

GoogleのProfessional-Data-Engineer認定試験の一番新しい問題集の登場



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「あきらめたらそこで試合終了ですよ」という『スラムダンク』の中の安西監督が言った名言があります。この文は人々に知られています。試合と同じ、試験もそのとおりですよ。試験に準備する時間が十分ではないから、Professional-Data-Engineer認定試験を諦めた人がたくさんいます。しかし、優秀な資料を利用すれば、短時間の準備をしても、高得点で試験に合格することができます。信じないでしょうか。Fast2testの試験問題集はそのような資料ですよ。はやく試してください。

>> Professional-Data-Engineerソフトウェア <<

Professional-Data-Engineer問題集、Professional-Data-Engineer赤本勉強

私たちのProfessional-Data-Engineer試験参考書の品質は一番良いと言えます。そして、Professional-Data-Engineer試験参考書はすごく人気があります。まず、Professional-Data-Engineer試験参考書は専門家が作られました。また、専門家はProfessional-Data-Engineer試験参考書の更新に対して、定期的に検査を行います。だから、あなたはProfessional-Data-Engineer試験参考書の最新版を定期的に入手できます。

Google Certified Professional Data Engineer Exam 認定 Professional-Data-Engineer 試験問題 (Q173-Q178):

質問 # 173

You want to process payment transactions in a point-of-sale application that will run on Google Cloud Platform. Your user base could grow exponentially, but you do not want to manage infrastructure scaling. Which Google database service should you use?

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

正解: A

解説:

<https://cloud.google.com/datastore/docs/concepts/overview>

質問 # 174

Your company's customer_order table in BigQuery stores the order history for 10 million customers, with a table size of 10 PB. You need to create a dashboard for the support team to view the order history. The dashboard has two filters, countryname and username. Both are string data types in the BigQuery table. When a filter is applied, the dashboard fetches the order history from the table and displays the query results. However, the dashboard is slow to show the results when applying the filters to the following query:



```
SELECT date, order, status FROM customer_order
WHERE country = '<country_name>' AND username = '<username>'
```

How should you redesign the BigQuery table to support faster access?

- A. Partition the table by country and username fields.
- B. Partition the table by _PARTITIONTIME.
- C. Cluster the table by country and username fields
- D. Cluster the table by country field, and partition by username field.

正解: C

解説:

To improve the performance of querying a large BigQuery table with filters on countryname and username, clustering the table by these fields is the most effective approach. Here's why option C is the best choice:

Clustering in BigQuery:

Clustering organizes data based on the values in specified columns. This can significantly improve query performance by reducing the amount of data scanned during query execution.

Clustering by countryname and username means that data is physically sorted and stored together based on these fields, allowing BigQuery to quickly locate and read only the relevant data for queries using these filters.

Filter Efficiency:

With the table clustered by countryname and username, queries that filter on these columns can benefit from efficient data retrieval, reducing the amount of data processed and speeding up query execution.

This directly addresses the performance issue of the dashboard queries that apply filters on these fields.

Steps to Implement:

Redesign the Table:

Create a new table with clustering on countryname and username:

```
CREATE TABLE project.dataset.new_table
CLUSTER BY countryname, username AS
SELECT * FROM project.dataset.customer_order;
```

Migrate Data:

Transfer the existing data from the original table to the new clustered table.

Update Queries:

Modify the dashboard queries to reference the new clustered table.

Reference:

BigQuery Clustering Documentation

Optimizing Query Performance

質問 # 175

Your company's customer and order databases are often under heavy load. This makes performing analytics against them difficult without harming operations. The databases are in a MySQL cluster, with nightly backups taken using mysqldump. You want to perform analytics with minimal impact on operations. What should you do?

- A. Use an ETL tool to load the data from MySQL into Google BigQuery.
- B. Connect an on-premises Apache Hadoop cluster to MySQL and perform ETL.
- C. Mount the backups to Google Cloud SQL, and then process the data using Google Cloud Dataproc.
- D. Add a node to the MySQL cluster and build an OLAP cube there.

正解: B

解説:

Topic 2, Flowlogistic Case Study

Company Overview

Flowlogistic is a leading logistics and supply chain provider. They help businesses throughout the world manage their resources and transport them to their final destination. The company has grown rapidly, expanding their offerings to include rail, truck, aircraft, and oceanic shipping.

Company Background

The company started as a regional trucking company, and then expanded into other logistics market. Because they have not updated their infrastructure, managing and tracking orders and shipments has become a bottleneck. To improve operations, Flowlogistic developed proprietary technology for tracking shipments in real time at the parcel level. However, they are unable to deploy it because their technology stack, based on Apache Kafka, cannot support the processing volume. In addition, Flowlogistic wants to further analyze their orders and shipments to determine how best to deploy their resources.

Solution Concept

Flowlogistic wants to implement two concepts using the cloud:

- * Use their proprietary technology in a real-time inventory-tracking system that indicates the location of their loads
- * Perform analytics on all their orders and shipment logs, which contain both structured and unstructured data, to determine how best to deploy resources, which markets to expand into. They also want to use predictive analytics to learn earlier when a shipment will be delayed.

Existing Technical Environment

Flowlogistic architecture resides in a single data center:

- * Databases
- * 8 physical servers in 2 clusters
- * SQL Server - user data, inventory, static data
- * 3 physical servers
- * Cassandra - metadata, tracking messages
- 10 Kafka servers - tracking message aggregation and batch insert
- * Application servers - customer front end, middleware for order/customers
- * 60 virtual machines across 20 physical servers
- * Tomcat - Java services
- * Nginx - static content
- * Batch servers

Storage appliances

- * iSCSI for virtual machine (VM) hosts
- * Fibre Channel storage area network (FC SAN) - SQL server storage
- * Network-attached storage (NAS) image storage, logs, backups
- * Apache Hadoop /Spark servers
- * Core Data Lake
- * Data analysis workloads
- * 20 miscellaneous servers
- * Jenkins, monitoring, bastion hosts,

Business Requirements

- * Build a reliable and reproducible environment with scaled parity of production.
- * Aggregate data in a centralized Data Lake for analysis
- * Use historical data to perform predictive analytics on future shipments
- * Accurately track every shipment worldwide using proprietary technology
- * Improve business agility and speed of innovation through rapid provisioning of new resources
- * Analyze and optimize architecture for performance in the cloud
- * Migrate fully to the cloud if all other requirements are met

Technical Requirements

- * Handle both streaming and batch data
- * Migrate existing Hadoop workloads
- * Ensure architecture is scalable and elastic to meet the changing demands of the company.
- * Use managed services whenever possible
- * Encrypt data in flight and at rest

* Connect a VPN between the production data center and cloud environment

SEO Statement We have grown so quickly that our inability to upgrade our infrastructure is really hampering further growth and efficiency. We are efficient at moving shipments around the world, but we are inefficient at moving data around.

We need to organize our information so we can more easily understand where our customers are and what they are shipping.

CTO Statement

IT has never been a priority for us, so as our data has grown, we have not invested enough in our technology. I have a good staff to manage IT, but they are so busy managing our infrastructure that I cannot get them to do the things that really matter, such as organizing our data, building the analytics, and figuring out how to implement the CFO's tracking technology.

CFO Statement

Part of our competitive advantage is that we penalize ourselves for late shipments and deliveries. Knowing where our shipments are at all times has a direct correlation to our bottom line and profitability. Additionally, I don't want to commit capital to building out a server environment.

質問 # 176

Does Dataflow process batch data pipelines or streaming data pipelines?

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

正解: C

解説:

Dataflow is a unified processing model, and can execute both streaming and batch data pipelines Reference:

<https://cloud.google.com/dataflow/>

質問 # 177

Case Study: 2 - MJTelco

Company Overview

MJTelco is a startup that plans to build networks in rapidly growing, underserved markets around the world. The company has patents for innovative optical communications hardware. Based on these patents, they can create many reliable, high-speed backbone links with inexpensive hardware.

Company Background

Founded by experienced telecom executives, MJTelco uses technologies originally developed to overcome communications challenges in space. Fundamental to their operation, they need to create a distributed data infrastructure that drives real-time analysis and incorporates machine learning to continuously optimize their topologies. Because their hardware is inexpensive, they plan to overdeploy the network allowing them to account for the impact of dynamic regional politics on location availability and cost. Their management and operations teams are situated all around the globe creating many-to-many relationship between data consumers and provides in their system. After careful consideration, they decided public cloud is the perfect environment to support their needs.

Solution Concept

MJTelco is running a successful proof-of-concept (PoC) project in its labs. They have two primary needs:

Scale and harden their PoC to support significantly more data flows generated when they ramp to more than 50,000 installations.

Refine their machine-learning cycles to verify and improve the dynamic models they use to control topology definition.

MJTelco will also use three separate operating environments ?development/test, staging, and production ?

to meet the needs of running experiments, deploying new features, and serving production customers.

Business Requirements

Scale up their production environment with minimal cost, instantiating resources when and where needed in an unpredictable, distributed telecom user community. Ensure security of their proprietary data to protect their leading-edge machine learning and analysis.

Provide reliable and timely access to data for analysis from distributed research workers Maintain isolated environments that support rapid iteration of their machine-learning models without affecting their customers.

Technical Requirements

Ensure secure and efficient transport and storage of telemetry data Rapidly scale instances to support between 10,000 and 100,000 data providers with multiple flows each.

Allow analysis and presentation against data tables tracking up to 2 years of data storing approximately

100m records/day

Support rapid iteration of monitoring infrastructure focused on awareness of data pipeline problems both in telemetry flows and in production learning cycles.

CEO Statement

Our business model relies on our patents, analytics and dynamic machine learning. Our inexpensive hardware is organized to be highly reliable, which gives us cost advantages. We need to quickly stabilize our large distributed data pipelines to meet our reliability and capacity commitments.

CTO Statement

Our public cloud services must operate as advertised. We need resources that scale and keep our data secure. We also need environments in which our data scientists can carefully study and quickly adapt our models. Because we rely on automation to process our data, we also need our development and test environments to work as we iterate.

CFO Statement

The project is too large for us to maintain the hardware and software required for the data and analysis.

Also, we cannot afford to staff an operations team to monitor so many data feeds, so we will rely on automation and infrastructure. Google Cloud's machine learning will allow our quantitative researchers to work on our high-value problems instead of problems with our data pipelines.

MJTelco needs you to create a schema in Google Bigtable that will allow for the historical analysis of the last 2 years of records. Each record that comes in is sent every 15 minutes, and contains a unique identifier of the device and a data record. The most common query is for all the data for a given device for a given day. Which schema should you use?

- A. Rowkey: dateColumn data: device_id, data_point
- B. Rowkey: date#device_idColumn data: data_point
- C. Rowkey: device_idColumn data: date, data_point
- D. Rowkey: date#data_pointColumn data: device_id
- E. Rowkey: data_pointColumn data: device_id, date

正解: E

質問 # 178

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Professional-Data-Engineer問題集: <https://jp.fast2test.com/Professional-Data-Engineer-premium-file.html>

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信頼的なProfessional-Data-Engineerソフトウェア & 合格スムーズ Professional-Data-Engineer問題集 | ユニークなProfessional-Data-Engineer 赤本勉強

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