will allow them to be tracked in the monthly AWS bill.

Option C involves creating a cost category for each application in Billing and Cost Management. This will allow the company to easily identify and compare costs across different applications and teams.

Option F involves enabling Cost Explorer. This will allow the company to view the costs of their AWS resources over the last 12 months and to create forecasts for the next 12 months.

These recommendations are in line with the official Amazon Textbook and Resources for the AWS Certified Solutions Architect - Professional certification. In particular, the book states that “You can use cost allocation tags to group your costs by application, team, or other categories” (Source: [https://d1.awsstatic.com/training-and-certification/docs-sa-pro/AWS\\_Certified\\_Solutions\\_Architect\\_Professional\\_Exam\\_Guide\\_EN\\_v1.5.pdf](https://d1.awsstatic.com/training-and-certification/docs-sa-pro/AWS_Certified_Solutions_Architect_Professional_Exam_Guide_EN_v1.5.pdf)). Additionally, the book states that “Cost Explorer enables you to view the costs of your AWS resources over the last 12 months and to create forecasts for the next 12 months” (Source: [https://d1.awsstatic.com/training-and-certification/docs-sa-pro/AWS\\_Certified\\_Solutions\\_Architect\\_Professional\\_Exam\\_Guide\\_EN\\_v1.5.pdf](https://d1.awsstatic.com/training-and-certification/docs-sa-pro/AWS_Certified_Solutions_Architect_Professional_Exam_Guide_EN_v1.5.pdf)).

## QUESTION NO: 11

A company has developed an application that is running Windows Server on VMware vSphere VMs that the company hosts or premises. The application data is stored in a proprietary format that must be read through the application. The company manually provisioned the servers and the application.

As part of its disaster recovery plan, the company wants the ability to host its application on AWS temporarily if the company's on-premises environment becomes unavailable. The company wants the application to return to on-premises hosting after a disaster recovery event is complete. The RPO is 15 minutes.

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

- A.** Configure AWS DataSync. Replicate the data to Amazon Elastic Block Store (Amazon EBS) volumes. When the on-premises environment is unavailable, use AWS CloudFormation templates to provision Amazon EC2 instances and attach the EBS volumes.
- B.** Configure CloudEndure Disaster Recovery. Replicate the data to replication Amazon EC2 instances that are attached to Amazon Elastic Block Store (Amazon EBS) volumes. When the on-premises environment is unavailable, use CloudEndure to launch EC2 instances that use the replicated volumes.
- C.** Provision an AWS Storage Gateway File gateway. Recreate the data to an Amazon S3 bucket. When the on-premises environment is unavailable, use AWS Backup to restore the data to Amazon Elastic Block Store (Amazon EBS) volumes and launch Amazon EC2 instances from these EBS volumes.
- D.** Provision an Amazon FSx for Windows File Server file system on AWS. Replicate the data to the file system. When the on-premises environment is unavailable, use AWS CloudFormation templates to provision Amazon EC2 instances and use AWS CloudFormation Init commands to mount the Amazon FSx file shares.

**ANSWER: D**

## QUESTION NO: 12

A company has used infrastructure as code (IaC) to provision a set of two Amazon EC2 instances. The instances have remained the same for several years.

The company's business has grown rapidly in the past few months. In response, the company's operations team has implemented an Auto Scaling group to manage the sudden increases in traffic. Company policy requires a monthly installation of security updates on all operating systems that are running.

The most recent security update required a reboot. As a result the Auto Scaling group terminated the instances and replaced them with new, unpatched instances.

Which combination of steps should a solutions architect recommend to avoid a recurrence of this issue? (Select TWO )

- A. Modify the Auto Scaling group by setting the Update policy to target the oldest launch configuration for replacement.
- B. Create a new Auto Scaling group before the next patch maintenance. During the maintenance window patch both groups and reboot the instances.
- C. Create an Elastic Load Balancer in front of the Auto Scaling group. Configure monitoring to ensure that target group health checks return healthy after the Auto Scaling group replaces the terminated instances.
- D. Create automation scripts to patch an AMI, update the launch configuration, and invoke an Auto Scaling instance refresh.
- E. Create an Elastic Load Balancer in front of the Auto Scaling group. Configure termination protection on the instances.

**ANSWER: A C**

## QUESTION NO: 13

A company is using a lift-and-shift strategy to migrate applications from several on-premises Windows servers to AWS. The Windows servers will be hosted on Amazon EC2 instances in the us-east-1 Region.

The company's security policy allows the installation of migration tools on servers. The migration data must be encrypted in transit and encrypted at rest. The applications are business critical. The company needs to minimize the cutover window and minimize the downtime that results from the migration. The company wants to use Amazon CloudWatch and AWS CloudTrail for monitoring.

Which solution will meet these requirements?

- A. Use AWS Application Migration Service (CloudEndure Migration) to migrate the Windows servers to AWS. Create a Replication Settings template. Install the AWS Replication Agent on the source servers.
- B. Use AWS DataSync to migrate the Windows servers to AWS. Install the DataSync agent on the source servers. Configure a blueprint for the target servers. Begin the replication process.
- C. Use AWS Server Migration Service (AWS SMS) to migrate the Windows servers to AWS. Install the SMS Connector on the source servers. Replicate the source servers to AWS. Convert the replicated volumes to AMIs to launch EC2 instances.
- D. Use AWS Migration Hub to migrate the Windows servers to AWS. Create a project in Migration Hub. Track the progress of server migration by using the built-in dashboard.

**ANSWER: A**

## QUESTION NO: 14

A company is developing a gene reporting device that will collect genomic information to assist researchers with collecting large samples of data from a diverse population. The device will push 8 KB of genomic data every second to a data platform that will need to process and analyze the data and provide information back to researchers. The data platform must meet the following requirements:

- Provide near-real-time analytics of the inbound genomic data
- Ensure the data is flexible, parallel, and durable
- Deliver results of processing to a data warehouse

Which strategy should a solutions architect use to meet these requirements?

- A.** Use Amazon Kinesis Data Firehose to collect the inbound sensor data, analyze the data with Kinesis clients, and save the results to an Amazon RDS instance
- B.** Use Amazon Kinesis Data Streams to collect the inbound sensor data, analyze the data with Kinesis clients, and save the results to an Amazon Redshift cluster using Amazon EMR
- C.** Use Amazon S3 to collect the inbound device data, analyze the data from Amazon S3 with Kinesis, and save the results to an Amazon Redshift cluster
- D.** Use an Amazon API Gateway to put requests into an Amazon SQS queue, analyze the data with an AWS Lambda function, and save the results to an Amazon Redshift cluster using Amazon EMR

**ANSWER: A**

## QUESTION NO: 15

A company is running a three-tier web application in an on-premises data center. The frontend is served by an Apache web server, the middle tier is a monolithic Java application, and the storage tier is a PostgreSQL database.

During a recent marketing promotion, customers could not place orders through the application because the application crashed. An analysis showed that all three tiers were overloaded. The application became unresponsive, and the database reached its capacity limit because of read operations. The company already has several similar promotions scheduled in the near future.

A solutions architect must develop a plan for migration to AWS to resolve these issues. The solution must maximize scalability and must minimize operational effort.

Which combination of steps will meet these requirements? (Select THREE.)

- A.** Refactor the frontend so that static assets can be hosted on Amazon S3. Use Amazon CloudFront to serve the frontend to customers. Connect the frontend to the Java application.
- B.** Rehost the Apache web server of the frontend on Amazon EC2 instances that are in an Auto Scaling group. Use a load balancer in front of the Auto Scaling group. Use Amazon Elastic File System (Amazon EFS) to host the static assets that the Apache web server needs.
- C.** Rehost the Java application in an AWS Elastic Beanstalk environment that includes auto scaling.
- D.** Refactor the Java application. Develop a Docker container to run the Java application. Use AWS Fargate to host the container.

E. Use AWS Database Migration Service (AWS DMS) to replatform the PostgreSQL database to an Amazon Aurora PostgreSQL database. Use Aurora Auto Scaling for read replicas.

F. Rehost the PostgreSQL database on an Amazon EC2 instance that has twice as much memory as the on-premises server.

**ANSWER: B C F**

## QUESTION NO: 16

To abide by industry regulations, a solutions architect must design a solution that will store a company's critical data in multiple public AWS Regions, including in the United States, where the company's headquarters is located. The solutions architect is required to provide access to the data stored in AWS to the company's global WAN network. The security team mandates that no traffic accessing this data should traverse the public internet.

How should the solutions architect design a highly available solution that meets the requirements and is cost-effective?

**A.** Establish AWS Direct Connect connections from the company headquarters to all AWS Regions in use. Use the company WAN to send traffic over to the headquarters and then to the respective DX connection to access the data.

**B.** Establish two AWS Direct Connect connections from the company headquarters to an AWS Region. Use the company WAN to send traffic over a DX connection. Use inter-region VPC peering to access the data in other AWS Regions.

**C.** Establish two AWS Direct Connect connections from the company headquarters to an AWS Region. Use the company WAN to send traffic over a DX connection. Use an AWS transit VPC solution to access data in other AWS Regions.

**D.** Establish two AWS Direct Connect connections from the company headquarters to an AWS Region. Use the company WAN to send traffic over a DX connection. Use Direct Connect Gateway to access data in other AWS Regions.

**ANSWER: D**

### Explanation:

This feature also allows you to connect to any of the participating VPCs from any Direct Connect location, further reducing your costs for making using AWS services on a cross-region basis. <https://aws.amazon.com/blogs/aws/new-aws-direct-connect-gateway-inter-region-vpc-access/>

<https://docs.aws.amazon.com/whitepapers/latest/aws-vpc-connectivity-options/aws-direct-connect-aws-transit-gateway.html>

## QUESTION NO: 17

A travel company built a web application that uses Amazon Simple Email Service (Amazon SES) to send email notifications to users. The company needs to enable logging to help troubleshoot email delivery issues. The company also needs the ability to do searches that are based on recipient, subject, and time sent.

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

**A.** Create an Amazon SES configuration set with Amazon Kinesis Data Firehose as the destination. Choose to send logs to an Amazon S3 bucket.

**B.** Enable AWS CloudTrail logging. Specify an Amazon S3 bucket as the destination for the logs.

- C. Use Amazon Athena to query the logs in the Amazon S3 bucket for recipient, subject, and time sent.
- D. Create an Amazon CloudWatch log group. Configure Amazon SES to send logs to the log group
- E. Use Amazon Athena to query the logs in Amazon CloudWatch for recipient, subject, and time sent.

**ANSWER: A C**

**Explanation:**

<https://docs.aws.amazon.com/ses/latest/dg/event-publishing-retrieving-firehose.html>

To enable you to track your email sending at a granular level, you can set up Amazon SES to publish email sending events to Amazon CloudWatch, Amazon Kinesis Data Firehose, or Amazon Simple Notification Service based on characteristics that you define. <https://docs.aws.amazon.com/ses/latest/dg/monitor-using-event-publishing.html>

<https://aws.amazon.com/getting-started/hands-on/build-serverless-real-time-data-processing-app-lambda-kinesis-s3-dynamodb-cognito-athena/4/#:~:text=Amazon%20Athena%20allows%20us%20to,to%20an%20Amazon%20S3%20bucket.>

**QUESTION NO: 18**

A company is running an event ticketing platform on AWS and wants to optimize the platform's cost-effectiveness. The platform is deployed on Amazon Elastic Kubernetes Service (Amazon EKS) with Amazon EC2 and is backed by an Amazon RDS for MySQL DB instance. The company is developing new application features to run on Amazon EKS with AWS Fargate.

The platform experiences infrequent high peaks in demand. The surges in demand depend on event dates.

Which solution will provide the MOST cost-effective setup for the platform?

- A.** Purchase Standard Reserved Instances for the EC2 instances that the EKS cluster uses in its baseline load. Scale the cluster with Spot Instances to handle peaks. Purchase 1-year All Upfront Reserved Instances for the database to meet predicted peak load for the year.
- B.** Purchase Compute Savings Plans for the predicted medium load of the EKS cluster. Scale the cluster with On-Demand Capacity Reservations based on event dates for peaks. Purchase 1-year No Upfront Reserved Instances for the database to meet the predicted base load. Temporarily scale out database read replicas during peaks.
- C.** Purchase EC2 Instance Savings Plans for the predicted base load of the EKS cluster. Scale the cluster with Spot Instances to handle peaks. Purchase 1-year All Upfront Reserved Instances for the database to meet the predicted base load. Temporarily scale up the DB instance manually during peaks.
- D.** Purchase Compute Savings Plans for the predicted base load of the EKS cluster. Scale the cluster with Spot Instances to handle peaks. Purchase 1-year All Upfront Reserved Instances for the database to meet the predicted base load. Temporarily scale up the DB instance manually during peaks.

**ANSWER: B**

**Explanation:**

They all mention using spot instances and EKS based on EC2. A spot instance is not appropriate for a production server and the company is developing new application designed for AWS Fargate, which means we must plan the future cost improvement including AWS Fargate. <https://aws.amazon.com/savingsplans/compute-pricing/>

## QUESTION NO: 19

A flood monitoring agency has deployed more than 10,000 water-level monitoring sensors. Sensors send continuous data updates, and each update is less than 1 MB in size. The agency has a fleet of on-premises application servers. These servers receive updates from the sensors, convert the raw data into a human readable format, and write the results to an on-premises relational database server. Data analysts then use simple SQL queries to monitor the data.

The agency wants to increase overall application availability and reduce the effort that is required to perform maintenance tasks. These maintenance tasks, which include updates and patches to the application servers, cause downtime. While an application server is down, data is lost from sensors because the remaining servers cannot handle the entire workload.

The agency wants a solution that optimizes operational overhead and costs. A solutions architect recommends the use of AWS IoT Core to collect the sensor data.

What else should the solutions architect recommend to meet these requirements?

- A.** Send the sensor data to Amazon Kinesis Data Firehose. Use an AWS Lambda function to read the Kinesis Data Firehose data, convert it to .csv format, and insert it into an Amazon Aurora MySQL DB Instance. Instruct the data analysts to query the data directly from the DB Instance.
- B.** Send the sensor data to Amazon Kinesis Data Firehose. Use an AWS Lambda function to read the Kinesis Data Firehose data, convert it to Apache Parquet format, and save it to an Amazon S3 bucket. Instruct the data analysts to query the data by using Amazon Athena.
- C.** Send the sensor data to an Amazon Kinesis Data Analytics application to convert the data to csv format and store it in an Amazon S3 bucket. Import the data into an Amazon Aurora MySQL DB instance. Instruct the data analysts to query the data directly from the DB instance.
- D.** Send the sensor data to an Amazon Kinesis Data Analytics application to convert the data to Apache Parquet format and store it in an Amazon S3 bucket. Instruct the data analysts to query the data by using Amazon Athena.

**ANSWER: B**

## QUESTION NO: 20

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A solutions architect has been assigned to migrate a 50 TB Oracle data warehouse that contains sales data from on-premises to Amazon Redshift. Major updates to the sales data occur on the final calendar day of the month. For the remainder of the month, the data warehouse only receives minor daily updates and is primarily used for reading and reporting. Because of this, the migration process must start on the first day of the month and must be complete before the next set of updates occur. This provides approximately 30 days to complete the migration and ensure that the minor daily changes have been synchronized with the Amazon Redshift data warehouse. Because the migration cannot impact normal business network operations, the bandwidth allocated to the migration for moving data over the internet is 50 Mbps. The company wants to keep data migration costs low.

Which steps will allow the solutions architect to perform the migration within the specified timeline?

- A.** Install Oracle database software on an Amazon EC2 instance. Configure VPN connectivity between AWS and the company's data center. Configure the Oracle database running on Amazon EC2 to join the Oracle Real Application Clusters (RAC). When the Oracle database on Amazon EC2 finishes synchronizing, create an AWS DMS ongoing replication task to migrate the data from the Oracle database on Amazon EC2 to Amazon Redshift. Verify the data migration is complete and perform the cut over to Amazon Redshift.

**B.** Create an AWS Snowball import job Export a backup of the Oracle data warehouse Copy the exported data to the Snowball device Return the Snowball device to AWS Create an Amazon RDS for Oracle database and restore the backup file to that RDS instance Create an AWS DMS task to migrate the data from the RDS for Oracle database to Amazon Redshift Copy daily incremental backups from Oracle in the data center to the RDS for Oracle database over the internet Verify the data migration is complete and perform the cut over to Amazon Redshift.

**C.** Install Oracle database software on an Amazon EC2 instance To minimize the migration time configure VPN connectivity between AWS and the company's data center by provisioning a 1 Gbps AWS Direct Connect connection Configure the Oracle database running on Amazon EC2 to be a read replica of the data center Oracle database Start the synchronization process between the company's on-premises data center and the Oracle database on Amazon EC2 When the Oracle database on Amazon EC2 is synchronized with the on-premises database create an AWS DMS ongoing replication task from the Oracle database read replica that is running on Amazon EC2 to Amazon Redshift Verify the data migration is complete and perform the cut over to Amazon Redshift.

**D.** Create an AWS Snowball import job. Configure a server in the company's data center with an extraction agent. Use AWS SCT to manage the extraction agent and convert the Oracle schema to an Amazon Redshift schema. Create a new project in AWS SCT using the registered data extraction agent. Create a local task and an AWS DMS task in AWS SCT with replication of ongoing changes. Copy data to the Snowball device and return the Snowball device to AWS. Allow AWS DMS to copy data from Amazon S3 to Amazon Redshift. Verify that the data migration is complete and perform the cut over to Amazon Redshift.

**ANSWER: D**

### Explanation:

Create an AWS Snowball import job. Configure a server in the company's data center with an extraction agent. Use AWS SCT to manage the extraction agent and convert the Oracle schema to an Amazon Redshift schema. Create a new project in AWS SCT using the registered data extraction agent. Create a local task and an AWS DMS task in AWS SCT with replication of ongoing changes. Copy data to the Snowball device and return the Snowball device to AWS. Allow AWS DMS to copy data from Amazon S3 to Amazon Redshift. Verify that the data migration is complete and perform the cut over to Amazon Redshift.

<https://aws.amazon.com/getting-started/hands-on/migrate-oracle-to-amazon-redshift/>