Exam Questions AWS-Certified-Data-Engineer-Associate

AWS Certified Data Engineer - Associate (DEA-C01)

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NEW QUESTION 1
A data engineer needs to join data from multiple sources to perform a one-time analysis job. The data is stored in Amazon DynamoDB, Amazon RDS, Amazon Redshift, and Amazon S3.
Which solution will meet this requirement MOST cost-effectively?

A. Use an Amazon EMR provisioned cluster to read from all source
B. Use Apache Spark to join the data and perform the analysis.
C. Copy the data from DynamoDB, Amazon RDS, and Amazon Redshift into Amazon S3. Run Amazon Athena queries directly on the S3 files.
D. Use Amazon Athena Federated Query to join the data from all data sources.
E. Use Redshift Spectrum to query data from DynamoDB, Amazon RDS, and Amazon S3 directly from Redshift.

Answer: C

Explanation:
Amazon Athena Federated Query is a feature that allows you to query data from multiple sources using standard SQL. You can use Athena Federated Query to join data from Amazon DynamoDB, Amazon RDS, Amazon Redshift, and Amazon S3, as well as other data sources such as MongoDB, Apache HBase, and Apache Kafka1. Athena Federated Query is a serverless and interactive service, meaning you do not need to provision or manage any infrastructure, and you only pay for the amount of data scanned by your queries. Athena Federated Query is the most cost-effective solution for performing a one-time analysis job on data from multiple sources, as it eliminates the need to copy or move data, and allows you to query data directly from the source.
The other options are not as cost-effective as Athena Federated Query, as they involve additional steps or costs. Option A requires you to provision and pay for an Amazon EMR cluster, which can be expensive and time-consuming for a one-time job. Option B requires you to copy or move data from DynamoDB, RDS, and Redshift to S3, which can incur additional costs for data transfer and storage, and also introduce latency and complexity. Option D requires you to have an existing Redshift cluster, which can be costly and may not be necessary for a one-time job. Option D also does not supportquerying data from RDS directly, so you would need to use Redshift Federated Query to access RDS data, which adds another layer of complexity2. References:
? Amazon Athena Federated Query
? Redshift Spectrum vs Federated Query

NEW QUESTION 2
A company uses Amazon Athena for one-time queries against data that is in Amazon S3. The company has several use cases. The company must implement permission controls to separate query processes and access to query history among users, teams, and applications that are in the same AWS account.
Which solution will meet these requirements?

A. Create an S3 bucket for each use cas
B. Create an S3 bucket policy that grants permissions to appropriate individual IAM user
C. Apply the S3 bucket policy to the S3 bucket.
D. Create an Athena workgroup for each use cas
E. Apply tags to the workgrou
F. Create an 1AM policy that uses the tags to apply appropriate permissions to the workgroup.
G. Create an JAM role for each use cas
H. Assign appropriate permissions to the role for each use cas
I. Associate the role with Athena.
J. Create an AWS Glue Data Catalog resource policy that grants permissions to appropriate individual IAM users for each use cas
K. Apply the resource policy to the specific tables that Athena uses.

Answer: B

Explanation:
Athena workgroups are a way to isolate query execution and query history among users, teams, and applications that share the same AWS account. By creating a workgroup for each use case, the company can control the access and actions on the workgroup resource using resource-level IAM permissions or identity-based IAM policies. The company can also use tags to organize and identify the workgroups, and use them as conditions in the IAM policies to grant or deny permissions to the workgroup. This solution meets the requirements of separating query processes and access to query history among users, teams, and applications that are in the same AWS account. References:
? Athena Workgroups
? IAM policies for accessing workgroups
? Workgroup example policies

NEW QUESTION 3
A media company uses software as a service (SaaS) applications to gather data by using third-party tools. The company needs to store the data in an Amazon S3 bucket. The company will use Amazon Redshift to perform analytics based on the data.
Which AWS service or feature will meet these requirements with the LEAST operational overhead?

A. Amazon Managed Streaming for Apache Kafka (Amazon MSK)
B. Amazon AppFlow
C. AWS Glue Data Catalog
D. Amazon Kinesis

Answer: B

Explanation:
Amazon AppFlow is a fully managed integration service that enables you to securely transfer data between SaaS applications and AWS services like Amazon S3 and AmazonRedshift. Amazon AppFlow supports many SaaS applications as data sources and targets, and allows you to configure data flows with a few clicks. Amazon AppFlow also provides features such as data transformation, filtering, validation, and encryption to prepare and protect your data. Amazon AppFlow meets the requirements of the media company with the least operational overhead, as it eliminates the need to write code, manage infrastructure, or monitor data pipelines. References:
? Amazon AppFlow
? Amazon AppFlow | SaaS Integrations List
? Get started with data integration from Amazon S3 to Amazon Redshift using AWS Glue interactive sessions

NEW QUESTION 4
A company uses AWS Step Functions to orchestrate a data pipeline. The pipeline consists of Amazon EMR jobs that ingest data from data sources and store the data in an Amazon S3 bucket. The pipeline also includes EMR jobs that load the data to Amazon Redshift.
The company's cloud infrastructure team manually built a Step Functions state machine. The cloud infrastructure team launched an EMR cluster into a VPC to support the EMR jobs. However, the deployed Step Functions state machine is not able to run the EMR jobs.
Which combination of steps should the company take to identify the reason the Step Functions state machine is not able to run the EMR jobs? (Choose two.)

A. Use AWS CloudFormation to automate the Step Functions state machine deploymen
B. Create a step to pause the state machine during the EMR jobs that fai
C. Configure the step to wait for a human user to send approval through an email messag
D. Include details of the EMR task in the email message for further analysis.
E. Verify that the Step Functions state machine code has all IAM permissions that are necessary to create and run the EMR job
F. Verify that the Step Functions state machine code also includes IAM permissions to access the Amazon S3 buckets that the EMR jobs us
G. Use Access Analyzer for S3 to check the S3 access properties.
H. Check for entries in Amazon CloudWatch for the newly created EMR cluste
I. Change the AWS Step Functions state machine code to use Amazon EMR on EK
J. Change the IAM access policies and the security group configuration for the Step Functions state machine code to reflect inclusion of Amazon Elastic Kubernetes Service (Amazon EKS).
K. Query the flow logs for the VP
L. Determine whether the traffic that originates from the EMR cluster can successfully reach the data provider
M. Determine whether any security group that might be attached to the Amazon EMR cluster allows connections to the data source servers on the informed ports.
N. Check the retry scenarios that the company configured for the EMR job
O. Increase the number of seconds in the interval between each EMR tas
P. Validate that each fallback state has the appropriate catch for each decision stat
Q. Configure an Amazon Simple Notification Service (Amazon SNS) topic to store the error messages.

Answer: BD

Explanation:
To identify the reason why the Step Functions state machine is not able to run the EMR jobs, the company should take the following steps:
? Verify that the Step Functions state machine code has all IAM permissions that are necessary to create and run the EMR jobs. The state machine code should have an IAM role that allows it to invoke the EMR APIs, such as RunJobFlow, AddJobFlowSteps, and DescribeStep. The state machine code should also have IAM permissions to access the Amazon S3 buckets that the EMR jobs use as input and output locations. The company can use Access Analyzer for S3 to check the access policies and permissions of the S3 buckets12. Therefore, option B is correct.
? Query the flow logs for the VPC. The flow logs can provide information about the network traffic to and from the EMR cluster that is launched in the VPC. The company can use the flow logs to determine whether the traffic that originates from the EMR cluster can successfully reach the data providers, such as Amazon RDS, Amazon Redshift, or other external sources. The company can also determine whether any security group that might be attached to the EMR cluster allows connections to the data source servers on the informed ports. The company can use Amazon VPC Flow Logs or Amazon CloudWatch Logs Insights to query the flow logs3 . Therefore, option D is correct.
Option A is incorrect because it suggests using AWS CloudFormation to automate the Step Functions state machine deployment. While this is a good practice to ensure consistency and repeatability of the deployment, it does not help to identify the reasonwhy the state machine is not able to run the EMR jobs. Moreover, creating a step to pause the state machine during the EMR jobs that fail and wait for a human user to send approval through an email message is not a reliable way to troubleshoot the issue. The company should use the Step Functions console or API to monitor the execution history and status of the state machine, and use Amazon CloudWatch to view the logs and metrics of the EMR jobs . Option C is incorrect because it suggests changing the AWS Step Functions state machine code to use Amazon EMR on EKS. Amazon EMR on EKS is a service that allows you to run EMR jobs on Amazon Elastic Kubernetes Service (Amazon EKS) clusters. While this service has some benefits, such as lower cost and faster execution time, it does not support all the features and integrations that EMR on EC2 does, such as EMR Notebooks, EMR Studio, and EMRFS. Therefore, changing the state machine code to use EMR on EKS may not be compatible with the existing data pipeline and may introduce new issues. Option E is incorrect because it suggests checking the retry scenarios that the company configured for the EMR jobs. While this is a good practice to handle transient failures and errors, it does not help to identify the root cause of why the state machine is not able to run the EMR jobs. Moreover, increasing the number of seconds in the interval between each EMR task may not improve the success rate of the jobs, and may increase the execution time and cost of the state machine. Configuring an Amazon SNS topic to store the error messages may help to notify the company of any failures, but it does not provide enough information to troubleshoot the issue.
References:
? 1: Manage an Amazon EMR Job - AWS Step Functions
? 2: Access Analyzer for S3 - Amazon Simple Storage Service
? 3: Working with Amazon EMR and VPC Flow Logs - Amazon EMR
? [4]: Analyzing VPC Flow Logs with Amazon CloudWatch Logs Insights - Amazon Virtual Private Cloud
? [5]: Monitor AWS Step Functions - AWS Step Functions
? [6]: Monitor Amazon EMR clusters - Amazon EMR
? [7]: Amazon EMR on Amazon EKS - Amazon EMR

NEW QUESTION 5
A data engineer is configuring Amazon SageMaker Studio to use AWS Glue interactive sessions to prepare data for machine learning (ML) models.
The data engineer receives an access denied error when the data engineer tries to prepare the data by using SageMaker Studio.
Which change should the engineer make to gain access to SageMaker Studio?

A. Add the AWSGlueServiceRole managed policy to the data engineer's IAM user.
B. Add a policy to the data engineer's IAM user that includes the sts:AssumeRole action for the AWS Glue and SageMaker service principals in the trust policy.
C. Add the AmazonSageMakerFullAccess managed policy to the data engineer's IAM user.
D. Add a policy to the data engineer's IAM user that allows the sts:AddAssociation action for the AWS Glue and SageMaker service principals in the trust policy.

Answer: B

Explanation:
This solution meets the requirement of gaining access to SageMaker Studio to use AWS Glue interactive sessions. AWS Glue interactive sessions are a way to use AWS Glue DataBrew and AWS Glue Data Catalog from within SageMaker Studio. To use AWS Glue interactive sessions, the data engineer’s IAM user needs to have permissions to assume the AWS Glue service role and the SageMaker execution role. By adding a policy to the data engineer’s IAM user that includes the sts:AssumeRole action for the AWS Glue and SageMaker service principals in the trust policy, the data engineer can grant these permissions and avoid the access denied error. The other options are not sufficient or necessary to resolve the error. References:
? Get started with data integration from Amazon S3 to Amazon Redshift using AWS Glue interactive sessions
? Troubleshoot Errors - Amazon SageMaker
? AccessDeniedException on sagemaker:CreateDomain in AWS SageMaker Studio, despite having SageMakerFullAccess

NEW QUESTION 6
A data engineer needs to schedule a workflow that runs a set of AWS Glue jobs every day. The data engineer does not require the Glue jobs to run or finish at a specific time.
Which solution will run the Glue jobs in the MOST cost-effective way?

A. Choose the FLEX execution class in the Glue job properties.
B. Use the Spot Instance type in Glue job properties.
C. Choose the STANDARD execution class in the Glue job properties.
D. Choose the latest version in the GlueVersion field in the Glue job properties.

Answer: A

Explanation:
The FLEX execution class allows you to run AWS Glue jobs on spare compute capacity instead of dedicated hardware. This can reduce the cost of running non-urgent or non-time sensitive data integration workloads, such as testing and one-time data loads. The FLEX execution class is available for AWS Glue 3.0 Spark jobs. The other options are not as cost-effective as FLEX, because they either use dedicated resources (STANDARD) or do not affect the cost at all (Spot Instance type and GlueVersion). References:
? Introducing AWS Glue Flex jobs: Cost savings on ETL workloads
? Serverless Data Integration – AWS Glue Pricing
? AWS Certified Data Engineer - Associate DEA-C01 Complete Study Guide (Chapter 5, page 125)

NEW QUESTION 7
A company's data engineer needs to optimize the performance of table SQL queries. The company stores data in an Amazon Redshift cluster. The data engineer cannot increase the size of the cluster because of budget constraints.
The company stores the data in multiple tables and loads the data by using the EVEN distribution style. Some tables are hundreds of gigabytes in size. Other tables are less than 10 MB in size.
Which solution will meet these requirements?

A. Keep using the EVEN distribution style for all table
B. Specify primary and foreign keys for all tables.
C. Use the ALL distribution style for large table
D. Specify primary and foreign keys for all tables.
E. Use the ALL distribution style for rarely updated small table
F. Specify primary and foreign keys for all tables.
G. Specify a combination of distribution, sort, and partition keys for all tables.

Answer: C

Explanation:
This solution meets the requirements of optimizing the performance of table SQL queries without increasing the size of the cluster. By using the ALL distribution style for rarely updated small tables, you can ensure that the entire table is copied to every node in the cluster, which eliminates the need for data redistribution during joins. This can improve query performance significantly, especially for frequently joined dimension tables. However, using the ALL distribution style also increases the storage space and the load time, so it is only suitable for small tables that are not updated frequently orextensively. By specifying primary and foreign keys for all tables, you can help the query optimizer to generate better query plans and avoid unnecessary scans or joins. You can also use the AUTO distribution style to let Amazon Redshift choose the optimal distribution style based on the table size and the query patterns. References:
? Choose the best distribution style
? Distribution styles
? Working with data distribution styles

NEW QUESTION 8
A company uses Amazon S3 to store semi-structured data in a transactional data lake. Some of the data files are small, but other data files are tens of terabytes.
A data engineer must perform a change data capture (CDC) operation to identify changed data from the data source. The data source sends a full snapshot as a JSON file every day and ingests the changed data into the data lake.
Which solution will capture the changed data MOST cost-effectively?

A. Create an AWS Lambda function to identify the changes between the previous data and the current dat
B. Configure the Lambda function to ingest the changes into the data lake.
C. Ingest the data into Amazon RDS for MySQ
D. Use AWS Database Migration Service (AWS DMS) to write the changed data to the data lake.
E. Use an open source data lake format to merge the data source with the S3 data lake to insert the new data and update the existing data.
F. Ingest the data into an Amazon Aurora MySQL DB instance that runs Aurora Serverles
G. Use AWS Database Migration Service (AWS DMS) to write the changed data to the data lake.

Answer: C

Explanation:
An open source data lake format, such as Apache Parquet, Apache ORC, or Delta Lake, is a cost-effective way to perform a change data capture (CDC) operation on semi-structured data stored in Amazon S3. An open source data lake format allows you to query data directly from S3 using standard SQL, without the need to move or copy data to another service. An open source data lake format also supports schema evolution, meaning it can handle changes in the data structure over time. An open source data lake format also supports upserts, meaning it can insert new data and update existing data in the same operation, using a merge command. This way, you can efficiently capture the changes from the data source and apply them to the S3 data lake, without duplicating or losing any data. The other options are not as cost-effective as using an open source data lake format, as they involve additional steps or costs. Option A requires you to create and maintain an AWS Lambda function, which can be complex and error-prone. AWS Lambda also has some limits on the execution time, memory, and concurrency, which can affect the performance and reliability of the CDC operation. Option B and D require you to ingest the data into a relational database service, such as Amazon RDS or Amazon Aurora, which can be expensive and unnecessary for semi-structured data. AWS Database Migration Service (AWS DMS) can write the changed data to the data lake, but it alsocharges you for the data replication and transfer. Additionally, AWS DMS does not support JSON as a source data type, so you would need to convert the data to a supported format before using AWS DMS. References:
? What is a data lake?
? Choosing a data format for your data lake
? Using the MERGE INTO command in Delta Lake

? [AWS Lambda quotas]
? [AWS Database Migration Service quotas]

NEW QUESTION 9
A company created an extract, transform, and load (ETL) data pipeline in AWS Glue. A data engineer must crawl a table that is in Microsoft SQL Server. The data engineer needs to extract, transform, and load the output of the crawl to an Amazon S3 bucket. The data engineer also must orchestrate the data pipeline.
Which AWS service or feature will meet these requirements MOST cost-effectively?

A. AWS Step Functions
B. AWS Glue workflows
C. AWS Glue Studio
D. Amazon Managed Workflows for Apache Airflow (Amazon MWAA)

Answer: B

Explanation:
AWS Glue workflows are a cost-effective way to orchestrate complex ETL jobs that involve multiple crawlers, jobs, and triggers. AWS Glue workflows allow you to visually monitor the progress and dependencies of your ETL tasks, and automatically handle errors and retries. AWS Glue workflows also integrate with other AWS services, such as Amazon S3, Amazon Redshift, and AWS Lambda, among others, enabling you to leverage these services for your data processing workflows. AWS Glue workflows are serverless, meaning you only pay for the resources you use, and you don't have to manage any infrastructure.
AWS Step Functions, AWS Glue Studio, and Amazon MWAA are also possible options for orchestrating ETL pipelines, but they have some drawbacks compared to AWS Glue workflows. AWS Step Functions is a serverless function orchestrator that can handle different types of data processing, such as real-time, batch, and stream processing. However, AWS Step Functions requires you to write code to define your state machines, which can be complex and error-prone. AWS Step Functions also charges you for every state transition, which can add up quickly for large-scale ETL pipelines.
AWS Glue Studio is a graphical interface that allows you to create and run AWS Glue ETL jobs without writing code. AWS Glue Studio simplifies the process of building, debugging, and monitoring your ETL jobs, and provides a range of pre-built transformations and connectors. However, AWS Glue Studio does not support workflows, meaning you cannot orchestrate multiple ETL jobs or crawlers with dependencies and triggers. AWS Glue Studio also does not support streaming data sources or targets, which limits its use cases for real-time data processing.
Amazon MWAA is a fully managed service that makes it easy to run open-source versions of Apache Airflow on AWS and build workflows to run your ETL jobs and data pipelines. Amazon MWAA provides a familiar and flexible environment for data engineers who are familiar with Apache Airflow, and integrates with a range of AWS services such as Amazon EMR, AWS Glue, and AWS Step Functions. However, Amazon MWAA is not serverless, meaning you have to provision and pay for the resources you need, regardless of your usage. Amazon MWAA also requires you to write code to define your DAGs, which can be challenging and time-consuming for complex ETL pipelines. References:
? AWS Glue Workflows
? AWS Step Functions
? AWS Glue Studio
? Amazon MWAA
? AWS Certified Data Engineer - Associate DEA-C01 Complete Study Guide

NEW QUESTION 10
A manufacturing company wants to collect data from sensors. A data engineer needs to implement a solution that ingests sensor data in near real time.
The solution must store the data to a persistent data store. The solution must store the data in nested JSON format. The company must have the ability to query from the data store with a latency of less than 10 milliseconds.
Which solution will meet these requirements with the LEAST operational overhead?

A. Use a self-hosted Apache Kafka cluster to capture the sensor dat
B. Store the data in Amazon S3 for querying.
C. Use AWS Lambda to process the sensor dat
D. Store the data in Amazon S3 for querying.
E. Use Amazon Kinesis Data Streams to capture the sensor dat
F. Store the data in Amazon DynamoDB for querying.
G. Use Amazon Simple Queue Service(Amazon SQS) to buffer incomingsensor dat
H. Use AWS Glue to store thedata in Amazon RDS for querying.

Answer: C

Explanation:
Amazon Kinesis Data Streams is a service that enables you to collect, process, and analyze streaming data in real time. You can use Kinesis Data Streams to capture sensor data from various sources, such as IoT devices, web applications, or mobile apps. You can create data streams that can scale up to handle any amount of data from thousands of producers. You can also use the Kinesis Client Library (KCL) or the Kinesis Data Streams API to write applications that process and analyze the data in the streams1. Amazon DynamoDB is a fully managed NoSQL database service that provides fast and predictable performance with seamless scalability. You can use DynamoDB to store the sensor data in nested JSON format, as DynamoDB supports document data types, such as lists and maps. You can also use DynamoDB to query the data with a latency of less than 10 milliseconds, as DynamoDB offers single-digit millisecond performance for any scale of data. You can use the DynamoDB API or the AWS SDKs to perform queries on the data, such as using key-value lookups, scans, or queries2.
The solution that meets the requirements with the least operational overhead is to use Amazon Kinesis Data Streams to capture the sensor data and store the data in Amazon DynamoDB for querying. This solution has the following advantages:
? It does not require you to provision, manage, or scale any servers, clusters, or queues, as Kinesis Data Streams and DynamoDB are fully managed services that handle all the infrastructure for you. This reduces the operational complexity and cost of running your solution.
? It allows you to ingest sensor data in near real time, as Kinesis Data Streams can capture data records as they are produced and deliver them to your applications within seconds. You can also use Kinesis Data Firehose to load the data from the streams to DynamoDB automatically and continuously3.
? It allows you to store the data in nested JSON format, as DynamoDB supports document data types, such as lists and maps. You can also use DynamoDB Streams to capturechanges in the data and trigger actions, such as sending notifications or updating other databases.
? It allows you to query the data with a latency of less than 10 milliseconds, as DynamoDB offers single-digit millisecond performance for any scale of data. You can also use DynamoDB Accelerator (DAX) to improve the read performance by caching frequently accessed data.
Option A is incorrect because it suggests using a self-hosted Apache Kafka cluster to capture the sensor data and store the data in Amazon S3 for querying. This solution has the following disadvantages:
? It requires you to provision, manage, and scale your own Kafka cluster, either on EC2 instances or on-premises servers. This increases the operational complexity and cost of running your solution.
? It does not allow you to query the data with a latency of less than 10 milliseconds, as Amazon S3 is an object storage service that is not optimized for low-latency queries. You need to use another service, such as Amazon Athena or Amazon Redshift Spectrum, to query the data in S3, which may incur additional costs and latency.

Option B is incorrect because it suggests using AWS Lambda to process the sensor data and store the data in Amazon S3 for querying. This solution has the following disadvantages:
? It does not allow you to ingest sensor data in near real time, as Lambda is a serverless compute service that runs code in response to events. You need to use another service, such as API Gateway or Kinesis Data Streams, to trigger Lambda functions with sensor data, which may add extra latency and complexity to your solution.
? It does not allow you to query the data with a latency of less than 10 milliseconds, as Amazon S3 is an object storage service that is not optimized for low-latency queries. You need to use another service, such as Amazon Athena or Amazon Redshift Spectrum, to query the data in S3, which may incur additional costs and latency.
Option D is incorrect because it suggests using Amazon Simple Queue Service (Amazon SQS) to buffer incoming sensor data and use AWS Glue to store the data in Amazon RDS for querying. This solution has the following disadvantages:
? It does not allow you to ingest sensor data in near real time, as Amazon SQS is a message queue service that delivers messages in a best-effort manner. You need to use another service, such as Lambda or EC2, to poll the messages from the queue and process them, which may add extra latency and complexity to your solution.
? It does not allow you to store the data in nested JSON format, as Amazon RDS is a relational database service that supports structured data types, such as tables and columns. You need to use another service, such as AWS Glue, to transform the data from JSON to relational format, which may add extra cost and overhead to your solution.
References:
? 1: Amazon Kinesis Data Streams - Features
? 2: Amazon DynamoDB - Features
? 3: Loading Streaming Data into Amazon DynamoDB - Amazon Kinesis Data Firehose
? [4]: Capturing Table Activity with DynamoDB Streams - Amazon DynamoDB
? [5]: Amazon DynamoDB Accelerator (DAX) - Features
? [6]: Amazon S3 - Features
? [7]: AWS Lambda - Features
? [8]: Amazon Simple Queue Service - Features
? [9]: Amazon Relational Database Service - Features
? [10]: Working with JSON in Amazon RDS - Amazon Relational Database Service
? [11]: AWS Glue - Features

NEW QUESTION 10
A company needs to set up a data catalog and metadata management for data sources that run in the AWS Cloud. The company will use the data catalog to maintain the metadata of all the objects that are in a set of data stores. The data stores include structured sources such as Amazon RDS and Amazon Redshift. The data stores also include semistructured sources such as JSON files and .xml files that are stored in Amazon S3.
The company needs a solution that will update the data catalog on a regular basis. The solution also must detect changes to the source metadata.
Which solution will meet these requirements with the LEAST operational overhead?

A. Use Amazon Aurora as the data catalo
B. Create AWS Lambda functions that will connect to the data catalo
C. Configure the Lambda functions to gather the metadata information from multiple sources and to update the Aurora data catalo
D. Schedule the Lambda functions to run periodically.
E. Use the AWS Glue Data Catalog as the central metadata repositor
F. Use AWS Glue crawlers to connect to multiple data stores and to update the Data Catalog with metadata change
G. Schedule the crawlers to run periodically to update the metadata catalog.
H. Use Amazon DynamoDB as the data catalo
I. Create AWS Lambda functions that will connect to the data catalo
J. Configure the Lambda functions to gather the metadata information from multiple sources and to update the DynamoDB data catalo
K. Schedule the Lambda functions to run periodically.
L. Use the AWS Glue Data Catalog as the central metadata repositor
M. Extract the schema for Amazon RDS and Amazon Redshift sources, and build the Data Catalo
N. Use AWS Glue crawlers for data that is in Amazon S3 to infer the schema and to automatically update the Data Catalog.

Answer: B

Explanation:
This solution will meet the requirements with the least operational overhead because it uses the AWS Glue Data Catalog as the central metadata repository for data sources that run in the AWS Cloud. The AWS Glue Data Catalog is a fully managed service that provides a unified view of your data assets across AWS and on-premises data sources. It stores the metadata of your data in tables, partitions, and columns, and enables you to access and query your data using various AWS services, such as Amazon Athena, Amazon EMR, and Amazon Redshift Spectrum. You can use AWS Glue crawlers to connect to multiple data stores, such as Amazon RDS, Amazon Redshift, and Amazon S3, and to update the Data Catalog with metadata changes. AWS Glue crawlers can automatically discover the schema and partition structure of your data, and create or update the corresponding tables in the Data Catalog. You can schedule the crawlers to run periodically to update the metadata catalog, and configure them to detect changes to the source metadata, such as new columns, tables, or partitions12.
The other options are not optimal for the following reasons:
? A. Use Amazon Aurora as the data catalog. Create AWS Lambda functions that will connect to the data catalog. Configure the Lambda functions to gather the metadata information from multiple sources and to update the Aurora data catalog. Schedule the Lambda functions to run periodically. This option is not recommended, as it would require more operational overhead to create and manage an Amazon Aurora database as the data catalog, and to write and maintain AWS Lambda functions to gather and update the metadata information from multiple sources. Moreover, this option would not leverage the benefits of the AWS Glue Data Catalog, such as data cataloging, data transformation, and data governance.
? C. Use Amazon DynamoDB as the data catalog. Create AWS Lambda functions that will connect to the data catalog. Configure the Lambda functions to gather the metadata information from multiple sources and to update the DynamoDB data catalog. Schedule the Lambda functions to run periodically. This option is also not recommended, as it would require more operational overhead to create and manage an Amazon DynamoDB table as the data catalog, and to write and maintain AWS Lambda functions to gather and update the metadata information from multiple sources. Moreover, this option would not leverage the benefits of the AWS Glue Data Catalog, such as data cataloging, data transformation, and data governance.
? D. Use the AWS Glue Data Catalog as the central metadata repository. Extract the schema for Amazon RDS and Amazon Redshift sources, and build the Data Catalog. Use AWS Glue crawlers for data that is in Amazon S3 to infer the schema and to automatically update the Data Catalog. This option is not optimal, as it would require more manual effort to extract the schema for Amazon RDS and Amazon Redshift sources, and to build the Data Catalog. This option would not take advantage of the AWS Glue crawlers' ability to automatically discover the schema and partition structure of your data from various data sources, and to create or update the corresponding tables in the Data Catalog.
References:
? 1: AWS Glue Data Catalog
? 2: AWS Glue Crawlers
? : Amazon Aurora
? : AWS Lambda

? : Amazon DynamoDB

NEW QUESTION 12
A company uses Amazon Athena to run SQL queries for extract, transform, and load (ETL) tasks by using Create Table As Select (CTAS). The company must use Apache Spark instead of SQL to generate analytics.
Which solution will give the company the ability to use Spark to access Athena?

A. Athena query settings
B. Athena workgroup
C. Athena data source
D. Athena query editor

Answer: C

Explanation:
Athena data source is a solution that allows you to use Spark to access Athena by using the Athena JDBC driver and the Spark SQL interface. You can use the Athena data source to create Spark DataFrames from Athena tables, run SQL queries on the DataFrames, and write the results back to Athena. The Athena data source supports various data formats, such as CSV, JSON, ORC, and Parquet, and also supports partitioned and bucketed tables. The Athena data source is a cost-effective and scalable way to use Spark to access Athena, as it does not require any additional infrastructure or services, and you only pay for the data scanned by Athena.
The other options are not solutions that give the company the ability to use Spark to access Athena. Option A, Athena query settings, is a feature that allows you to configure various parameters for your Athena queries, such as the output location, the encryption settings, the query timeout, and the workgroup. Option B, Athena workgroup, is a feature that allows you to isolate and manage your Athena queries and resources, such as the query history, the query notifications, the query concurrency, and the query cost. Option D, Athena query editor, is a feature that allows you to write and run SQL queries on Athena using the web console or the API. None of these options enable you to use Spark instead of SQL to generate analytics on Athena. References:
? Using Apache Spark in Amazon Athena
? Athena JDBC Driver
? Spark SQL
? Athena query settings
? [Athena workgroups]
? [Athena query editor]

NEW QUESTION 15
A security company stores IoT data that is in JSON format in an Amazon S3 bucket. The data structure can change when the company upgrades the IoT devices. The company wants to create a data catalog that includes the IoT data. The company's analytics department will use the data catalog to index the data.
Which solution will meet these requirements MOST cost-effectively?

A. Create an AWS Glue Data Catalo
B. Configure an AWS Glue Schema Registr
C. Create a new AWS Glue workload to orchestrate the ingestion of the data that the analytics department will use into Amazon Redshift Serverless.
D. Create an Amazon Redshift provisioned cluste
E. Create an Amazon Redshift Spectrum database for the analytics department to explore the data that is in Amazon S3. Create Redshift stored procedures to load the data into Amazon Redshift.
F. Create an Amazon Athena workgrou
G. Explore the data that is in Amazon S3 by using Apache Spark through Athen
H. Provide the Athena workgroup schema and tables to the analytics department.
I. Create an AWS Glue Data Catalo
J. Configure an AWS Glue Schema Registr
K. Create AWS Lambda user defined functions (UDFs) by using the Amazon Redshift Data AP
L. Create an AWS Step Functions job to orchestrate the ingestion of the data that the analytics department will use into Amazon Redshift Serverless.

Answer: C

Explanation:
The best solution to meet the requirements of creating a data catalog that includes the IoT data, and allowing the analytics department to index the data, most cost- effectively, is to create an Amazon Athena workgroup, explore the data that is in Amazon S3 by using Apache Spark through Athena, and provide the Athena workgroup schema and tables to the analytics department.
Amazon Athena is a serverless, interactive query service that makes it easy to analyze data directly in Amazon S3 using standard SQL or Python1. Amazon Athena also supports Apache Spark, an open-source distributed processing framework that can run large-scale data analytics applications across clusters of servers2. You can use Athena to run Spark code on data in Amazon S3 without having to set up, manage, or scale any infrastructure. You can also use Athena to create and manage external tables that point to your data in Amazon S3, and store them in an external data catalog, such as AWS Glue Data Catalog, Amazon Athena Data Catalog, or your own Apache Hive metastore3. You can create Athena workgroups to separate query execution and resource allocation based on different criteria, such as users, teams, or applications4. You can share the schemas and tables in your Athena workgroup with other users or applications, such as Amazon QuickSight, for data visualization and analysis5.
Using Athena and Spark to create a data catalog and explore the IoT data in Amazon S3 is the most cost-effective solution, as you pay only for the queries you run or the compute you use, and you pay nothing when the service is idle1. You also save on the operational overhead and complexity of managing data warehouse infrastructure, as Athena and Spark are serverless and scalable. You can also benefit from the flexibility and performance of Athena and Spark, as they support various data formats, including JSON, and can handle schema changes and complex queries efficiently.
Option A is not the best solution, as creating an AWS Glue Data Catalog, configuring an AWS Glue Schema Registry, creating a new AWS Glue workload to orchestrate theingestion of the data that the analytics department will use into Amazon Redshift Serverless, would incur more costs and complexity than using Athena and Spark. AWS Glue Data Catalog is a persistent metadata store that contains table definitions, job definitions, and other control information to help you manage your AWS Glue components6. AWS Glue Schema Registry is a service that allows you to centrally store and manage the schemas of your streaming data in AWS Glue Data Catalog7. AWS Glue is a serverless data integration service that makes it easy to prepare, clean, enrich, and move data between data stores8. Amazon Redshift Serverless is a feature of Amazon Redshift, a fully managed data warehouse service, that allows you to run and scale analytics without having to manage data warehouse infrastructure9. While these services are powerful and useful for many data engineering scenarios, they are not necessary or cost-effective for creating a data catalog and indexing the IoT data in Amazon S3. AWS Glue Data Catalog and Schema Registry charge you based on the number of objects stored and the number of requests made67. AWS Glue charges you based on the compute time and the data processed by your ETL jobs8. Amazon Redshift Serverless charges you based on the amount of data scanned by your queries and the compute time used by your workloads9. These costs can add up quickly, especially if you have large volumes of IoT data and frequent schema changes. Moreover, using AWS Glue and Amazon Redshift Serverless would introduce additional latency and complexity, as you would have to ingest the data from Amazon S3 to Amazon Redshift Serverless, and then query it from there, instead of querying it directly from Amazon S3 using Athena and Spark.

Option B is not the best solution, as creating an Amazon Redshift provisioned cluster, creating an Amazon Redshift Spectrum database for the analytics department to explore the data that is in Amazon S3, and creating Redshift stored procedures to load the data into Amazon Redshift, would incur more costs and complexity than using Athena and Spark. Amazon Redshift provisioned clusters are clusters that you create and manage by specifying the number and type of nodes, and the amount of storage and compute capacity10. Amazon Redshift Spectrum is a feature of Amazon Redshift that allows you to query and join data across your data warehouse and your data lake using standard SQL11. Redshift stored procedures are SQL statements that you can define and store in Amazon Redshift, and then call them by using the CALL command12. While these features are powerful and useful for many data warehousing scenarios, they are not necessary or cost-effective for creating a data catalog and indexing the IoT data in Amazon S3. Amazon Redshift provisioned clusters charge you based on the node type, the number of nodes, and the duration of the cluster10. Amazon Redshift Spectrum charges you based on the amount of data scanned by your queries11. These costs can add up quickly, especially if you have large volumes of IoT data and frequent schema changes. Moreover, using Amazon Redshift provisioned clusters and Spectrum would introduce additional latency and complexity, as you would have to provision andmanage the cluster, create an external schema and database for the data in Amazon S3, and load the data into the cluster using stored procedures, instead of querying it directly from Amazon S3 using Athena and Spark. Option D is not the best solution, as creating an AWS Glue Data Catalog, configuring an AWS Glue Schema Registry, creating AWS Lambda user defined functions (UDFs) by using the Amazon Redshift Data API, and creating an AWS Step Functions job to orchestrate the ingestion of the data that the analytics department will use into Amazon Redshift Serverless, would incur more costs and complexity than using Athena and Spark. AWS Lambda is a serverless compute service that lets you run code without provisioning or managing servers13. AWS Lambda UDFs are Lambda functions that you can invoke from within an Amazon Redshift query. Amazon Redshift Data API is a service that allows you to run SQL statements on Amazon Redshift clusters using HTTP requests, without needing a persistent connection. AWS Step Functions is a service that lets you coordinate multiple AWS services into serverless workflows. While these services are powerful and useful for many data engineering scenarios, they are not necessary or cost- effective for creating a data catalog and indexing the IoT data in Amazon S3. AWS Glue Data Catalog and Schema Registry charge you based on the number of objects stored and the number of requests made67. AWS Lambda charges you based on the number of requests and the duration of your functions13. Amazon Redshift Serverless charges you based on the amount of data scanned by your queries and the compute time used by your workloads9. AWS Step Functions charges you based on the number of state transitions in your workflows. These costs can add up quickly, especially if you have large volumes of IoT data and frequent schema changes. Moreover, using AWS Glue, AWS Lambda, Amazon Redshift Data API, and AWS Step Functions would introduce additional latency and complexity, as you would have to create and invoke Lambda functions to ingest the data from Amazon S3 to Amazon Redshift Serverless using the Data API, and coordinate the ingestion process using Step Functions, instead of querying it directly from Amazon S3 using Athena and Spark. References:
? What is Amazon Athena?
? Apache Spark on Amazon Athena
? Creating tables, updating the schema, and adding new partitions in the Data Catalog from AWS Glue ETL jobs
? Managing Athena workgroups
? Using Amazon QuickSight to visualize data in Amazon Athena
? AWS Glue Data Catalog
? AWS Glue Schema Registry
? What is AWS Glue?
? Amazon Redshift Serverless
? Amazon Redshift provisioned clusters
? Querying external data using Amazon Redshift Spectrum
? Using stored procedures in Amazon Redshift
? What is AWS Lambda?
? [Creating and using AWS Lambda UDFs]
? [Using the Amazon Redshift Data API]
? [What is AWS Step Functions?]
? AWS Certified Data Engineer - Associate DEA-C01 Complete Study Guide

NEW QUESTION 18
A company is migrating its database servers from Amazon EC2 instances that run Microsoft SQL Server to Amazon RDS for Microsoft SQL Server DB instances. The company's analytics team must export large data elements every day until the migration is complete. The data elements are the result of SQL joinsacross multiple tables. The data must be in Apache Parquet format. The analytics team must store the data in Amazon S3.
Which solution will meet these requirements in the MOST operationally efficient way?

A. Create a view in the EC2 instance-based SQL Server databases that contains the required data element
B. Create an AWS Glue job that selects the data directly from the view and transfers the data in Parquet format to an S3 bucke
C. Schedule the AWS Glue job to run every day.
D. Schedule SQL Server Agent to run a daily SQL query that selects the desired data elements from the EC2 instance-based SQL Server database
E. Configure the query to direct the output .csv objects to an S3 bucke
F. Create an S3 event that invokes an AWS Lambda function to transform the output format from .csv to Parquet.
G. Use a SQL query to create a view in the EC2 instance-based SQL Server databases that contains the required data element
H. Create and run an AWS Glue crawler to read the vie
I. Create an AWS Glue job that retrieves the data and transfers the data in Parquet format to an S3 bucke
J. Schedule the AWS Glue job to run every day.
K. Create an AWS Lambda function that queries the EC2 instance-based databases by using Java Database Connectivity (JDBC). Configure the Lambda function to retrieve the required data, transform the data into Parquet format, and transfer the data into an S3 bucke
L. Use Amazon EventBridge to schedule the Lambda function to run every day.

Answer: A

Explanation:
Option A is the most operationally efficient way to meet the requirements because it minimizes the number of steps and services involved in the data export process. AWS Glue is a fully managed service that can extract, transform, and load (ETL) data from various sources to various destinations, including Amazon S3. AWS Glue can also convert data to different formats, such as Parquet, which is a columnar storage format that is optimized for analytics. By creating a view in the SQL Server databases that contains the required data elements, the AWS Glue job can select the data directly from the view without having to perform any joins or transformations on the source data. The AWS Glue job can then transfer the data in Parquet format to an S3 bucket and run on a daily schedule.
Option B is not operationally efficient because it involves multiple steps and services to export the data. SQL Server Agent is a tool that can run scheduled tasks on SQL Server databases, such as executing SQL queries. However, SQL Server Agent cannot directly export data to S3, so the query output must be saved as .csv objects on the EC2 instance. Then, an S3 event must be configured to trigger an AWS Lambda function that can transform the .csv objects to Parquet format and upload them to S3. This option adds complexity and latency to the data export process and requires additional resources and configuration.
Option C is not operationally efficient because it introduces an unnecessary step of running an AWS Glue crawler to read the view. An AWS Glue crawler is a service that can scan data sources and create metadata tables in the AWS Glue Data Catalog. The Data Catalog is a central repository that stores information about the data sources, such as schema, format, and location. However, in this scenario, the schema and format of the data elements are already known and fixed, so there is no need to run a crawler to discover them. The AWS Glue job can directly select the data from the view without using the Data Catalog. Running a crawler adds extra time and cost to the data export process.
Option D is not operationally efficient because it requires custom code and configuration to query the databases and transform the data. An AWS Lambda function is a service that can run code in response to events or triggers, such as Amazon EventBridge. Amazon EventBridge is a service that can connect applications and

services with event sources, such as schedules, and route them to targets, such as Lambda functions. However, in this scenario, using a Lambda function to query the databases and transform the data is not the best option because it requires writing and maintaining code that uses JDBC to connect to the SQL Server databases, retrieve the required data, convert the data to Parquet format, and transfer the data to S3. This option also has limitations on the execution time, memory, and concurrency of the Lambda function, which may affect the performance and reliability of the data export process.
References:
? AWS Certified Data Engineer - Associate DEA-C01 Complete Study Guide
? AWS Glue Documentation
? Working with Views in AWS Glue
? Converting to Columnar Formats

NEW QUESTION 23
During a security review, a company identified a vulnerability in an AWS Glue job. The company discovered that credentials to access an Amazon Redshift cluster were hard coded in the job script.
A data engineer must remediate the security vulnerability in the AWS Glue job. The solution must securely store the credentials.
Which combination of steps should the data engineer take to meet these requirements? (Choose two.)

A. Store the credentials in the AWS Glue job parameters.
B. Store the credentials in a configuration file that is in an Amazon S3 bucket.
C. Access the credentials from a configuration file that is in an Amazon S3 bucket by using the AWS Glue job.
D. Store the credentials in AWS Secrets Manager.
E. Grant the AWS Glue job 1AM role access to the stored credentials.

Answer: DE

Explanation:
AWS Secrets Manager is a service that allows you to securely store and manage secrets, such as database credentials, API keys, passwords, etc. You can use Secrets Manager to encrypt, rotate, and audit your secrets, as well as to control access to them using fine-grained policies. AWS Glue is a fully managed service that provides a serverless data integration platform for data preparation, data cataloging, and data loading. AWS Glue jobs allow you to transform and load data from various sources into various targets, using either a graphical interface (AWS Glue Studio) or a code-based interface (AWS Glue console or AWS Glue API).
Storing the credentials in AWS Secrets Manager and granting the AWS Glue job 1AM role access to the stored credentials will meet the requirements, as it will remediate the security vulnerability in the AWS Glue job and securely store the credentials. By using AWS Secrets Manager, you can avoid hard coding the credentials in the job script, which is a bad practice that exposes the credentials to unauthorized access or leakage. Instead, you can store the credentials as a secret in Secrets Manager and reference the secret name or ARN in the job script. You can also use Secrets Manager to encrypt thecredentials using AWS Key Management Service (AWS KMS), rotate the credentials automatically or on demand, and monitor the access to the credentials using AWS CloudTrail. By granting the AWS Glue job 1AM role access to the stored credentials, you can use the principle of least privilege to ensure that only the AWS Glue job can retrieve the credentials from Secrets Manager. You can also use resource-based or tag-based policies to further restrict the access to the credentials.
The other options are not as secure as storing the credentials in AWS Secrets Manager and granting the AWS Glue job 1AM role access to the stored credentials. Storing the credentials in the AWS Glue job parameters will not remediate the security vulnerability, as the job parameters are still visible in the AWS Glue console and API. Storing the credentials in a configuration file that is in an Amazon S3 bucket and accessing the credentials from the configuration file by using the AWS Glue job will not be as secure as using Secrets Manager, as the configuration file may not be encrypted or rotated, and the access to the file may not be audited or controlled. References:
? AWS Secrets Manager
? AWS Glue
? AWS Certified Data Engineer - Associate DEA-C01 Complete Study Guide, Chapter 6: Data Integration and Transformation, Section 6.1: AWS Glue

NEW QUESTION 27
A data engineer must orchestrate a series of Amazon Athena queries that will run every day. Each query can run for more than 15 minutes.
Which combination of steps will meet these requirements MOST cost-effectively? (Choose two.)

A. Use an AWS Lambda function and the Athena Boto3 client start_query_execution API call to invoke the Athena queries programmatically.
B. Create an AWS Step Functions workflow and add two state
C. Add the first state before the Lambda functio
D. Configure the second state as a Wait state to periodically check whether the Athena query has finished using the Athena Boto3 get_query_execution API cal
E. Configure the workflow to invoke the next query when the current query has finished running.
F. Use an AWS Glue Python shell job and the Athena Boto3 client start_query_execution API call to invoke the Athena queries programmatically.
G. Use an AWS Glue Python shell script to run a sleep timer that checks every 5 minutes to determine whether the current Athena query has finished running successfull
H. Configure the Python shell script to invoke the next query when the current query has finished running.
I. Use Amazon Managed Workflows for Apache Airflow (Amazon MWAA) to orchestrate the Athena queries in AWS Batch.

Answer: AB

Explanation:
Option A and B are the correct answers because they meet the requirements most cost-effectively. Using an AWS Lambda function and the Athena Boto3 client start_query_execution API call to invoke the Athena queries programmatically is a simple and scalable way to orchestrate the queries. Creating an AWS Step Functions workflow and adding two states to check the query status and invoke the next query is a reliable and efficient way to handle the long-running queries.
Option C is incorrect because using an AWS Glue Python shell job to invoke the Athena queries programmatically is more expensive than using a Lambda function, as it requires provisioning and running a Glue job for each query.
Option D is incorrect because using an AWS Glue Python shell script to run a sleep timer that checks every 5 minutes to determine whether the current Athena query has finished running successfully is not a cost-effective or reliable way to orchestrate the queries, as it wastes resources and time.
Option E is incorrect because using Amazon Managed Workflows for Apache Airflow (Amazon MWAA) to orchestrate the Athena queries in AWS Batch is an overkill solution that introduces unnecessary complexity and cost, as it requires setting up and managing an Airflow environment and an AWS Batch compute environment.
References:
? AWS Certified Data Engineer - Associate DEA-C01 Complete Study Guide, Chapter 5: Data Orchestration, Section 5.2: AWS Lambda, Section 5.3: AWS Step Functions, Pages 125-135
? Building Batch Data Analytics Solutions on AWS, Module 5: Data Orchestration, Lesson 5.1: AWS Lambda, Lesson 5.2: AWS Step Functions, Pages 1-15
? AWS Documentation Overview, AWS Lambda Developer Guide, Working with AWS Lambda Functions, Configuring Function Triggers, Using AWS Lambda with Amazon Athena, Pages 1-4
? AWS Documentation Overview, AWS Step Functions Developer Guide, Getting Started, Tutorial: Create a Hello World Workflow, Pages 1-8

NEW QUESTION 32
A financial services company stores financial data in Amazon Redshift. A data engineer wants to run real-time queries on the financial data to support a web-based trading application. The data engineer wants to run the queries from within the trading application.
Which solution will meet these requirements with the LEAST operational overhead?

A. Establish WebSocket connections to Amazon Redshift.
B. Use the Amazon Redshift Data API.
C. Set up Java Database Connectivity (JDBC) connections to Amazon Redshift.
D. Store frequently accessed data in Amazon S3. Use Amazon S3 Select to run the queries.

Answer: B

Explanation:
The Amazon Redshift Data API is a built-in feature that allows you to run SQL queries on Amazon Redshift data with web services-based applications, such as AWS Lambda, Amazon SageMaker notebooks, and AWS Cloud9. The Data API does not require a persistent connection to your database, and it provides a secure HTTP endpoint and integration with AWS SDKs. You can use the endpoint to run SQL statements without managing connections. The Data API also supports both Amazon Redshift provisioned clusters and Redshift Serverless workgroups. The Data API is the best solution for running real-time queries on the financial data from within the trading application, as it has the least operational overhead compared to the other options.
Option A is not the best solution, as establishing WebSocket connections to Amazon Redshift would require more configuration and maintenance than using the Data API. WebSocket connections are also not supported by Amazon Redshift clusters or serverless workgroups.
Option C is not the best solution, as setting up JDBC connections to Amazon Redshift would also require more configuration and maintenance than using the Data API. JDBC connections are also not supported by Redshift Serverless workgroups.
Option D is not the best solution, as storing frequently accessed data in Amazon S3 and using Amazon S3 Select to run the queries would introduce additional latency and complexity than using the Data API. Amazon S3 Select is also not optimized for real-time queries, as it scans the entire object before returning the results. References:
? Using the Amazon Redshift Data API
? Calling the Data API
? Amazon Redshift Data API Reference
? AWS Certified Data Engineer - Associate DEA-C01 Complete Study Guide

NEW QUESTION 36
A company has a frontend ReactJS website that uses Amazon API Gateway to invoke REST APIs. The APIs perform the functionality of the website. A data engineer needs to write a Python script that can be occasionally invoked through API Gateway. The code must return results to API Gateway.
Which solution will meet these requirements with the LEAST operational overhead?

A. Deploy a custom Python script on an Amazon Elastic Container Service (Amazon ECS) cluster.
B. Create an AWS Lambda Python function with provisioned concurrency.
C. Deploy a custom Python script that can integrate with API Gateway on Amazon Elastic Kubernetes Service (Amazon EKS).
D. Create an AWS Lambda functio
E. Ensure that the function is warm byscheduling an Amazon EventBridge rule to invoke the Lambda function every 5 minutes by usingmock events.

Answer: B

Explanation:
AWS Lambda is a serverless compute service that lets you run code without provisioning or managing servers. You can use Lambda to create functions that perform custom logic and integrate with other AWS services, such as API Gateway. Lambda automatically scales your application by running code in response to each trigger. You pay only for the compute time you consume1.
Amazon ECS is a fully managed container orchestration service that allows you to run and scale containerized applications on AWS. You can use ECS to deploy, manage, and scale Docker containers using either Amazon EC2 instances or AWS Fargate, a serverless compute engine for containers2.
Amazon EKS is a fully managed Kubernetes service that allows you to run Kubernetes clusters on AWS without needing to install, operate, or maintain your own Kubernetes control plane. You can use EKS to deploy, manage, and scale containerized applications using Kubernetes on AWS3.
The solution that meets the requirements with the least operational overhead is to create an AWS Lambda Python function with provisioned concurrency. This solution has the following advantages:
? It does not require you to provision, manage, or scale any servers or clusters, as Lambda handles all the infrastructure for you. This reduces the operational complexity and cost of running your code.
? It allows you to write your Python script as a Lambda function and integrate it with API Gateway using a simple configuration. API Gateway can invoke your Lambda function synchronously or asynchronously, and return the results to the frontend website.
? It ensures that your Lambda function is ready to respond to API requests without any cold start delays, by using provisioned concurrency. Provisioned concurrency is a feature that keeps your function initialized and hyper-ready to respond in double-digit milliseconds. You can specify the number of concurrent executions that you want to provision for your function.
Option A is incorrect because it requires you to deploy a custom Python script on an Amazon ECS cluster. This solution has the following disadvantages:
? It requires you to provision, manage, and scale your own ECS cluster, either using EC2 instances or Fargate. This increases the operational complexity and cost of running your code.
? It requires you to package your Python script as a Docker container image and store it in a container registry, such as Amazon ECR or Docker Hub. This adds an extra step to your deployment process.
? It requires you to configure your ECS cluster to integrate with API Gateway, either using an Application Load Balancer or a Network Load Balancer. This adds another layer of complexity to your architecture.
Option C is incorrect because it requires you to deploy a custom Python script that can integrate with API Gateway on Amazon EKS. This solution has the following disadvantages:
? It requires you to provision, manage, and scale your own EKS cluster, either using EC2 instances or Fargate. This increases the operational complexity and cost of running your code.
? It requires you to package your Python script as a Docker container image and store it in a container registry, such as Amazon ECR or Docker Hub. This adds an extra step to your deployment process.
? It requires you to configure your EKS cluster to integrate with API Gateway, either using an Application Load Balancer, a Network Load Balancer, or a service of type LoadBalancer. This adds another layer of complexity to your architecture.
Option D is incorrect because it requires you to create an AWS Lambda function and ensure that the function is warm by scheduling an Amazon EventBridge rule to invoke the Lambda function every 5 minutes by using mock events. This solution has the following disadvantages:
? It does not guarantee that your Lambda function will always be warm, as Lambda may scale down your function if it does not receive any requests for a long period of time. This may cause cold start delays when your function is invoked by API Gateway.
? It incurs unnecessary costs, as you pay for the compute time of your Lambda function every time it is invoked by the EventBridge rule, even if it does not perform any useful work1.
References:

? 1: AWS Lambda - Features
? 2: Amazon Elastic Container Service - Features
? 3: Amazon Elastic Kubernetes Service - Features
? [4]: Building API Gateway REST API with Lambda integration - Amazon API Gateway
? [5]: Improving latency with Provisioned Concurrency - AWS Lambda
? [6]: Integrating Amazon ECS with Amazon API Gateway - Amazon Elastic Container Service
? [7]: Integrating Amazon EKS with Amazon API Gateway - Amazon Elastic Kubernetes Service
? [8]: Managing concurrency for a Lambda function - AWS Lambda

NEW QUESTION 39
A company is planning to migrate on-premises Apache Hadoop clusters to Amazon EMR. The company also needs to migrate a data catalog into a persistent storage solution.
The company currently stores the data catalog in an on-premises Apache Hive metastore on the Hadoop clusters. The company requires a serverless solution to migrate the data catalog.
Which solution will meet these requirements MOST cost-effectively?

A. Use AWS Database Migration Service (AWS DMS) to migrate the Hive metastore into Amazon S3. Configure AWS Glue Data Catalog to scan Amazon S3 to produce the data catalog.
B. Configure a Hive metastore in Amazon EM
C. Migrate the existing on-premises Hive metastore into Amazon EM
D. Use AWS Glue Data Catalog to store the company's data catalog as an external data catalog.
E. Configure an external Hive metastore in Amazon EM
F. Migrate the existing on-premises Hive metastore into Amazon EM
G. Use Amazon Aurora MySQL to store the company's data catalog.
H. Configure a new Hive metastore in Amazon EM
I. Migrate the existing on-premises Hive metastore into Amazon EM
J. Use the new metastore as the company's data catalog.

Answer: A

Explanation:
AWS Database Migration Service (AWS DMS) is a service that helps you migrate databases to AWS quickly and securely. You can use AWS DMS to migrate the Hive metastore from the on-premises Hadoop clusters into Amazon S3, which is a highlyscalable, durable, and cost-effective object storage service. AWS Glue Data Catalog is a serverless, managed service that acts as a central metadata repository for your data assets. You can use AWS Glue Data Catalog to scan the Amazon S3 bucket that contains the migrated Hive metastore and create a data catalog that is compatible with Apache Hive and other AWS services. This solution meets the requirements of migrating the data catalog into a persistent storage solution and using a serverless solution. This solution is also the most cost-effective, as it does not incur any additional charges for running Amazon EMR or Amazon Aurora MySQL clusters. The other options are either not feasible or not optimal. Configuring a Hive metastore in Amazon EMR (option B) or an external Hive metastore in Amazon EMR (option C) would require running and maintaining Amazon EMR clusters, which would incur additional costs and complexity. Using Amazon Aurora MySQL to store the company's data catalog (option C) would also incur additional costs and complexity, as well as introduce compatibility issues with Apache Hive. Configuring a new Hive metastore in Amazon EMR (option D) would not migrate the existing data catalog, but create a new one, which would result in data loss and inconsistency. References:
? Using AWS Database Migration Service
? Populating the AWS Glue Data Catalog
? AWS Certified Data Engineer - Associate DEA-C01 Complete Study Guide, Chapter 4: Data Analysis and Visualization, Section 4.2: AWS Glue Data Catalog

NEW QUESTION 40
A company stores data from an application in an Amazon DynamoDB table that operates in provisioned capacity mode. The workloads of the application have predictable throughput load on a regular schedule. Every Monday, there is an immediate increase in activity early in the morning. The application has very low usage during weekends.
The company must ensure that the application performs consistently during peak usage times
Which solution will meet these requirements in the MOST cost-effective way?

A. Increase the provisioned capacity to the maximum capacity that is currently present during peak load times.
B. Divide the table into two table
C. Provision each table with half of the provisioned capacity of the original tabl
D. Spread queries evenly across both tables.
E. Use AWS Application Auto Scaling to schedule higher provisioned capacity for peak usage time
F. Schedule lower capacity during off-peak times.
G. Change the capacity mode from provisioned to on-deman
H. Configure the table to scale up and scale down based on the load on the table.

Answer: C

Explanation:
Amazon DynamoDB is a fully managed NoSQL database service that provides fast and predictable performance with seamless scalability. DynamoDB offers two capacity modes for throughput capacity: provisioned and on-demand. In provisioned capacity mode, you specify the number of read and write capacity units per second that you expect your application to require. DynamoDB reserves the resources to meet your throughput needs with consistent performance. In on-demand capacity mode, you pay per request and DynamoDB scales the resources up and down automatically based on the actual workload. On-demand capacity mode is suitable for unpredictable workloads that can vary significantly over time1.
The solution that meets the requirements in the most cost-effective way is to use AWS Application Auto Scaling to schedule higher provisioned capacity for peak usage times and lower capacity during off-peak times. This solution has the following advantages:
? It allows you to optimize the cost and performance of your DynamoDB table by adjusting the provisioned capacity according to your predictable workload patterns. You can use scheduled scaling to specify the date and time for the scaling actions, and the new minimum and maximum capacity limits. For example, you can schedule higher capacity for every Monday morning and lower capacity for weekends2.
? It enables you to take advantage of the lower cost per unit of provisioned capacity mode compared to on-demand capacity mode. Provisioned capacity mode charges a flat hourly rate for the capacity you reserve, regardless of how much you use. On-demand capacity mode charges for each read and write request you consume, with nominimum capacity required. For predictable workloads, provisioned capacity mode can be more cost-effective than on-demand capacity mode1.
? It ensures that your application performs consistently during peak usage times by having enough capacity to handle the increased load. You can also use auto scaling to automatically adjust the provisioned capacity based on the actual utilization of your table, and set a target utilization percentage for your table or global secondary index. This way, you can avoid under-provisioning or over- provisioning your table2.
Option A is incorrect because it suggests increasing the provisioned capacity to the maximum capacity that is currently present during peak load times. This

solution has the following disadvantages:
? It wastes money by paying for unused capacity during off-peak times. If you provision the same high capacity for all times, regardless of the actual workload, you are over-provisioning your table and paying for resources that you don't need1.
? It does not account for possible changes in the workload patterns over time. If your peak load times increase or decrease in the future, you may need to manually adjust the provisioned capacity to match the new demand. This adds operational overhead and complexity to your application2.
Option B is incorrect because it suggests dividing the table into two tables and provisioning each table with half of the provisioned capacity of the original table. This solution has the following disadvantages:
? It complicates the data model and the application logic by splitting the data into two
separate tables. You need to ensure that the queries are evenly distributed across both tables, and that the data is consistent and synchronized between them. This adds extra development and maintenance effort to your application3.
? It does not solve the problem of adjusting the provisioned capacity according to the workload patterns. You still need to manually or automatically scale the capacity of each table based on the actual utilization and demand. This may result in under- provisioning or over-provisioning your tables2.
Option D is incorrect because it suggests changing the capacity mode from provisioned to on-demand. This solution has the following disadvantages:
? It may incur higher costs than provisioned capacity mode for predictable workloads. On-demand capacity mode charges for each read and write request you consume, with no minimum capacity required. For predictable workloads, provisioned capacity mode can be more cost-effective than on-demand capacity mode, as you can reserve the capacity you need at a lower rate1.
? It may not provide consistent performance during peak usage times, as on-demand capacity mode may take some time to scale up the resources to meet the sudden increase in demand. On-demand capacity mode uses adaptive capacity to handle bursts of traffic, but it may not be able to handle very large spikes or sustained high throughput. In such cases, you may experience throttling or increased latency.
References:
? 1: Choosing the right DynamoDB capacity mode - Amazon DynamoDB
? 2: Managing throughput capacity automatically with DynamoDB auto scaling - Amazon DynamoDB
? 3: Best practices for designing and using partition keys effectively - Amazon DynamoDB
? [4]: On-demand mode guidelines - Amazon DynamoDB
? [5]: How to optimize Amazon DynamoDB costs - AWS Database Blog
? [6]: DynamoDB adaptive capacity: How it works and how it helps - AWS Database Blog
? [7]: Amazon DynamoDB pricing - Amazon Web Services (AWS)

NEW QUESTION 43
A company has used an Amazon Redshift table that is named Orders for 6 months. The company performs weekly updates and deletes on the table. The table has an interleaved sort key on a column that contains AWS Regions.
The company wants to reclaim disk space so that the company will not run out of storage space. The company also wants to analyze the sort key column.
Which Amazon Redshift command will meet these requirements?

A. VACUUM FULL Orders
B. VACUUM DELETE ONLY Orders
C. VACUUM REINDEX Orders
D. VACUUM SORT ONLY Orders

Answer: C

Explanation:
Amazon Redshift is a fully managed, petabyte-scale data warehouse service that enables fast and cost-effective analysis of large volumes of data. Amazon Redshift uses columnar storage, compression, and zone maps to optimize the storage and performance of data. However, over time, as data is inserted, updated, or deleted, the physical storage of data can become fragmented, resulting in wasted disk space and degraded query performance. To address this issue, Amazon Redshift provides the VACUUM command, which reclaims disk space and resorts rows in either a specified table or all tables in the current schema1.
The VACUUM command has four options: FULL, DELETE ONLY, SORT ONLY, and REINDEX. The option that best meets the requirements of the question is VACUUM REINDEX, which re-sorts the rows in a table that has an interleaved sort key and rewritesthe table to a new location on disk. An interleaved sort key is a type of sort key that gives equal weight to each column in the sort key, and stores the rows in a way that optimizes the performance of queries that filter by multiple columns in the sort key. However, as data is added or changed, the interleaved sort order can become skewed, resulting in suboptimal query performance. The VACUUM REINDEX option restores the optimal interleaved sort order and reclaims disk space by removing deleted rows. This option also analyzes the sort key column and updates the table statistics, which are used by the query optimizer to generate the most efficient query execution plan23.
The other options are not optimal for the following reasons:
? A. VACUUM FULL Orders. This option reclaims disk space by removing deleted rows and resorts the entire table. However, this option is not suitable for tables that have an interleaved sort key, as it does not restore the optimal interleaved sort order. Moreover, this option is the most resource-intensive and time-consuming, as it rewrites the entire table to a new location on disk.
? B. VACUUM DELETE ONLY Orders. This option reclaims disk space by removing deleted rows, but does not resort the table. This option is not suitable for tables that have any sort key, as it does not improve the query performance by restoring the sort order. Moreover, this option does not analyze the sort key column and update the table statistics.
? D. VACUUM SORT ONLY Orders. This option resorts the entire table, but does not reclaim disk space by removing deleted rows. This option is not suitable for tables that have an interleaved sort key, as it does not restore the optimal interleaved sort order. Moreover, this option does not analyze the sort key column and update the table statistics.
References:
? 1: Amazon Redshift VACUUM
? 2: Amazon Redshift Interleaved Sorting
? 3: Amazon Redshift ANALYZE

NEW QUESTION 46
A company uses an on-premises Microsoft SQL Server database to store financial transaction data. The company migrates the transaction data from the on-premises database to AWS at the end of each month. The company has noticed that the cost to migrate data from the on-premises database to an Amazon RDS for SQL Server database has increased recently.
The company requires a cost-effective solution to migrate the data to AWS. The solution must cause minimal downtown for the applications that access the database.
Which AWS service should the company use to meet these requirements?

A. AWS Lambda
B. AWS Database Migration Service (AWS DMS)
C. AWS Direct Connect
D. AWS DataSync

Answer: B

Explanation:
AWS Database Migration Service (AWS DMS) is a cloud service that makes it possible to migrate relational databases, data warehouses, NoSQL databases, and other types of data stores to AWS quickly, securely, and with minimal downtime and zero data loss1. AWS DMS supports migration between 20-plus database and analytics engines, such as Microsoft SQL Server to Amazon RDS for SQL Server2. AWS DMS takes overmany of the difficult or tedious tasks involved in a migration project, such as capacity analysis, hardware and software procurement, installation and administration, testing and debugging, and ongoing replication and monitoring1. AWS DMS is a cost-effective solution, as you only pay for the compute resources and additional log storage used during the migration process2. AWS DMS is the best solution for the company to migrate the financial transaction data from the on-premises Microsoft SQL Server database to AWS, as it meets the requirements of minimal downtime, zero data loss, and low cost.
Option A is not the best solution, as AWS Lambda is a serverless compute service that lets you run code without provisioning or managing servers, but it does not provide any built-in features for database migration. You would have to write your own code to extract, transform, and load the data from the source to the target, which would increase the operational overhead and complexity.
Option C is not the best solution, as AWS Direct Connect is a service that establishes a dedicated network connection from your premises to AWS, but it does not provide any built-in features for database migration. You would still need to use another service or tool to perform the actual data transfer, which would increase the cost and complexity.
Option D is not the best solution, as AWS DataSync is a service that makes it easy to transfer data between on-premises storage systems and AWS storage services, such as Amazon S3, Amazon EFS, and Amazon FSx for Windows File Server, but it does not support Amazon RDS for SQL Server as a target. You would have to use another service or tool to migrate the data from Amazon S3 to Amazon RDS for SQL Server, which would increase the latency and complexity.
References:
? Database Migration - AWS Database Migration Service - AWS
? What is AWS Database Migration Service?
? AWS Database Migration Service Documentation
? AWS Certified Data Engineer - Associate DEA-C01 Complete Study Guide

NEW QUESTION 48
A media company wants to improve a system that recommends media content to customer based on user behavior and preferences. To improve the recommendation system, the company needs to incorporate insights from third-party datasets into the company's existing analytics platform.
The company wants to minimize the effort and time required to incorporate third-party datasets.
Which solution will meet these requirements with the LEAST operational overhead?

A. Use API calls to access and integrate third-party datasets from AWS Data Exchange.
B. Use API calls to access and integrate third-party datasets from AWS
C. Use Amazon Kinesis Data Streams to access and integrate third-party datasets from AWS CodeCommit repositories.
D. Use Amazon Kinesis Data Streams to access and integrate third-party datasets from Amazon Elastic Container Registry (Amazon ECR).

Answer: A

Explanation:
AWS Data Exchange is a service that makes it easy to find, subscribe to, and use third-party data in the cloud. It provides a secure and reliable way to access and integrate data from various sources, such as data providers, public datasets, or AWS services. Using AWS Data Exchange, you can browse and subscribe to data products that suit your needs, and then use API calls or the AWS Management Console to export the data to Amazon S3, where you can use it with your existing analytics platform. This solution minimizes the effort and time required to incorporate third-party datasets, as you do not need to set up and manage data pipelines, storage, or access controls. You also benefit from the data quality and freshness provided by the data providers, who can update their data products as frequently as needed12.
The other options are not optimal for the following reasons:
? B. Use API calls to access and integrate third-party datasets from AWS. This option is vague and does not specify which AWS service or feature is used to access and integrate third-party datasets. AWS offers a variety of services and features that can help with data ingestion, processing, and analysis, but not all of them are suitable for the given scenario. For example, AWS Glue is a serverless data integration service that can help you discover, prepare, and combine data from various sources, but it requires you to create and run data extraction, transformation, and loading (ETL) jobs, which can add operational overhead3.
? C. Use Amazon Kinesis Data Streams to access and integrate third-party datasets from AWS CodeCommit repositories. This option is not feasible, as AWS CodeCommit is a source control service that hosts secure Git-based repositories, not a data source that can be accessed by Amazon Kinesis Data Streams. Amazon Kinesis Data Streams is a service that enables you to capture, process, and analyze data streams in real time, suchas clickstream data, application logs, or IoT telemetry. It does not support accessing and integrating data from AWS CodeCommit repositories, which are meant for storing and managing code, not data .
? D. Use Amazon Kinesis Data Streams to access and integrate third-party datasets from Amazon Elastic Container Registry (Amazon ECR). This option is also not feasible, as Amazon ECR is a fully managed container registry service that stores, manages, and deploys container images, not a data source that can be accessed by Amazon Kinesis Data Streams. Amazon Kinesis Data Streams does not support accessing and integrating data from Amazon ECR, which is meant for storing and managing container images, not data .
References:
? 1: AWS Data Exchange User Guide
? 2: AWS Data Exchange FAQs
? 3: AWS Glue Developer Guide
? : AWS CodeCommit User Guide
? : Amazon Kinesis Data Streams Developer Guide
? : Amazon Elastic Container Registry User Guide
? : Build a Continuous Delivery Pipeline for Your Container Images with Amazon ECR as Source

NEW QUESTION 50
A company is migrating on-premises workloads to AWS. The company wants to reduce overall operational overhead. The company also wants to explore serverless options.
The company's current workloads use Apache Pig, Apache Oozie, Apache Spark, Apache Hbase, and Apache Flink. The on-premises workloads process petabytes of data in seconds. The company must maintain similar or better performance after the migration to AWS.
Which extract, transform, and load (ETL) service will meet these requirements?

A. AWS Glue
B. Amazon EMR
C. AWS Lambda
D. Amazon Redshift

Answer: A

Explanation:

AWS Glue is a fully managed serverless ETL service that can handle petabytes of data in seconds. AWS Glue can run Apache Spark and Apache Flink jobs without requiring any infrastructure provisioning or management. AWS Glue can also integrate with Apache Pig, Apache Oozie, and Apache Hbase using AWS Glue Data Catalog and AWS Glue workflows. AWS Glue can reduce the overall operational overhead by automating the data discovery, data preparation, and data loading processes. AWS Glue can also optimize the cost and performance of ETL jobs by using AWS Glue Job Bookmarking, AWS Glue Crawlers, and AWS Glue Schema Registry. References:
? AWS Glue
? AWS Glue Data Catalog
? AWS Glue Workflows
? [AWS Glue Job Bookmarking]
? [AWS Glue Crawlers]
? [AWS Glue Schema Registry]
? [AWS Certified Data Engineer - Associate DEA-C01 Complete Study Guide]

NEW QUESTION 53
An airline company is collecting metrics about flight activities for analytics. The company is conducting a proof of concept (POC) test to show how analytics can provide insights that the company can use to increase on-time departures.
The POC test uses objects in Amazon S3 that contain the metrics in .csv format. The POC test uses Amazon Athena to query the data. The data is partitioned in the S3 bucket by date.
As the amount of data increases, the company wants to optimize the storage solution to improve query performance.
Which combination of solutions will meet these requirements? (Choose two.)

A. Add a randomized string to the beginning of the keys in Amazon S3 to get more throughput across partitions.
B. Use an S3 bucket that is in the same account that uses Athena to query the data.
C. Use an S3 bucket that is in the same AWS Region where the company runs Athena queries.
D. Preprocess the .csvdata to JSON format by fetchingonly the document keys that the query requires.
E. Preprocess the .csv data to Apache Parquet format by fetching only the data blocks that are needed for predicates.

Answer: CE

Explanation:
Using an S3 bucket that is in the same AWS Region where the company runs Athena queries can improve query performance by reducing data transfer latency and costs. Preprocessing the .csv data to Apache Parquet format can also improve query performance by enabling columnar storage, compression, and partitioning, which can reduce the amount of data scanned and fetched by the query. These solutions can optimize the storage solution for the POC test without requiring much effort or changes to the existing data pipeline. The other solutions are not optimal or relevant for this requirement. Adding a randomized string to the beginning of the keys in Amazon S3 can improve the throughput across partitions, but it can also make the data harder to query and manage. Using an S3 bucket that is in the same account that uses Athena to query the data does not have any significant impact on query performance, as long as the proper permissions are granted. Preprocessing the .csv data to JSON format does not offer any benefits over the .csv format, as both are row-based and verbose formats that require more data scanning and fetching than columnar formats like Parquet. References:
? Best Practices When Using Athena with AWS Glue
? Optimizing Amazon S3 Performance
? AWS Certified Data Engineer - Associate DEA-C01 Complete Study Guide

NEW QUESTION 57
A company uses an Amazon Redshift cluster that runs on RA3 nodes. The company wants to scale read and write capacity to meet demand. A data engineer needs to identify a solution that will turn on concurrency scaling.
Which solution will meet this requirement?

A. Turn on concurrency scaling in workload management (WLM) for Redshift Serverless workgroups.
B. Turn on concurrency scaling at the workload management (WLM) queue level in the Redshift cluster.
C. Turn on concurrency scaling in the settings duringthe creation of andnew Redshift cluster.
D. Turn on concurrency scaling for the daily usage quota for the Redshift cluster.

Answer: B

Explanation:
Concurrency scaling is a feature that allows you to support thousands of concurrent users and queries, with consistently fast query performance. When you turn on concurrency scaling, Amazon Redshift automatically adds query processing power in seconds to process queries without any delays. You can manage which queries are sent to the concurrency-scaling cluster by configuring WLM queues. To turn on concurrency scaling for a queue, set the Concurrency Scaling mode value to auto. The other options are either incorrect or irrelevant, as they do not enable concurrency scaling for the existing Redshift cluster on RA3 nodes. References:
? Working with concurrency scaling - Amazon Redshift
? Amazon Redshift Concurrency Scaling - Amazon Web Services
? Configuring concurrency scaling queues - Amazon Redshift
? AWS Certified Data Engineer - Associate DEA-C01 Complete Study Guide (Chapter 6, page 163)

NEW QUESTION 61
A manufacturing company collects sensor data from its factory floor to monitor and enhance operational efficiency. The company uses Amazon Kinesis Data Streams to publish the data that the sensors collect to a data stream. Then Amazon Kinesis Data Firehose writes the data to an Amazon S3 bucket.
The company needs to display a real-time view of operational efficiency on a large screen in the manufacturing facility.
Which solution will meet these requirements with the LOWEST latency?

A. Use Amazon Managed Service for Apache Flink (previously known as Amazon Kinesis Data Analytics) to process the sensor dat
B. Use a connector for Apache Flink to write data to an Amazon Timestream databas
C. Use the Timestream database as a source to create a Grafana dashboard.
D. Configure the S3 bucket to send a notification to an AWS Lambda function when any new object is create
E. Use the Lambda function to publish the data to Amazon Auror
F. Use Aurora as a source to create an Amazon QuickSight dashboard.
G. Use Amazon Managed Service for Apache Flink (previously known as Amazon Kinesis Data Analytics) to process the sensor dat
H. Create a new Data Firehose delivery stream to publish data directly to an Amazon Timestream databas
I. Use the Timestream database as a source to create an Amazon QuickSight dashboard.

J. Use AWS Glue bookmarks to read sensor data from the S3 bucket in real tim
K. Publish the data to an Amazon Timestream databas
L. Use the Timestream database as a source to create a Grafana dashboard.

Answer: C

Explanation:
This solution will meet the requirements with the lowest latency because it uses Amazon Managed Service for Apache Flink to process the sensor data in real time and write it to Amazon Timestream, a fast, scalable, and serverless time series database. Amazon Timestream is optimized for storing and analyzing time series data, such as sensor data, and can handle trillions of events per day with millisecond latency. By using AmazonTimestream as a source, you can create an Amazon QuickSight dashboard that displays a real-time view of operational efficiency on a large screen in the manufacturing facility. Amazon QuickSight is a fully managed business intelligence service that can connect to various data sources, including Amazon Timestream, and provide interactive visualizations and insights123.
The other options are not optimal for the following reasons:
? A. Use Amazon Managed Service for Apache Flink (previously known as Amazon Kinesis Data Analytics) to process the sensor data. Use a connector for Apache Flink to write data to an Amazon Timestream database. Use the Timestream database as a source to create a Grafana dashboard. This option is similar to option C, but it uses Grafana instead of Amazon QuickSight to create the dashboard. Grafana is an open source visualization tool that can also connect to Amazon Timestream, but it requires additional steps to set up and configure, such as deploying a Grafana server on Amazon EC2, installing the Amazon Timestream plugin, and creating an IAM role for Grafana to access Timestream. These steps can increase the latency and complexity of the solution.
? B. Configure the S3 bucket to send a notification to an AWS Lambda function when any new object is created. Use the Lambda function to publish the data to Amazon Aurora. Use Aurora as a source to create an Amazon QuickSight dashboard. This option is not suitable for displaying a real-time view of operational efficiency, as it introduces unnecessary delays and costs in the data pipeline. First, the sensor data is written to an S3 bucket by Amazon Kinesis Data Firehose, which can have a buffering interval of up to 900 seconds. Then, the S3 bucket sends a notification to a Lambda function, which can incur additional invocation and execution time. Finally, the Lambda function publishes the data to Amazon Aurora, a relational database that is not optimized for time series data and can have higher storage and performance costs than Amazon Timestream .
? D. Use AWS Glue bookmarks to read sensor data from the S3 bucket in real time.
Publish the data to an Amazon Timestream database. Use the Timestream database as a source to create a Grafana dashboard. This option is also not suitable for displaying a real-time view of operational efficiency, as it uses AWS Glue bookmarks to read sensor data from the S3 bucket. AWS Glue bookmarks are a feature that helps AWS Glue jobs and crawlers keep track of the data that has already been processed, so that they can resume from where they left off. However, AWS Glue jobs and crawlers are not designed for real-time data processing, as they can have a minimum frequency of 5 minutes and a variable start-up time. Moreover, this option also uses Grafana instead of Amazon QuickSight to create the dashboard, which can increase the latency and complexity of the solution .
References:
? 1: Amazon Managed Streaming for Apache Flink
? 2: Amazon Timestream
? 3: Amazon QuickSight
? : Analyze data in Amazon Timestream using Grafana
? : Amazon Kinesis Data Firehose
? : Amazon Aurora
? : AWS Glue Bookmarks
? : AWS Glue Job and Crawler Scheduling

NEW QUESTION 63
A financial company wants to use Amazon Athena to run on-demand SQL queries on a petabyte-scale dataset to support a business intelligence (BI) application. An AWS Glue job that runs during non-business hours updates the dataset once every day. The BI application has a standard data refresh frequency of 1 hour to comply with company policies.
A data engineer wants to cost optimize the company's use of Amazon Athena without adding any additional infrastructure costs.
Which solution will meet these requirements with the LEAST operational overhead?

A. Configure an Amazon S3 Lifecycle policy to move data to the S3 Glacier Deep Archive storage class after 1 day
B. Use the query result reuse feature of Amazon Athena for the SQL queries.
C. Add an Amazon ElastiCache cluster between the Bl application and Athena.
D. Change the format of the files that are in the dataset to Apache Parquet.

Answer: B

Explanation:
The best solution to cost optimize the company's use of Amazon Athena without adding any additional infrastructure costs is to use the query result reuse feature of AmazonAthena for the SQL queries. This feature allows you to run the same query multiple times without incurring additional charges, as long as the underlying data has not changed and the query results are still in the query result location in Amazon S31. This feature is useful for scenarios where you have a petabyte-scale dataset that is updated infrequently, such as once a day, and you have a BI application that runs the same queries repeatedly, such as every hour. By using the query result reuse feature, you can reduce the amount of data scanned by your queries and save on the cost of running Athena. You can enable or disable this feature at the workgroup level or at the individual query level1.
Option A is not the best solution, as configuring an Amazon S3 Lifecycle policy to move data to the S3 Glacier Deep Archive storage class after 1 day would not cost optimize the company's use of Amazon Athena, but rather increase the cost and complexity. Amazon S3 Lifecycle policies are rules that you can define to automatically transition objects between different storage classes based on specified criteria, such as the age of the object2. S3 Glacier Deep Archive is the lowest-cost storage class in Amazon S3, designed
for long-term data archiving that is accessed once or twice in a year3. While moving data to S3 Glacier Deep Archive can reduce the storage cost, it would also increase the retrieval cost and latency, as it takes up to 12 hours to restore the data from S3 Glacier Deep Archive3. Moreover, Athena does not support querying data that is in S3 Glacier or S3 Glacier Deep Archive storage classes4. Therefore, using this option would not meet the requirements of running on-demand SQL queries on the dataset.
Option C is not the best solution, as adding an Amazon ElastiCache cluster between the BI application and Athena would not cost optimize the company's use of Amazon Athena, but rather increase the cost and complexity. Amazon ElastiCache is a service that offers fully managed in-memory data stores, such as Redis and Memcached, that can improve the performance and scalability of web applications by caching frequently accessed data. While using ElastiCache can reduce the latency and load on the BI application, it would not reduce the amount of data scanned by Athena, which is the main factor that determines the cost of running Athena. Moreover, using ElastiCache would introduce additional infrastructure costs and operational overhead, as you would have to provision, manage, and scale the ElastiCache cluster, and integrate it with the BI application and Athena. Option D is not the best solution, as changing the format of the files that are in the dataset to Apache Parquet would not cost optimize the company's use of Amazon Athena without adding any additional infrastructure costs, but rather increase the complexity. Apache Parquet is a columnar storage format that can improve the performance of analytical queries by reducing the amount of data that needs to be scanned and providing efficient compression and encoding schemes. However,changing the format of the files that are in the dataset to Apache Parquet would require additional processing and transformation steps, such as using AWS Glue or Amazon EMR to convert the files from their original format to Parquet, and storing the converted files in a separate location in Amazon S3. This would increase the complexity and the operational overhead of the data pipeline, and also incur additional costs for using AWS Glue or Amazon EMR. References:

? Query result reuse
? Amazon S3 Lifecycle
? S3 Glacier Deep Archive
? Storage classes supported by Athena
? [What is Amazon ElastiCache?]
? [Amazon Athena pricing]
? [Columnar Storage Formats]
? AWS Certified Data Engineer - Associate DEA-C01 Complete Study Guide

NEW QUESTION 68
A company is migrating a legacy application to an Amazon S3 based data lake. A data engineer reviewed data that is associated with the legacy application. The data engineer found that the legacy data contained some duplicate information.
The data engineer must identify and remove duplicate information from the legacy application data.
Which solution will meet these requirements with the LEAST operational overhead?

A. Write a custom extract, transform, and load (ETL) job in Pytho
B. Use the DataFramedrop duplicatesf) function by importingthe Pandas library to perform data deduplication.
C. Write an AWS Glue extract, transform, and load (ETL) jo
D. Usethe FindMatches machine learning(ML) transform to transform the data to perform data deduplication.
E. Write a custom extract, transform, and load (ETL) job in Pytho
F. Import the Python dedupe librar
G. Use the dedupe library to perform data deduplication.
H. Write an AWS Glue extract, transform, and load (ETL) jo
I. Import the Python dedupe librar
J. Use the dedupe library to perform data deduplication.

Answer: B

Explanation:
AWS Glue is a fully managed serverless ETL service that can handle data deduplication with minimal operational overhead. AWS Glue provides a built-in ML transform called FindMatches, which can automatically identify and group similar records in a dataset. FindMatches can also generate a primary key for each group of records and remove duplicates. FindMatches does not require any coding or prior ML experience, as it can learn from a sample of labeled data provided by the user. FindMatches can also scale to handle large datasets and optimize the cost and performance of the ETL job. References:
? AWS Glue
? FindMatches ML Transform
? AWS Certified Data Engineer - Associate DEA-C01 Complete Study Guide

NEW QUESTION 70
A company has five offices in different AWS Regions. Each office has its own human resources (HR) department that uses a unique IAM role. The company stores employee records in a data lake that is based on Amazon S3 storage.
A data engineering team needs to limit access to the records. Each HR department should be able to access records for only employees who are within the HR department's Region.
Which combination of steps should the data engineering team take to meet this requirement with the LEAST operational overhead? (Choose two.)

A. Use data filters for each Region to register the S3 paths as data locations.
B. Register the S3 path as an AWS Lake Formation location.
C. Modify the IAM roles of the HR departments to add a data filter for each department's Region.
D. Enable fine-grained access control in AWS Lake Formatio
E. Add a data filter for each Region.
F. Create a separate S3 bucket for each Regio
G. Configure an IAM policy to allow S3 acces
H. Restrict access based on Region.

Answer: BD

Explanation:
AWS Lake Formation is a service that helps you build, secure, and manage data lakes on Amazon S3. You can use AWS Lake Formation to register the S3 path as a data lake location, and enable fine-grained access control to limit access to the records based on the HR department’s Region. You can use data filters to specify which S3 prefixes or partitions each HR department can access, and grant permissions to the IAM roles of the HR departments accordingly. This solution will meet the requirement with the least operational overhead, as it simplifies the data lake management and security, and leverages the existing IAM roles of the HR departments12.
The other options are not optimal for the following reasons:
? A. Use data filters for each Region to register the S3 paths as data locations. This option is not possible, as data filters are not used to register S3 paths as data locations, but to grant permissions to access specific S3 prefixes or partitions within a data location. Moreover, this option does not specify how to limit access to the records based on the HR department’s Region.
? C. Modify the IAM roles of the HR departments to add a data filter for each department’s Region. This option is not possible, as data filters are not added to IAM roles, but to permissions granted by AWS Lake Formation. Moreover, this option does not specify how to register the S3 path as a data lake location, or how to enable fine-grained access control in AWS Lake Formation.
? E. Create a separate S3 bucket for each Region. Configure an IAM policy to allow S3 access. Restrict access based on Region. This option is not recommended, as it would require more operational overhead to create and manage multiple S3 buckets, and to configure and maintain IAM policies for each HR department. Moreover, this option does not leverage the benefits of AWS Lake Formation, such as data cataloging, data transformation, and data governance.
References:
? 1: AWS Lake Formation
? 2: AWS Lake Formation Permissions
? : AWS Identity and Access Management
? : Amazon S3

NEW QUESTION 74
A company uses Amazon RDS to store transactional data. The company runs an RDS DB instance in a private subnet. A developer wrote an AWS Lambda function with default settings to insert, update, or delete data in the DB instance.

The developer needs to give the Lambda function the ability to connect to the DB instance privately without using the public internet.
Which combination of steps will meet this requirement with the LEAST operational overhead? (Choose two.)

A. Turn on the public access setting for the DB instance.
B. Update the security group of the DB instance to allow only Lambda function invocations on the database port.
C. Configure the Lambda function to run in the same subnet that the DB instance uses.
D. Attach the same security group to the Lambda function and the DB instanc
E. Include a self-referencing rule that allows access through the database port.
F. Update the network ACL of the private subnet to include a self-referencing rule that allows access through the database port.

Answer: CD

Explanation:
To enable the Lambda function to connect to the RDS DB instance privately without using the public internet, the best combination of steps is to configure the Lambda function to run in the same subnet that the DB instance uses, and attach the same security group to the Lambda function and the DB instance. This way, the Lambda function and the DB instance can communicate within the same private network, and the security group can allow traffic between them on the database port. This solution has the least operational overhead, as it does not require any changes to the public access setting, the network ACL, or the security group of the DB instance.
The other options are not optimal for the following reasons:
? A. Turn on the public access setting for the DB instance. This option is not recommended, as it would expose the DB instance to the public internet, which can compromise the security and privacy of the data. Moreover, this option would not enable the Lambda function to connect to the DB instance privately, as it would still require the Lambda function to use the public internet to access the DB instance.
? B. Update the security group of the DB instance to allow only Lambda function invocations on the database port. This option is not sufficient, as it would only modify the inbound rules of the security group of the DB instance, but not the outbound rules of the security group of the Lambda function. Moreover, this option would not enable the Lambda function to connect to the DB instance privately, as it would still require the Lambda function to use the public internet to access the DB instance.
? E. Update the network ACL of the private subnet to include a self-referencing rule
that allows access through the database port. This option is not necessary, as the network ACL of the private subnet already allows all traffic within the subnet by default. Moreover, this option would not enable the Lambda function to connect to the DB instance privately, as it would still require the Lambda function to use the public internet to access the DB instance.
References:
? 1: Connecting to an Amazon RDS DB instance
? 2: Configuring a Lambda function to access resources in a VPC
? 3: Working with security groups
? : Network ACLs

NEW QUESTION 75
A company is building an analytics solution. The solution uses Amazon S3 for data lake storage and Amazon Redshift for a data warehouse. The company wants to use Amazon Redshift Spectrum to query the data that is in Amazon S3.
Which actions will provide the FASTEST queries? (Choose two.)

A. Use gzip compression to compress individual files to sizes that are between 1 GB and 5 GB.
B. Use a columnar storage file format.
C. Partition the data based on the most common query predicates.
D. Split the data into files that are less than 10 KB.
E. Use file formats that are not

Answer: BC

Explanation:
Amazon Redshift Spectrum is a feature that allows you to run SQL queries directly against data in Amazon S3, without loading or transforming the data. Redshift Spectrum can query various data formats, such as CSV, JSON, ORC, Avro, and Parquet. However, not all data formats are equally efficient for querying. Some data formats, such as CSV and JSON, are row-oriented, meaning that they store data as a sequence of records, each with the same fields. Row-oriented formats are suitable for loading and exporting data, but they are not optimal for analytical queries that often access only a subset ofcolumns. Row-oriented formats also do not support compression or encoding techniques that can reduce the data size and improve the query performance.
On the other hand, some data formats, such as ORC and Parquet, are column-oriented, meaning that they store data as a collection of columns, each with a specific data type. Column-oriented formats are ideal for analytical queries that often filter, aggregate, or join data by columns. Column-oriented formats also support compression and encoding techniques that can reduce the data size and improve the query performance. For example, Parquet supports dictionary encoding, which replaces repeated values with numeric codes, and run-length encoding, which replaces consecutive identical values with a single value and a count. Parquet also supports various compression algorithms, such as Snappy, GZIP, and ZSTD, that can further reduce the data size and improve the query performance.
Therefore, using a columnar storage file format, such as Parquet, will provide faster queries, as it allows Redshift Spectrum to scan only the relevant columns and skip the rest, reducing the amount of data read from S3. Additionally, partitioning the data based on the most common query predicates, such as date, time, region, etc., will provide faster queries, as it allows Redshift Spectrum to prune the partitions that do not match the query criteria, reducing the amount of data scanned from S3. Partitioning also improves the performance of joins and aggregations, as it reduces data skew and shuffling.
The other options are not as effective as using a columnar storage file format and partitioning the data. Using gzip compression to compress individual files to sizes that are between 1 GB and 5 GB will reduce the data size, but it will not improve the query performance significantly, as gzip is not a splittable compression algorithm and requires decompression before reading. Splitting the data into files that are less than 10 KB will increase the number of files and the metadata overhead, which will degrade the query performance. Using file formats that are not supported by Redshift Spectrum, such as XML, will not work, as Redshift Spectrum will not be able to read or parse the data. References:
? Amazon Redshift Spectrum
? Choosing the Right Data Format
? AWS Certified Data Engineer - Associate DEA-C01 Complete Study Guide, Chapter 4: Data Lakes and Data Warehouses, Section 4.3: Amazon Redshift Spectrum

NEW QUESTION 78
A retail company has a customer data hub in an Amazon S3 bucket. Employees from many countries use the data hub to support company-wide analytics. A governance team must ensure that the company's data analysts can access data only for customers who are within the same country as the analysts.
Which solution will meet these requirements with the LEAST operational effort?

A. Create a separate table for each country's customer dat

B. Provide access to each analyst based on the country that the analyst serves.
C. Register the S3 bucket as a data lake location in AWS Lake Formatio
D. Use the Lake Formation row-level security features to enforce the company's access policies.
E. Move the data to AWS Regions that are close to the countries where the customers ar
F. Provide access to each analyst based on the country that the analyst serves.
G. Load the data into Amazon Redshif
H. Create a view for each countr
I. Create separate 1AM roles for each country to provide access to data from each countr
J. Assign the appropriate roles to the analysts.

Answer: B

Explanation:
AWS Lake Formation is a service that allows you to easily set up, secure, and manage data lakes. One of the features of Lake Formation is row-level security, which enables you to control access to specific rows or columns of data based on the identity or role of the user. This feature is useful for scenarios where you need to restrict access to sensitive or regulated data, such as customer data from different countries. By registering the S3 bucket as a data lake location in Lake Formation, you can use the Lake Formation console or APIs to define and apply row-level security policies to the data in the bucket. You can also use Lake Formation blueprints to automate the ingestion and transformation of data from various sources into the data lake. This solution requires the least operational effort compared to the other options, as it does not involve creating or moving data, or managing multiple tables, views, or roles. References:
? AWS Lake Formation
? Row-Level Security
? AWS Certified Data Engineer - Associate DEA-C01 Complete Study Guide, Chapter 4: Data Lakes and Data Warehouses, Section 4.2: AWS Lake Formation

NEW QUESTION 83
A data engineer runs Amazon Athena queries on data that is in an Amazon S3 bucket. The Athena queries use AWS Glue Data Catalog as a metadata table.
The data engineer notices that the Athena query plans are experiencing a performance bottleneck. The data engineer determines that the cause of the performance bottleneck is the large number of partitions that are in the S3 bucket. The data engineer must resolve the performance bottleneck and reduce Athena query planning time.
Which solutions will meet these requirements? (Choose two.)

A. Create an AWS Glue partition inde
B. Enable partition filtering.
C. Bucketthe data based on a column thatthe data have in common in a WHERE clause of the user query
D. Use Athena partition projection based on the S3 bucket prefix.
E. Transform the data that is in the S3 bucket to Apache Parquet format.
F. Use the Amazon EMR S3DistCP utility to combine smaller objects in the S3 bucket into larger objects.

Answer: AC

Explanation:
The best solutions to resolve the performance bottleneck and reduce Athena query planning time are to create an AWS Glue partition index and enable partition filtering, and to use Athena partition projection based on the S3 bucket prefix.
AWS Glue partition indexes are a feature that allows you to speed up query processing of highly partitioned tables cataloged in AWS Glue Data Catalog. Partition indexes are available for queries in Amazon EMR, Amazon Redshift Spectrum, and AWS Glue ETL jobs. Partition indexes are sublists of partition keys defined in the table. When you create a partition index, you specify a list of partition keys that already exist on a given table. AWS Glue then creates an index for the specified keys and stores it in the Data Catalog. When you run a query that filters on the partition keys, AWS Glue uses the partition index to quickly identify the relevant partitions without scanning the entiretable metadata. This reduces the query planning time and improves the query performance1.
Athena partition projection is a feature that allows you to speed up query processing of highly partitioned tables and automate partition management. In partition projection, Athena calculates partition values and locations using the table properties that you configure directly on your table in AWS Glue. The table properties allow Athena to 'project', or determine, the necessary partition information instead of having to do a more time- consuming metadata lookup in the AWS Glue Data Catalog. Because in-memory operations are often faster than remote operations, partition projection can reduce the runtime of queries against highly partitioned tables. Partition projection also automates partition management because it removes the need to manually create partitions in Athena, AWS Glue, or your external Hive metastore2.
Option B is not the best solution, as bucketing the data based on a column that the data have in common in a WHERE clause of the user query would not reduce the query planning time. Bucketing is a technique that divides data into buckets based on a hash function applied to a column. Bucketing can improve the performance of join queries by
reducing the amount of data that needs to be shuffled between nodes. However, bucketing does not affect the partition metadata retrieval, which is the main cause of the performance bottleneck in this scenario3.
Option D is not the best solution, as transforming the data that is in the S3 bucket to Apache Parquet format would not reduce the query planning time. Apache Parquet is a columnar storage format that can improve the performance of analytical queries by reducing the amount of data that needs to be scanned and providing efficient compression and encoding schemes. However, Parquet does not affect the partition metadata retrieval, which is the main cause of the performance bottleneck in this scenario4.
Option E is not the best solution, as using the Amazon EMR S3DistCP utility to combine smaller objects in the S3 bucket into larger objects would not reduce the query planning time. S3DistCP is a tool that can copy large amounts of data between Amazon S3 buckets or from HDFS to Amazon S3. S3DistCP can also aggregate smaller files into larger files to improve the performance of sequential access. However, S3DistCP does not affect the partition metadata retrieval, which is the main cause of the performance bottleneck in this scenario5. References:
? Improve query performance using AWS Glue partition indexes
? Partition projection with Amazon Athena
? Bucketing vs Partitioning
? Columnar Storage Formats
? S3DistCp
? AWS Certified Data Engineer - Associate DEA-C01 Complete Study Guide

NEW QUESTION 87
A data engineer has a one-time task to read data from objects that are in Apache Parquet format in an Amazon S3 bucket. The data engineer needs to query only one column of the data.
Which solution will meet these requirements with the LEAST operational overhead?

A. Confiqure an AWS Lambda function to load data from the S3 bucket into a pandas dataframe- Write a SQL SELECT statement on the dataframe to query the required column.
B. Use S3 Select to write a SQL SELECT statement to retrieve the required column from the S3 objects.

C. Prepare an AWS Glue DataBrew project to consume the S3 objects and to query the required column.
D. Run an AWS Glue crawler on the S3 object
E. Use a SQL SELECT statement in Amazon Athena to query the required column.

Answer: B

Explanation:
Option B is the best solution to meet the requirements with the least operational overhead because S3 Select is a feature that allows you to retrieve only a subset of data from an S3 object by using simple SQL expressions. S3 Select works on objects stored in CSV, JSON, or Parquet format. By using S3 Select, you can avoid the need to download and process the entire S3 object, which reduces the amount of data transferred and the computation time. S3 Select is also easy to use and does not require any additional services or resources.
Option A is not a good solution because it involves writing custom code and configuring an AWS Lambda function to load data from the S3 bucket into a pandas dataframe and query the required column. This option adds complexity and latency to the data retrieval process and requires additional resources and configuration.Moreover, AWS Lambda has limitations on the execution time, memory, and concurrency, which may affect the performance and reliability of the data retrieval process.
Option C is not a good solution because it involves creating and running an AWS Glue DataBrew project to consume the S3 objects and query the required column. AWS Glue DataBrew is a visual data preparation tool that allows you to clean, normalize, and transform data without writing code. However, in this scenario, the data is already in Parquet format, which is a columnar storage format that is optimized for analytics. Therefore, there is no need to use AWS Glue DataBrew to prepare the data. Moreover, AWS Glue DataBrew adds extra time and cost to the data retrieval process and requires additional resources and configuration.
Option D is not a good solution because it involves running an AWS Glue crawler on the S3 objects and using a SQL SELECT statement in Amazon Athena to query the required column. An AWS Glue crawler is a service that can scan data sources and create metadata tables in the AWS Glue Data Catalog. The Data Catalog is a central repository that stores information about the data sources, such as schema, format, and location. Amazon Athena is a serverless interactive query service that allows you to analyze data in S3 using standard SQL. However, in this scenario, the schema and format of the data are already known and fixed, so there is no need to run a crawler to discover them. Moreover, running a crawler and using Amazon Athena adds extra time and cost to the data retrieval process and requires additional services and configuration.
References:
? AWS Certified Data Engineer - Associate DEA-C01 Complete Study Guide
? S3 Select and Glacier Select - Amazon Simple Storage Service
? AWS Lambda - FAQs
? What Is AWS Glue DataBrew? - AWS Glue DataBrew
? Populating the AWS Glue Data Catalog - AWS Glue
? What is Amazon Athena? - Amazon Athena

NEW QUESTION 91
A company wants to implement real-time analytics capabilities. The company wants to use Amazon Kinesis Data Streams and Amazon Redshift to ingest and process streaming data at the rate of several gigabytes per second. The company wants to derive near real-time insights by using existing business intelligence (BI) and analytics tools.
Which solution will meet these requirements with the LEAST operational overhead?

A. Use Kinesis Data Streams to stage data in Amazon S3. Use the COPY command to load data from Amazon S3 directly into Amazon Redshift to make the data immediately available for real-time analysis.
B. Access the data from Kinesis Data Streams by using SQL querie
C. Create materialized views directly on top of the strea
D. Refresh the materialized views regularly to query the most recent stream data.
E. Create an external schema in Amazon Redshift to map the data from Kinesis Data Streams to an Amazon Redshift objec
F. Create a materialized view to read data from the strea
G. Set the materialized view to auto refresh.
H. Connect Kinesis Data Streams to Amazon Kinesis Data Firehos
I. Use Kinesis Data Firehose to stage the data in Amazon S3. Use the COPY command to load the data from Amazon S3 to a table in Amazon Redshift.

Answer: C

Explanation:
This solution meets the requirements of implementing real-time analytics capabilities with the least operational overhead. By creating an external schema in Amazon Redshift, you can access the data from Kinesis Data Streams using SQL queries without having to load the data into the cluster. By creating a materialized view on top of the stream, you can store the results of the query in the cluster and make them available for analysis. By setting the materialized view to auto refresh, you can ensure that the view is updated with the latest data from the stream at regular intervals. This way, you can derive near real-time insights by using existing BI and analytics tools. References:
? Amazon Redshift streaming ingestion
? Creating an external schema for Amazon Kinesis Data Streams
? Creating a materialized view for Amazon Kinesis Data Streams

NEW QUESTION 96
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