

# Exam Questions Professional-Data-Engineer

Google Professional Data Engineer Exam

<https://www.2passeasy.com/dumps/Professional-Data-Engineer/>



### NEW QUESTION 1

- (Exam Topic 1)

You want to use a database of information about tissue samples to classify future tissue samples as either normal or mutated. You are evaluating an unsupervised anomaly detection method for classifying the tissue samples. Which two characteristics support this method? (Choose two.)

- A. There are very few occurrences of mutations relative to normal samples.
- B. There are roughly equal occurrences of both normal and mutated samples in the database.
- C. You expect future mutations to have different features from the mutated samples in the database.
- D. You expect future mutations to have similar features to the mutated samples in the database.
- E. You already have labels for which samples are mutated and which are normal in the database.

**Answer:** AD

#### Explanation:

Unsupervised anomaly detection techniques detect anomalies in an unlabeled test data set under the assumption that the majority of the instances in the data set are normal by looking for instances that seem to fit least to the remainder of the data set. [https://en.wikipedia.org/wiki/Anomaly\\_detection](https://en.wikipedia.org/wiki/Anomaly_detection)

### NEW QUESTION 2

- (Exam Topic 1)

You want to use Google Stackdriver Logging to monitor Google BigQuery usage. You need an instant notification to be sent to your monitoring tool when new data is appended to a certain table using an insert job, but you do not want to receive notifications for other tables. What should you do?

- A. Make a call to the Stackdriver API to list all logs, and apply an advanced filter.
- B. In the Stackdriver logging admin interface, and enable a log sink export to BigQuery.
- C. In the Stackdriver logging admin interface, enable a log sink export to Google Cloud Pub/Sub, and subscribe to the topic from your monitoring tool.
- D. Using the Stackdriver API, create a project sink with advanced log filter to export to Pub/Sub, and subscribe to the topic from your monitoring tool.

**Answer:** B

### NEW QUESTION 3

- (Exam Topic 1)

Your company is streaming real-time sensor data from their factory floor into Bigtable and they have noticed extremely poor performance. How should the row key be redesigned to improve Bigtable performance on queries that populate real-time dashboards?

- A. Use a row key of the form <timestamp>.
- B. Use a row key of the form <sensorid>.
- C. Use a row key of the form <timestamp>#<sensorid>.
- D. Use a row key of the form >#<sensorid>#<timestamp>.

**Answer:** A

### NEW QUESTION 4

- (Exam Topic 1)

You are building new real-time data warehouse for your company and will use Google BigQuery streaming inserts. There is no guarantee that data will only be sent in once but you do have a unique ID for each row of data and an event timestamp. You want to ensure that duplicates are not included while interactively querying data. Which query type should you use?

- A. Include ORDER BY DESK on timestamp column and LIMIT to 1.
- B. Use GROUP BY on the unique ID column and timestamp column and SUM on the values.
- C. Use the LAG window function with PARTITION by unique ID along with WHERE LAG IS NOT NULL.
- D. Use the ROW\_NUMBER window function with PARTITION by unique ID along with WHERE row equals 1.

**Answer:** D

#### Explanation:

<https://cloud.google.com/bigquery/docs/reference/standard-sql/analytic-function-concepts>

### NEW QUESTION 5

- (Exam Topic 1)

You are building a model to predict whether or not it will rain on a given day. You have thousands of input features and want to see if you can improve training speed by removing some features while having a minimum effect on model accuracy. What can you do?

- A. Eliminate features that are highly correlated to the output labels.
- B. Combine highly co-dependent features into one representative feature.
- C. Instead of feeding in each feature individually, average their values in batches of 3.
- D. Remove the features that have null values for more than 50% of the training records.

**Answer:** B

### NEW QUESTION 6

- (Exam Topic 1)

Your company is migrating their 30-node Apache Hadoop cluster to the cloud. They want to re-use Hadoop jobs they have already created and minimize the management of the cluster as much as possible. They also want to be able to persist data beyond the life of the cluster. What should you do?

- A. Create a Google Cloud Dataflow job to process the data.
- B. Create a Google Cloud Dataproc cluster that uses persistent disks for HDFS.

- C. Create a Hadoop cluster on Google Compute Engine that uses persistent disks.
- D. Create a Cloud Dataproc cluster that uses the Google Cloud Storage connector.
- E. Create a Hadoop cluster on Google Compute Engine that uses Local SSD disks.

**Answer:** D

#### NEW QUESTION 7

- (Exam Topic 1)

Your company is running their first dynamic campaign, serving different offers by analyzing real-time data during the holiday season. The data scientists are collecting terabytes of data that rapidly grows every hour during their 30-day campaign. They are using Google Cloud Dataflow to preprocess the data and collect the feature (signals) data that is needed for the machine learning model in Google Cloud Bigtable. The team is observing suboptimal performance with reads and writes of their initial load of 10 TB of data. They want to improve this performance while minimizing cost. What should they do?

- A. Redefine the schema by evenly distributing reads and writes across the row space of the table.
- B. The performance issue should be resolved over time as the size of the BigDate cluster is increased.
- C. Redesign the schema to use a single row key to identify values that need to be updated frequently in the cluster.
- D. Redesign the schema to use row keys based on numeric IDs that increase sequentially per user viewing the offers.

**Answer:** A

#### NEW QUESTION 8

- (Exam Topic 1)

Business owners at your company have given you a database of bank transactions. Each row contains the user ID, transaction type, transaction location, and transaction amount. They ask you to investigate what type of machine learning can be applied to the data. Which three machine learning applications can you use? (Choose three.)

- A. Supervised learning to determine which transactions are most likely to be fraudulent.
- B. Unsupervised learning to determine which transactions are most likely to be fraudulent.
- C. Clustering to divide the transactions into N categories based on feature similarity.
- D. Supervised learning to predict the location of a transaction.
- E. Reinforcement learning to predict the location of a transaction.
- F. Unsupervised learning to predict the location of a transaction.

**Answer:** BCD

#### NEW QUESTION 9

- (Exam Topic 2)

Flowlogistic is rolling out their real-time inventory tracking system. The tracking devices will all send package-tracking messages, which will now go to a single Google Cloud Pub/Sub topic instead of the Apache Kafka cluster. A subscriber application will then process the messages for real-time reporting and store them in Google BigQuery for historical analysis. You want to ensure the package data can be analyzed over time. Which approach should you take?

- A. Attach the timestamp on each message in the Cloud Pub/Sub subscriber application as they are received.
- B. Attach the timestamp and Package ID on the outbound message from each publisher device as they are sent to Cloud Pub/Sub.
- C. Use the NOW () function in BigQuery to record the event's time.
- D. Use the automatically generated timestamp from Cloud Pub/Sub to order the data.

**Answer:** B

#### NEW QUESTION 10

- (Exam Topic 3)

You create a new report for your large team in Google Data Studio 360. The report uses Google BigQuery as its data source. It is company policy to ensure employees can view only the data associated with their region, so you create and populate a table for each region. You need to enforce the regional access policy to the data.

Which two actions should you take? (Choose two.)

- A. Ensure all the tables are included in global dataset.
- B. Ensure each table is included in a dataset for a region.
- C. Adjust the settings for each table to allow a related region-based security group view access.
- D. Adjust the settings for each view to allow a related region-based security group view access.
- E. Adjust the settings for each dataset to allow a related region-based security group view access.

**Answer:** BD

#### NEW QUESTION 10

- (Exam Topic 3)

Given the record streams MJTelco is interested in ingesting per day, they are concerned about the cost of Google BigQuery increasing. MJTelco asks you to provide a design solution. They require a single large data table called tracking\_table. Additionally, they want to minimize the cost of daily queries while performing fine-grained analysis of each day's events. They also want to use streaming ingestion. What should you do?

- A. Create a table called tracking\_table and include a DATE column.
- B. Create a partitioned table called tracking\_table and include a TIMESTAMP column.
- C. Create sharded tables for each day following the pattern tracking\_table\_YYYYMMDD.
- D. Create a table called tracking\_table with a TIMESTAMP column to represent the day.

**Answer:** B

### NEW QUESTION 15

- (Exam Topic 4)

Your company is loading comma-separated values (CSV) files into Google BigQuery. The data is fully imported successfully; however, the imported data is not matching byte-to-byte to the source file. What is the most likely cause of this problem?

- A. The CSV data loaded in BigQuery is not flagged as CSV.
- B. The CSV data has invalid rows that were skipped on import.
- C. The CSV data loaded in BigQuery is not using BigQuery's default encoding.
- D. The CSV data has not gone through an ETL phase before loading into BigQuery.

**Answer: B**

### NEW QUESTION 17

- (Exam Topic 4)

You are deploying a new storage system for your mobile application, which is a media streaming service. You decide the best fit is Google Cloud Datastore. You have entities with multiple properties, some of which can take on multiple values. For example, in the entity 'Movie' the property 'actors' and the property 'tags' have multiple values but the property 'date released' does not. A typical query would ask for all movies with actor=<actorname> ordered by date\_released or all movies with tag=Comedy ordered by date\_released. How should you avoid a combinatorial explosion in the number of indexes?

A. Manually configure the index in your index config as follows:

Indexes:

```
-kind: Movie
  Properties:
    -name: actors
    name: date_released
-kind: Movie
  Properties:
    -name: tags
    name: date_released
```

B. Manually configure the index in your index config as follows:

Indexes:

```
-kind: Movie
  Properties:
    -name: actors
    -name: tags
-name: date_published
```

C. Set the following in your entity options: exclude\_from\_indexes = 'actors, tags'

D. Set the following in your entity options: exclude\_from\_indexes = 'date\_published'

- A. Option A
- B. Option B.
- C. Option C
- D. Option D

**Answer: A**

### NEW QUESTION 20

- (Exam Topic 4)

You work for an economic consulting firm that helps companies identify economic trends as they happen. As part of your analysis, you use Google BigQuery to correlate customer data with the average prices of the 100 most common goods sold, including bread, gasoline, milk, and others. The average prices of these goods are updated every 30 minutes. You want to make sure this data stays up to date so you can combine it with other data in BigQuery as cheaply as possible. What should you do?

- A. Load the data every 30 minutes into a new partitioned table in BigQuery.
- B. Store and update the data in a regional Google Cloud Storage bucket and create a federated data source in BigQuery
- C. Store the data in Google Cloud Datastor
- D. Use Google Cloud Dataflow to query BigQuery and combine the data programmatically with the data stored in Cloud Datastore
- E. Store the data in a file in a regional Google Cloud Storage bucke
- F. Use Cloud Dataflow to query BigQuery and combine the data programmatically with the data stored in Google Cloud Storage.

**Answer: A**

### NEW QUESTION 22

- (Exam Topic 5)

You are planning to use Google's Dataflow SDK to analyze customer data such as displayed below. Your project requirement is to extract only the customer name from the data source and then write to an output PCollection.

Tom,555 X street Tim,553 Y street Sam, 111 Z street

Which operation is best suited for the above data processing requirement?

- A. ParDo
- B. Sink API
- C. Source API
- D. Data extraction

**Answer:** A

**Explanation:**

In Google Cloud dataflow SDK, you can use the ParDo to extract only a customer name of each element in your PCollection.

Reference: <https://cloud.google.com/dataflow/model/par-do>

**NEW QUESTION 25**

- (Exam Topic 5)

What are two methods that can be used to denormalize tables in BigQuery?

- A. 1) Split table into multiple tables; 2) Use a partitioned table
- B. 1) Join tables into one table; 2) Use nested repeated fields
- C. 1) Use a partitioned table; 2) Join tables into one table
- D. 1) Use nested repeated fields; 2) Use a partitioned table

**Answer:** B

**Explanation:**

The conventional method of denormalizing data involves simply writing a fact, along with all its dimensions, into a flat table structure. For example, if you are dealing with sales transactions, you would write each individual fact to a record, along with the accompanying dimensions such as order and customer information. The other method for denormalizing data takes advantage of BigQuery's native support for nested and repeated structures in JSON or Avro input data. Expressing records using nested and repeated structures can provide a more natural representation of the underlying data. In the case of the sales order, the outer part of a JSON structure would contain the order and customer information, and the inner part of the structure would contain the individual line items of the order, which would be represented as nested, repeated elements.

Reference: [https://cloud.google.com/solutions/bigquery-data-warehouse#denormalizing\\_data](https://cloud.google.com/solutions/bigquery-data-warehouse#denormalizing_data)

**NEW QUESTION 27**

- (Exam Topic 5)

Which of the following is not possible using primitive roles?

- A. Give a user viewer access to BigQuery and owner access to Google Compute Engine instances.
- B. Give UserA owner access and UserB editor access for all datasets in a project.
- C. Give a user access to view all datasets in a project, but not run queries on them.
- D. Give GroupA owner access and GroupB editor access for all datasets in a project.

**Answer:** C

**Explanation:**

Primitive roles can be used to give owner, editor, or viewer access to a user or group, but they can't be used to separate data access permissions from job-running permissions.

Reference: [https://cloud.google.com/bigquery/docs/access-control#primitive\\_iam\\_roles](https://cloud.google.com/bigquery/docs/access-control#primitive_iam_roles)

**NEW QUESTION 31**

- (Exam Topic 5)

Which of the following IAM roles does your Compute Engine account require to be able to run pipeline jobs?

- A. dataflow.worker
- B. dataflow.compute
- C. dataflow.developer
- D. dataflow.viewer

**Answer:** A

**Explanation:**

The dataflow.worker role provides the permissions necessary for a Compute Engine service account to execute work units for a Dataflow pipeline

Reference: <https://cloud.google.com/dataflow/access-control>

**NEW QUESTION 35**

- (Exam Topic 5)

Which of the following is NOT one of the three main types of triggers that Dataflow supports?

- A. Trigger based on element size in bytes
- B. Trigger that is a combination of other triggers
- C. Trigger based on element count
- D. Trigger based on time

**Answer:** A

**Explanation:**

There are three major kinds of triggers that Dataflow supports: 1. Time-based triggers 2. Data-driven triggers. You can set a trigger to emit results from a window when that window has received a certain number of data elements. 3. Composite triggers. These triggers combine multiple time-based or data-driven triggers in some logical way

Reference: <https://cloud.google.com/dataflow/model/triggers>

#### NEW QUESTION 40

- (Exam Topic 5)

Which Java SDK class can you use to run your Dataflow programs locally?

- A. LocalRunner
- B. DirectPipelineRunner
- C. MachineRunner
- D. LocalPipelineRunner

**Answer: B**

#### Explanation:

DirectPipelineRunner allows you to execute operations in the pipeline directly, without any optimization. Useful for small local execution and tests

Reference:

<https://cloud.google.com/dataflow/java-sdk/JavaDoc/com/google/cloud/dataflow/sdk/runners/DirectPipelineRun>

#### NEW QUESTION 42

- (Exam Topic 5)

Which of these sources can you not load data into BigQuery from?

- A. File upload
- B. Google Drive
- C. Google Cloud Storage
- D. Google Cloud SQL

**Answer: D**

#### Explanation:

You can load data into BigQuery from a file upload, Google Cloud Storage, Google Drive, or Google Cloud Bigtable. It is not possible to load data into BigQuery directly from Google Cloud SQL. One way to get data from Cloud SQL to BigQuery would be to export data from Cloud SQL to Cloud Storage and then load it from there.

Reference: <https://cloud.google.com/bigquery/loading-data>

#### NEW QUESTION 45

- (Exam Topic 5)

When you store data in Cloud Bigtable, what is the recommended minimum amount of stored data?

- A. 500 TB
- B. 1 GB
- C. 1 TB
- D. 500 GB

**Answer: C**

#### Explanation:

Cloud Bigtable is not a relational database. It does not support SQL queries, joins, or multi-row transactions. It is not a good solution for less than 1 TB of data.

Reference: [https://cloud.google.com/bigtable/docs/overview#title\\_short\\_and\\_other\\_storage\\_options](https://cloud.google.com/bigtable/docs/overview#title_short_and_other_storage_options)

#### NEW QUESTION 48

- (Exam Topic 5)

Which of these is not a supported method of putting data into a partitioned table?

- A. If you have existing data in a separate file for each day, then create a partitioned table and upload each file into the appropriate partition.
- B. Run a query to get the records for a specific day from an existing table and for the destination table, specify a partitioned table ending with the day in the format "\$YYYYMMDD".
- C. Create a partitioned table and stream new records to it every day.
- D. Use ORDER BY to put a table's rows into chronological order and then change the table's type to "Partitioned".

**Answer: D**

#### Explanation:

You cannot change an existing table into a partitioned table. You must create a partitioned table from scratch. Then you can either stream data into it every day and the data will automatically be put in the right partition, or you can load data into a specific partition by using "\$YYYYMMDD" at the end of the table name.

Reference: <https://cloud.google.com/bigquery/docs/partitioned-tables>

#### NEW QUESTION 52

- (Exam Topic 5)

Which of these statements about BigQuery caching is true?

- A. By default, a query's results are not cached.
- B. BigQuery caches query results for 48 hours.
- C. Query results are cached even if you specify a destination table.
- D. There is no charge for a query that retrieves its results from cache.

**Answer:** D

**Explanation:**

When query results are retrieved from a cached results table, you are not charged for the query. BigQuery caches query results for 24 hours, not 48 hours. Query results are not cached if you specify a destination table. A query's results are always cached except under certain conditions, such as if you specify a destination table. Reference: <https://cloud.google.com/bigquery/querying-data#query-caching>

**NEW QUESTION 57**

- (Exam Topic 5)

What are two of the benefits of using denormalized data structures in BigQuery?

- A. Reduces the amount of data processed, reduces the amount of storage required
- B. Increases query speed, makes queries simpler
- C. Reduces the amount of storage required, increases query speed
- D. Reduces the amount of data processed, increases query speed

**Answer:** B

**Explanation:**

Denormalization increases query speed for tables with billions of rows because BigQuery's performance degrades when doing JOINS on large tables, but with a denormalized data structure, you don't have to use JOINS, since all of the data has been combined into one table. Denormalization also makes queries simpler because you do not have to use JOIN clauses. Denormalization increases the amount of data processed and the amount of storage required because it creates redundant data. Reference: [https://cloud.google.com/solutions/bigquery-data-warehouse#denormalizing\\_data](https://cloud.google.com/solutions/bigquery-data-warehouse#denormalizing_data)

**NEW QUESTION 60**

- (Exam Topic 5)

Does Dataflow process batch data pipelines or streaming data pipelines?

- A. Only Batch Data Pipelines
- B. Both Batch and Streaming Data Pipelines
- C. Only Streaming Data Pipelines
- D. None of the above

**Answer:** B

**Explanation:**

Dataflow is a unified processing model, and can execute both streaming and batch data pipelines Reference: <https://cloud.google.com/dataflow/>

**NEW QUESTION 63**

- (Exam Topic 5)

All Google Cloud Bigtable client requests go through a front-end server they are sent to a Cloud Bigtable node.

- A. before
- B. after
- C. only if
- D. once

**Answer:** A

**Explanation:**

In a Cloud Bigtable architecture all client requests go through a front-end server before they are sent to a Cloud Bigtable node. The nodes are organized into a Cloud Bigtable cluster, which belongs to a Cloud Bigtable instance, which is a container for the cluster. Each node in the cluster handles a subset of the requests to the cluster. When additional nodes are added to a cluster, you can increase the number of simultaneous requests that the cluster can handle, as well as the maximum throughput for the entire cluster. Reference: <https://cloud.google.com/bigtable/docs/overview>

**NEW QUESTION 64**

- (Exam Topic 5)

What are all of the BigQuery operations that Google charges for?

- A. Storage, queries, and streaming inserts
- B. Storage, queries, and loading data from a file
- C. Storage, queries, and exporting data
- D. Queries and streaming inserts

**Answer:** A

**Explanation:**

Google charges for storage, queries, and streaming inserts. Loading data from a file and exporting data are free operations. Reference: <https://cloud.google.com/bigquery/pricing>

**NEW QUESTION 66**

- (Exam Topic 5)

Google Cloud Bigtable indexes a single value in each row. This value is called the .

- A. primary key
- B. unique key
- C. row key
- D. master key

**Answer: C**

**Explanation:**

Cloud Bigtable is a sparsely populated table that can scale to billions of rows and thousands of columns, allowing you to store terabytes or even petabytes of data. A single value in each row is indexed; this value is known as the row key.

Reference: <https://cloud.google.com/bigtable/docs/overview>

**NEW QUESTION 67**

- (Exam Topic 5)

If you're running a performance test that depends upon Cloud Bigtable, all the choices except one below are recommended steps. Which is NOT a recommended step to follow?

- A. Do not use a production instance.
- B. Run your test for at least 10 minutes.
- C. Before you test, run a heavy pre-test for several minutes.
- D. Use at least 300 GB of data.

**Answer: A**

**Explanation:**

If you're running a performance test that depends upon Cloud Bigtable, be sure to follow these steps as you plan and execute your test:

Use a production instance. A development instance will not give you an accurate sense of how a production instance performs under load.

Use at least 300 GB of data. Cloud Bigtable performs best with 1 TB or more of data. However, 300 GB of data is enough to provide reasonable results in a performance test on a 3-node cluster. On larger clusters, use 100 GB of data per node.

Before you test, run a heavy pre-test for several minutes. This step gives Cloud Bigtable a chance to balance data across your nodes based on the access patterns it observes.

Run your test for at least 10 minutes. This step lets Cloud Bigtable further optimize your data, and it helps ensure that you will test reads from disk as well as cached reads from memory.

Reference: <https://cloud.google.com/bigtable/docs/performance>

**NEW QUESTION 68**

- (Exam Topic 5)

Cloud Bigtable is a recommended option for storing very large amounts of \_\_\_\_\_?

- A. multi-keyed data with very high latency
- B. multi-keyed data with very low latency
- C. single-keyed data with very low latency
- D. single-keyed data with very high latency

**Answer: C**

**Explanation:**

Cloud Bigtable is a sparsely populated table that can scale to billions of rows and thousands of columns, allowing you to store terabytes or even petabytes of data. A single value in each row is indexed; this value is known as the row key. Cloud Bigtable is ideal for storing very large amounts of single-keyed data with very low latency. It supports high read and write throughput at low latency, and it is an ideal data source for MapReduce operations.

Reference: <https://cloud.google.com/bigtable/docs/overview>

**NEW QUESTION 73**

- (Exam Topic 5)

Which of the following statements about Legacy SQL and Standard SQL is not true?

- A. Standard SQL is the preferred query language for BigQuery.
- B. If you write a query in Legacy SQL, it might generate an error if you try to run it with Standard SQL.
- C. One difference between the two query languages is how you specify fully-qualified table names (i. table names that include their associated project name).
- D. You need to set a query language for each dataset and the default is Standard SQL.

**Answer: D**

**Explanation:**

You do not set a query language for each dataset. It is set each time you run a query and the default query language is Legacy SQL.

Standard SQL has been the preferred query language since BigQuery 2.0 was released.

In legacy SQL, to query a table with a project-qualified name, you use a colon, :, as a separator. In standard SQL, you use a period, ., instead.

Due to the differences in syntax between the two query languages (such as with project-qualified table names), if you write a query in Legacy SQL, it might generate an error if you try to run it with Standard SQL.

Reference:

<https://cloud.google.com/bigquery/docs/reference/standard-sql/migrating-from-legacy-sql>

**NEW QUESTION 76**

- (Exam Topic 5)

The CUSTOM tier for Cloud Machine Learning Engine allows you to specify the number of which types of cluster nodes?

- A. Workers
- B. Masters, workers, and parameter servers
- C. Workers and parameter servers
- D. Parameter servers

**Answer:** C

**Explanation:**

The CUSTOM tier is not a set tier, but rather enables you to use your own cluster specification. When you use this tier, set values to configure your processing cluster according to these guidelines:

You must set TrainingInput.masterType to specify the type of machine to use for your master node. You may set TrainingInput.workerCount to specify the number of workers to use.

You may set TrainingInput.parameterServerCount to specify the number of parameter servers to use.

You can specify the type of machine for the master node, but you can't specify more than one master node. Reference: [https://cloud.google.com/ml-engine/docs/training-overview#job\\_configuration\\_parameters](https://cloud.google.com/ml-engine/docs/training-overview#job_configuration_parameters)

**NEW QUESTION 78**

- (Exam Topic 6)

You decided to use Cloud Datastore to ingest vehicle telemetry data in real time. You want to build a storage system that will account for the long-term data growth, while keeping the costs low. You also want to create snapshots of the data periodically, so that you can make a point-in-time (PIT) recovery, or clone a copy of the data for Cloud Datastore in a different environment. You want to archive these snapshots for a long time. Which two methods can accomplish this? Choose 2 answers.

- A. Use managed export, and store the data in a Cloud Storage bucket using Nearline or Coldline class.
- B. Use managed exportm, and then import to Cloud Datastore in a separate project under a unique namespace reserved for that export.
- C. Use managed export, and then import the data into a BigQuery table created just for that export, and delete temporary export files.
- D. Write an application that uses Cloud Datastore client libraries to read all the entitie
- E. Treat each entity as a BigQuery table row via BigQuery streaming inser
- F. Assign an export timestamp for each export, and attach it as an extra column for each ro
- G. Make sure that the BigQuery table is partitioned using the export timestamp column.
- H. Write an application that uses Cloud Datastore client libraries to read all the entitie
- I. Format the exported data into a JSON fil
- J. Apply compression before storing the data in Cloud Source Repositories.

**Answer:** CE

**NEW QUESTION 83**

- (Exam Topic 6)

You operate a logistics company, and you want to improve event delivery reliability for vehicle-based sensors. You operate small data centers around the world to capture these events, but leased lines that provide connectivity from your event collection infrastructure to your event processing infrastructure are unreliable, with unpredictable latency. You want to address this issue in the most cost-effective way. What should you do?

- A. Deploy small Kafka clusters in your data centers to buffer events.
- B. Have the data acquisition devices publish data to Cloud Pub/Sub.
- C. Establish a Cloud Interconnect between all remote data centers and Google.
- D. Write a Cloud Dataflow pipeline that aggregates all data in session windows.

**Answer:** B

**NEW QUESTION 86**

- (Exam Topic 6)

Your company maintains a hybrid deployment with GCP, where analytics are performed on your anonymized customer data. The data are imported to Cloud Storage from your data center through parallel uploads to a data transfer server running on GCP. Management informs you that the daily transfers take too long and have asked you to fix the problem. You want to maximize transfer speeds. Which action should you take?

- A. Increase the CPU size on your server.
- B. Increase the size of the Google Persistent Disk on your server.
- C. Increase your network bandwidth from your datacenter to GCP.
- D. Increase your network bandwidth from Compute Engine to Cloud Storage.

**Answer:** C

**NEW QUESTION 89**

- (Exam Topic 6)

You need to set access to BigQuery for different departments within your company. Your solution should comply with the following requirements:

- Each department should have access only to their data.
- Each department will have one or more leads who need to be able to create and update tables and provide them to their team.
- Each department has data analysts who need to be able to query but not modify data. How should you set access to the data in BigQuery?

- A. Create a dataset for each departmen
- B. Assign the department leads the role of OWNER, and assign the data analysts the role of WRITER on their dataset.
- C. Create a dataset for each departmen
- D. Assign the department leads the role of WRITER, and assign the data analysts the role of READER on their dataset.
- E. Create a table for each departmen
- F. Assign the department leads the role of Owner, and assign the data analysts the role of Editor on the project the table is in.
- G. Create a table for each departmen
- H. Assign the department leads the role of Editor, and assign the data analysts the role of Viewer on the project the table is in.

Answer: D

#### NEW QUESTION 90

- (Exam Topic 6)

You are managing a Cloud Dataproc cluster. You need to make a job run faster while minimizing costs, without losing work in progress on your clusters. What should you do?

- A. Increase the cluster size with more non-preemptible workers.
- B. Increase the cluster size with preemptible worker nodes, and configure them to forcefully decommission.
- C. Increase the cluster size with preemptible worker nodes, and use Cloud Stackdriver to trigger a script to preserve work.
- D. Increase the cluster size with preemptible worker nodes, and configure them to use graceful decommissioning.

Answer: D

#### Explanation:

Reference <https://cloud.google.com/dataproc/docs/concepts/configuring-clusters/flex>

#### NEW QUESTION 93

- (Exam Topic 6)

You need to copy millions of sensitive patient records from a relational database to BigQuery. The total size of the database is 10 TB. You need to design a solution that is secure and time-efficient. What should you do?

- A. Export the records from the database as an Avro file
- B. Upload the file to GCS using gsutil, and then load the Avro file into BigQuery using the BigQuery web UI in the GCP Console.
- C. Export the records from the database as an Avro file
- D. Copy the file onto a Transfer Appliance and send it to Google, and then load the Avro file into BigQuery using the BigQuery web UI in the GCP Console.
- E. Export the records from the database into a CSV file
- F. Create a public URL for the CSV file, and then use Storage Transfer Service to move the file to Cloud Storage
- G. Load the CSV file into BigQuery using the BigQuery web UI in the GCP Console.
- H. Export the records from the database as an Avro file
- I. Create a public URL for the Avro file, and then use Storage Transfer Service to move the file to Cloud Storage
- J. Load the Avro file into BigQuery using the BigQuery web UI in the GCP Console.

Answer: A

#### NEW QUESTION 97

- (Exam Topic 6)

You are migrating a table to BigQuery and are deciding on the data model. Your table stores information related to purchases made across several store locations and includes information like the time of the transaction, items purchased, the store ID and the city and state in which the store is located. You frequently query this table to see how many of each item were sold over the past 30 days and to look at purchasing trends by state, city, and individual store. You want to model this table to minimize query time and cost. What should you do?

- A. Partition by transaction time; cluster by state first, then city then store ID
- B. Partition by transaction time; cluster by store ID first, then city, then state
- C. Top-level cluster by state first, then city then store
- D. Top-level cluster by store ID first, then city then state.

Answer: C

#### NEW QUESTION 100

- (Exam Topic 6)

The marketing team at your organization provides regular updates of a segment of your customer dataset. The marketing team has given you a CSV with 1 million records that must be updated in BigQuery. When you use the UPDATE statement in BigQuery, you receive a quotaExceeded error. What should you do?

- A. Reduce the number of records updated each day to stay within the BigQuery UPDATE DML statement limit.
- B. Increase the BigQuery UPDATE DML statement limit in the Quota management section of the Google Cloud Platform Console.
- C. Split the source CSV file into smaller CSV files in Cloud Storage to reduce the number of BigQuery UPDATE DML statements per BigQuery job.
- D. Import the new records from the CSV file into a new BigQuery table
- E. Create a BigQuery job that merges the new records with the existing records and writes the results to a new BigQuery table.

Answer: D

#### NEW QUESTION 104

- (Exam Topic 6)

Your team is working on a binary classification problem. You have trained a support vector machine (SVM) classifier with default parameters, and received an area under the Curve (AUC) of 0.87 on the validation set. You want to increase the AUC of the model. What should you do?

- A. Perform hyperparameter tuning
- B. Train a classifier with deep neural networks, because neural networks would always beat SVMs
- C. Deploy the model and measure the real-world AUC; it's always higher because of generalization
- D. Scale predictions you get out of the model (tune a scaling factor as a hyperparameter) in order to get the highest AUC

Answer: A

#### Explanation:

<https://towardsdatascience.com/understanding-hyperparameters-and-its-optimisation-techniques-f0debba07568>

**NEW QUESTION 107**

- (Exam Topic 6)

Your company currently runs a large on-premises cluster using Spark Hive and Hadoop Distributed File System (HDFS) in a colocation facility. The cluster is designed to support peak usage on the system, however, many jobs are batch in nature, and usage of the cluster fluctuates quite dramatically. Your company is eager to move to the cloud to reduce the overhead associated with on-premises infrastructure and maintenance and to benefit from the cost savings. They are also hoping to modernize their existing infrastructure to use more server offerings in order to take advantage of the cloud. Because of the timing of their contract renewal with the colocation facility they have only 2 months for their initial migration. How should you recommend they approach their upcoming migration strategy so they can maximize their cost savings in the cloud while still executing the migration in time?

- A. Migrate the workloads to Dataproc plus HOPS, modernize later
- B. Migrate the workloads to Dataproc plus Cloud Storage modernize later
- C. Migrate the Spark workload to Dataproc plus HDFS, and modernize the Hive workload for BigQuery
- D. Modernize the Spark workload for Dataflow and the Hive workload for BigQuery

**Answer: D**

**NEW QUESTION 110**

- (Exam Topic 6)

You are running a pipeline in Cloud Dataflow that receives messages from a Cloud Pub/Sub topic and writes the results to a BigQuery dataset in the EU. Currently, your pipeline is located in europe-west4 and has a maximum of 3 workers, instance type n1-standard-1. You notice that during peak periods, your pipeline is struggling to process records in a timely fashion, when all 3 workers are at maximum CPU utilization. Which two actions can you take to increase performance of your pipeline? (Choose two.)

- A. Increase the number of max workers
- B. Use a larger instance type for your Cloud Dataflow workers
- C. Change the zone of your Cloud Dataflow pipeline to run in us-central1
- D. Create a temporary table in Cloud Bigtable that will act as a buffer for new data
- E. Create a new step in your pipeline to write to this table first, and then create a new pipeline to write from Cloud Bigtable to BigQuery
- F. Create a temporary table in Cloud Spanner that will act as a buffer for new data
- G. Create a new step in your pipeline to write to this table first, and then create a new pipeline to write from Cloud Spanner to BigQuery

**Answer: AB**

**NEW QUESTION 112**

- (Exam Topic 6)

You need to choose a database for a new project that has the following requirements:

- > Fully managed
- > Able to automatically scale up
- > Transactionally consistent
- > Able to scale up to 6 TB
- > Able to be queried using SQL Which database do you choose?

- A. Cloud SQL
- B. Cloud Bigtable
- C. Cloud Spanner
- D. Cloud Datastore

**Answer: C**

**NEW QUESTION 113**

- (Exam Topic 6)

You are a head of BI at a large enterprise company with multiple business units that each have different priorities and budgets. You use on-demand pricing for BigQuery with a quota of 2K concurrent on-demand slots per project. Users at your organization sometimes don't get slots to execute their query and you need to correct this. You'd like to avoid introducing new projects to your account. What should you do?

- A. Convert your batch BQ queries into interactive BQ queries.
- B. Create an additional project to overcome the 2K on-demand per-project quota.
- C. Switch to flat-rate pricing and establish a hierarchical priority model for your projects.
- D. Increase the amount of concurrent slots per project at the Quotas page at the Cloud Console.

**Answer: C**

**Explanation:**

Reference <https://cloud.google.com/blog/products/gcp/busting-12-myths-about-bigquery>

**NEW QUESTION 114**

- (Exam Topic 6)

An online brokerage company requires a high volume trade processing architecture. You need to create a secure queuing system that triggers jobs. The jobs will run in Google Cloud and call the company's Python API to execute trades. You need to efficiently implement a solution. What should you do?

- A. Use Cloud Composer to subscribe to a Pub/Sub topic and call the Python API.
- B. Use a Pub/Sub push subscription to trigger a Cloud Function to call the Python API.
- C. Write an application that makes a queue in a NoSQL database
- D. Write an application hosted on a Compute Engine instance that makes a push subscription to the Pub/Sub topic

**Answer: C**

#### NEW QUESTION 119

- (Exam Topic 6)

Your company is migrating its on-premises data warehousing solution to BigQuery. The existing data warehouse uses trigger-based change data capture (CDC) to apply daily updates from transactional database sources. Your company wants to use BigQuery to improve its handling of CDC and to optimize the performance of the data warehouse. Source system changes must be available for query in near-real time using log-based CDC streams. You need to ensure that changes in the BigQuery reporting table are available with minimal latency and reduced overhead. What should you do? Choose 2 answers.

- A. Perform a DML INSERT, UPDATE, or DELETE to replicate each CDC record in the reporting table in real time.
- B. Periodically DELETE outdated records from the reporting table. Periodically use a DML MERGE to simultaneously perform DML INSERT, UPDATE, and DELETE operations in the reporting table.
- C. UPDATE, and DELETE operations in the reporting table.
- D. Insert each new CDC record and corresponding operation type into a staging table in real time.
- E. Insert each new CDC record and corresponding operation type into the reporting table in real time and use a materialized view to expose only the current version of each unique record.

**Answer:** BD

#### NEW QUESTION 123

- (Exam Topic 6)

You need to deploy additional dependencies to all of a Cloud Dataproc cluster at startup using an existing initialization action. Company security policies require that Cloud Dataproc nodes do not have access to the Internet so public initialization actions cannot fetch resources. What should you do?

- A. Deploy the Cloud SQL Proxy on the Cloud Dataproc master.
- B. Use an SSH tunnel to give the Cloud Dataproc cluster access to the Internet.
- C. Copy all dependencies to a Cloud Storage bucket within your VPC security perimeter.
- D. Use Resource Manager to add the service account used by the Cloud Dataproc cluster to the Network User role.

**Answer:** D

#### NEW QUESTION 127

- (Exam Topic 6)

You work for a shipping company that has distribution centers where packages move on delivery lines to route them properly. The company wants to add cameras to the delivery lines to detect and track any visual damage to the packages in transit. You need to create a way to automate the detection of damaged packages and flag them for human review in real time while the packages are in transit. Which solution should you choose?

- A. Use BigQuery machine learning to be able to train the model at scale, so you can analyze the packages in batches.
- B. Train an AutoML model on your corpus of images, and build an API around that model to integrate with the package tracking applications.
- C. Use the Cloud Vision API to detect for damage, and raise an alert through Cloud Function.
- D. Integrate the package tracking applications with this function.
- E. Use TensorFlow to create a model that is trained on your corpus of images.
- F. Create a Python notebook in Cloud DataLab that uses this model so you can analyze for damaged packages.

**Answer:** A

#### NEW QUESTION 129

- (Exam Topic 6)

You are developing an application on Google Cloud that will automatically generate subject labels for users' blog posts. You are under competitive pressure to add this feature quickly, and you have no additional developer resources. No one on your team has experience with machine learning. What should you do?

- A. Call the Cloud Natural Language API from your application.
- B. Process the generated Entity Analysis as labels.
- C. Call the Cloud Natural Language API from your application.
- D. Process the generated Sentiment Analysis as labels.
- E. Build and train a text classification model using TensorFlow.
- F. Deploy the model using Cloud Machine Learning Engine.
- G. Call the model from your application and process the results as labels.
- H. Build and train a text classification model using TensorFlow.
- I. Deploy the model using a Kubernetes Engine cluster.
- J. Call the model from your application and process the results as labels.

**Answer:** B

#### NEW QUESTION 134

- (Exam Topic 6)

You are designing an Apache Beam pipeline to enrich data from Cloud Pub/Sub with static reference data from BigQuery. The reference data is small enough to fit in memory on a single worker. The pipeline should write enriched results to BigQuery for analysis. Which job type and transforms should this pipeline use?

- A. Batch job, PubSubIO, side-inputs
- B. Streaming job, PubSubIO, JDBCIO, side-outputs
- C. Streaming job, PubSubIO, BigQueryIO, side-inputs
- D. Streaming job, PubSubIO, BigQueryIO, side-outputs

**Answer:** C

#### NEW QUESTION 136

- (Exam Topic 6)

As your organization expands its usage of GCP, many teams have started to create their own projects. Projects are further multiplied to accommodate different stages of deployments and target audiences. Each project requires unique access control configurations. The central IT team needs to have access to all projects.

Furthermore, data from Cloud Storage buckets and BigQuery datasets must be shared for use in other projects in an ad hoc way. You want to simplify access control management by minimizing the number of policies. Which two steps should you take? Choose 2 answers.

- A. Use Cloud Deployment Manager to automate access provision.
- B. Introduce resource hierarchy to leverage access control policy inheritance.
- C. Create distinct groups for various teams, and specify groups in Cloud IAM policies.
- D. Only use service accounts when sharing data for Cloud Storage buckets and BigQuery datasets.
- E. For each Cloud Storage bucket or BigQuery dataset, decide which projects need access
- F. Find all the active members who have access to these projects, and create a Cloud IAM policy to grant access to all these users.

**Answer:** AC

#### NEW QUESTION 139

- (Exam Topic 6)

An organization maintains a Google BigQuery dataset that contains tables with user-level data. They want to expose aggregates of this data to other Google Cloud projects, while still controlling access to the user-level data. Additionally, they need to minimize their overall storage cost and ensure the analysis cost for other projects is assigned to those projects. What should they do?

- A. Create and share an authorized view that provides the aggregate results.
- B. Create and share a new dataset and view that provides the aggregate results.
- C. Create and share a new dataset and table that contains the aggregate results.
- D. Create dataViewer Identity and Access Management (IAM) roles on the dataset to enable sharing.

**Answer:** D

#### Explanation:

Reference: <https://cloud.google.com/bigquery/docs/access-control>

#### NEW QUESTION 140

- (Exam Topic 6)

You are implementing several batch jobs that must be executed on a schedule. These jobs have many interdependent steps that must be executed in a specific order. Portions of the jobs involve executing shell scripts, running Hadoop jobs, and running queries in BigQuery. The jobs are expected to run for many minutes up to several hours. If the steps fail, they must be retried a fixed number of times. Which service should you use to manage the execution of these jobs?

- A. Cloud Scheduler
- B. Cloud Dataflow
- C. Cloud Functions
- D. Cloud Composer

**Answer:** A

#### NEW QUESTION 141

- (Exam Topic 6)

You are designing a pipeline that publishes application events to a Pub/Sub topic. You need to aggregate events across hourly intervals before loading the results to BigQuery for analysis. Your solution must be scalable so it can process and load large volumes of events to BigQuery. What should you do?

- A. Create a streaming Dataflow job to continually read from the Pub/Sub topic and perform the necessary aggregations using tumbling windows
- B. Schedule a batch Dataflow job to run hourly, pulling all available messages from the Pub-Sub topic and performing the necessary aggregations
- C. Schedule a Cloud Function to run hourly, pulling all available messages from the Pub/Sub topic and performing the necessary aggregations
- D. Create a Cloud Function to perform the necessary data processing that executes using the Pub/Sub trigger every time a new message is published to the topic.

**Answer:** A

#### NEW QUESTION 146

- (Exam Topic 6)

You have a petabyte of analytics data and need to design a storage and processing platform for it. You must be able to perform data warehouse-style analytics on the data in Google Cloud and expose the dataset as files for batch analysis tools in other cloud providers. What should you do?

- A. Store and process the entire dataset in BigQuery.
- B. Store and process the entire dataset in Cloud Bigtable.
- C. Store the full dataset in BigQuery, and store a compressed copy of the data in a Cloud Storage bucket.
- D. Store the warm data as files in Cloud Storage, and store the active data in BigQuery
- E. Keep this ratio as 80% warm and 20% active.

**Answer:** C

#### NEW QUESTION 151

- (Exam Topic 6)

Data Analysts in your company have the Cloud IAM Owner role assigned to them in their projects to allow them to work with multiple GCP products in their projects. Your organization requires that all BigQuery data access logs be retained for 6 months. You need to ensure that only audit personnel in your company can access the data access logs for all projects. What should you do?

- A. Enable data access logs in each Data Analyst's project
- B. Restrict access to Stackdriver Logging via Cloud IAM roles.
- C. Export the data access logs via a project-level export sink to a Cloud Storage bucket in the Data Analysts' project
- D. Restrict access to the Cloud Storage bucket.
- E. Export the data access logs via a project-level export sink to a Cloud Storage bucket in a newly created project for audit log
- F. Restrict access to the project with the exported logs.

- G. Export the data access logs via an aggregated export sink to a Cloud Storage bucket in a newly created project for audit log
- H. Restrict access to the project that contains the exported logs.

**Answer:** D

#### NEW QUESTION 152

- (Exam Topic 6)

Your company needs to upload their historic data to Cloud Storage. The security rules don't allow access from external IPs to their on-premises resources. After an initial upload, they will add new data from existing on-premises applications every day. What should they do?

- A. Execute gsutil rsync from the on-premises servers.
- B. Use Cloud Dataflow and write the data to Cloud Storage.
- C. Write a job template in Cloud Dataproc to perform the data transfer.
- D. Install an FTP server on a Compute Engine VM to receive the files and move them to Cloud Storage.

**Answer:** B

#### NEW QUESTION 157

- (Exam Topic 6)

You are building an application to share financial market data with consumers, who will receive data feeds. Data is collected from the markets in real time. Consumers will receive the data in the following ways:

- > Real-time event stream
- > ANSI SQL access to real-time stream and historical data
- > Batch historical exports

Which solution should you use?

- A. Cloud Dataflow, Cloud SQL, Cloud Spanner
- B. Cloud Pub/Sub, Cloud Storage, BigQuery
- C. Cloud Dataproc, Cloud Dataflow, BigQuery
- D. Cloud Pub/Sub, Cloud Dataproc, Cloud SQL

**Answer:** A

#### NEW QUESTION 160

- (Exam Topic 6)

You want to rebuild your batch pipeline for structured data on Google Cloud. You are using PySpark to conduct data transformations at scale, but your pipelines are taking over twelve hours to run. To expedite development and pipeline run time, you want to use a serverless tool and SQL syntax. You have already moved your raw data into Cloud Storage. How should you build the pipeline on Google Cloud while meeting speed and processing requirements?

- A. Convert your PySpark commands into SparkSQL queries to transform the data; and then run your pipeline on Dataproc to write the data into BigQuery
- B. Ingest your data into Cloud SQL, convert your PySpark commands into SparkSQL queries to transform the data, and then use federated queries from BigQuery for machine learning.
- C. Ingest your data into BigQuery from Cloud Storage, convert your PySpark commands into BigQuery SQL queries to transform the data, and then write the transformations to a new table
- D. Use Apache Beam Python SDK to build the transformation pipelines, and write the data into BigQuery

**Answer:** A

#### NEW QUESTION 162

- (Exam Topic 6)

You are designing a cloud-native historical data processing system to meet the following conditions:

- > The data being analyzed is in CSV, Avro, and PDF formats and will be accessed by multiple analysis tools including Cloud Dataproc, BigQuery, and Compute Engine.
- > A streaming data pipeline stores new data daily.
- > Performance is not a factor in the solution.
- > The solution design should maximize availability.

How should you design data storage for this solution?

- A. Create a Cloud Dataproc cluster with high availability
- B. Store the data in HDFS, and perform analysis as needed.
- C. Store the data in BigQuery
- D. Access the data using the BigQuery Connector or Cloud Dataproc and Compute Engine.
- E. Store the data in a regional Cloud Storage bucket
- F. Access the bucket directly using Cloud Dataproc, BigQuery, and Compute Engine.
- G. Store the data in a multi-regional Cloud Storage bucket
- H. Access the data directly using Cloud Dataproc, BigQuery, and Compute Engine.

**Answer:** D

#### NEW QUESTION 166

- (Exam Topic 6)

You have enabled the free integration between Firebase Analytics and Google BigQuery. Firebase now automatically creates a new table daily in BigQuery in the format `app_events_YYYYMMDD`. You want to query all of the tables for the past 30 days in legacy SQL. What should you do?

- A. Use the TABLE\_DATE\_RANGE function
- B. Use the WHERE\_PARTITIONTIME pseudo column
- C. Use WHERE date BETWEEN YYYY-MM-DD AND YYYY-MM-DD
- D. Use SELECT IF.(date >= YYYY-MM-DD AND date <= YYYY-MM-DD

**Answer:** A

**Explanation:**

Reference:

<https://cloud.google.com/blog/products/gcp/using-bigquery-and-firebase-analytics-to-understandyour-mobile-ap>

#### NEW QUESTION 167

- (Exam Topic 6)

Your company is implementing a data warehouse using BigQuery, and you have been tasked with designing the data model. You move your on-premises sales data warehouse with a star data schema to BigQuery but notice performance issues when querying the data of the past 30 days. Based on Google's recommended practices, what should you do to speed up the query without increasing storage costs?

- A. Denormalize the data
- B. Shard the data by customer ID
- C. Materialize the dimensional data in views
- D. Partition the data by transaction date

**Answer:** C

#### NEW QUESTION 171

- (Exam Topic 6)

Your organization has been collecting and analyzing data in Google BigQuery for 6 months. The majority of the data analyzed is placed in a time-partitioned table named events\_partitioned. To reduce the cost of queries, your organization created a view called events, which queries only the last 14 days of data. The view is described in legacy SQL. Next month, existing applications will be connecting to BigQuery to read the events data via an ODBC connection. You need to ensure the applications can connect. Which two actions should you take? (Choose two.)

- A. Create a new view over events using standard SQL
- B. Create a new partitioned table using a standard SQL query
- C. Create a new view over events\_partitioned using standard SQL
- D. Create a service account for the ODBC connection to use for authentication
- E. Create a Google Cloud Identity and Access Management (Cloud IAM) role for the ODBC connection and shared "events"

**Answer:** AE

#### NEW QUESTION 173

- (Exam Topic 6)

You are designing a data processing pipeline. The pipeline must be able to scale automatically as load increases. Messages must be processed at least once, and must be ordered within windows of 1 hour. How should you design the solution?

- A. Use Apache Kafka for message ingestion and use Cloud Dataproc for streaming analysis.
- B. Use Apache Kafka for message ingestion and use Cloud Dataflow for streaming analysis.
- C. Use Cloud Pub/Sub for message ingestion and Cloud Dataproc for streaming analysis.
- D. Use Cloud Pub/Sub for message ingestion and Cloud Dataflow for streaming analysis.

**Answer:** D

#### NEW QUESTION 178

- (Exam Topic 6)

You currently have a single on-premises Kafka cluster in a data center in the us-east region that is responsible for ingesting messages from IoT devices globally. Because large parts of globe have poor internet connectivity, messages sometimes batch at the edge, come in all at once, and cause a spike in load on your Kafka cluster. This is becoming difficult to manage and prohibitively expensive. What is the Google-recommended cloud native architecture for this scenario?

- A. Edge TPUs as sensor devices for storing and transmitting the messages.
- B. Cloud Dataflow connected to the Kafka cluster to scale the processing of incoming messages.
- C. An IoT gateway connected to Cloud Pub/Sub, with Cloud Dataflow to read and process the messages from Cloud Pub/Sub.
- D. A Kafka cluster virtualized on Compute Engine in us-east with Cloud Load Balancing to connect to the devices around the world.

**Answer:** C

#### NEW QUESTION 183

- (Exam Topic 6)

You are migrating your data warehouse to Google Cloud and decommissioning your on-premises data center. Because this is a priority for your company, you know that bandwidth will be made available for the initial data load to the cloud. The files being transferred are not large in number, but each file is 90 GB. Additionally, you want your transactional systems to continually update the warehouse on Google Cloud in real time. What tools should you use to migrate the data and ensure that it continues to write to your warehouse?

- A. Storage Transfer Service for the migration, Pub/Sub and Cloud Data Fusion for the real-time updates
- B. BigQuery Data Transfer Service for the migration, Pub/Sub and Dataproc for the real-time updates
- C. gsutil for the migration; Pub/Sub and Dataflow for the real-time updates
- D. gsutil for both the migration and the real-time updates

Answer: A

NEW QUESTION 186

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