IT 认证电子书

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Exam   :   **Professional Cloud Architect**

Title   :   Google Certified
Professional – Cloud
Architect (English)

Version   :   DEMO

1. Topic 1, Mountkirk Games Case Study 1

Company Overview
Mountkirk Games makes online, session-based, multiplayer games for the most popular mobile platforms.

Company Background
Mountkirk Games builds all of their games with some server-side integration, and has historically used cloud providers to lease physical servers. A few of their games were more popular than expected, and they had problems scaling their application servers, MySQL databases, and analytics tools. Mountkirk's current model is to write game statistics to files and send them through an ETL tool that loads them into a centralized MySQL database for reporting.

Solution Concept
Mountkirk Gamesis building a new game, which they expect to be very popular. They plan to deploy the game's backend on Google Compute Engine so they can capture streaming metrics, run intensive analytics, and take advantage of its autoscaling server environment and integrate with a managed NoSQL database.

Technical Requirements
Requirements for Game Backend Platform
1. Dynamically scale up or down based on game activity
2. Connect to a managed NoSQL database service
3. Run customize Linux distro

Requirements for Game Analytics Platform
1. Dynamically scale up or down based on game activity
2. Process incoming data on the fly directly from the game servers
3. Process data that arrives late because of slow mobile networks
4. Allow SQL queries to access at least 10 TB of historical data
5. Process files that are regularly uploaded by users' mobile devices
6. Use only fully managed services

CEO Statement
Our last successful game did not scale well with our previous cloud provider, resulting in lower user adoption and affecting the game's reputation. Our investors want more key performance indicators (KPIs) to evaluate the speed and stability of the game, as well as other metrics that provide deeper insight into usage patterns so we can adapt the game to target users.

CTO Statement
Our current technology stack cannot provide the scale we need, so we want to replace MySQL and move to an environment that provides autoscaling, low latency load balancing, and frees us up from managing physical servers.

CFO Statement

We are not capturing enough user demographic data, usage metrics, and other KPIs. As a result, we do not engage the right users, we are not confident that our marketing is targeting the right users, and we are not selling enough premium Blast-Ups inside the games, which dramatically impacts our revenue.

For this question, refer to the Mountkirk Games case study.

Mountkirk Games wants you to design their new testing strategy.

How should the test coverage differ from their existing backends on the other platforms?

A. Tests should scale well beyond the prior approaches.

B. Unit tests are no longer required, only end-to-end tests.

C. Tests should be applied after the release is in the production environment.

D. Tests should include directly testing the Google Cloud Platform (GCP) infrastructure.

Answer: A

Explanation:

From Scenario:

A few of their games were more popular than expected, and they had problems scaling their application servers, MySQL databases, and analytics tools.

Requirements for Game Analytics Platform include: Dynamically scale up or down based on game activity

2.For this question, refer to the Mountkirk Games case study.

Mountkirk Games wants to set up a real-time analytics platform for their new game. The new platform must meet their technical requirements.

Which combination of Google technologies will meet all of their requirements?

A. Container Engine, Cloud Pub/Sub, and Cloud SQL

B. Cloud Dataflow, Cloud Storage, Cloud Pub/Sub, and BigQuery

C. Cloud SQL, Cloud Storage, Cloud Pub/Sub, and Cloud Dataflow

D. Cloud Dataproc, Cloud Pub/Sub, Cloud SQL, and Cloud Dataflow

E. Cloud Pub/Sub, Compute Engine, Cloud Storage, and Cloud Dataproc

Answer: B

Explanation:

A real time requires Stream / Messaging so Pub/Sub, Analytics by Big Query.

Ingest millions of streaming events per second from anywhere in the world with Cloud Pub/Sub, powered by Google's unique, high-speed private network. Process the streams with Cloud Dataflow to ensure reliable, exactly-once, low-latency data transformation. Stream the transformed data into BigQuery, the cloud-native data warehousing service, for immediate analysis via SQL or popular visualization tools.

From scenario: They plan to deploy the game's backend on Google Compute Engine so they can capture streaming metrics, run intensive analytics.

Requirements for Game Analytics Platform

☞ Dynamically scale up or down based on game activity

☞ Process incoming data on the fly directly from the game servers

☞ Process data that arrives late because of slow mobile networks

☞ Allow SQL queries to access at least 10 TB of historical data

☞ Process files that are regularly uploaded by users' mobile devices

☞ Use only fully managed services

References: https://cloud.google.com/solutions/big-data/stream-analytics/

3.For this question, refer to the Mountkirk Games case study.

Mountkirk Games' gaming servers are not automatically scaling properly. Last month, they rolled out a new feature, which suddenly became very popular. A record number of users are trying to use the service, but many of them are getting 503 errors and very slow response times.

What should they investigate first?

A. Verify that the database is online.

B. Verify that the project quota hasn't been exceeded.

C. Verify that the new feature code did not introduce any performance bugs.

D. Verify that the load-testing team is not running their tool against production.

Answer: B

Explanation:

503 is service unavailable error. If the database was online everyone would get the 503 error.

https://cloud.google.com/docs/quota#capping_usage

4.For this question, refer to the Mountkirk Games case study.

Mountkirk Games has deployed their new backend on Google Cloud Platform (GCP). You want to create a thorough testing process for new versions of the backend before they are released to the public. You want the testing environment to scale in an economical way.

How should you design the process?

A. Create a scalable environment in GCP for simulating production load.

B. Use the existing infrastructure to test the GCP-based backend at scale.

C. Build stress tests into each component of your application using resources internal to GCP to simulate load.

D. Create a set of static environments in GCP to test different levels of load — for example, high, medium, and low.

Answer: A

Explanation:

From scenario: Requirements for Game Backend Platform

☞ Dynamically scale up or down based on game activity

☞ Connect to a managed NoSQL database service

☞ Run customize Linux distro

5.For this question, refer to the Mountkirk Games case study.

Mountkirk Games wants to set up a continuous delivery pipeline. Their architecture includes many small services that they want to be able to update and roll back quickly.

Mountkirk Games has the following requirements:

• Services are deployed redundantly across multiple regions in the US and Europe.

• Only frontend services are exposed on the public internet.

• They can provide a single frontend IP for their fleet of services.

• Deployment artifacts are immutable.

Which set of products should they use?

A. Google Cloud Storage, Google Cloud Dataflow, Google Compute Engine

B. Google Cloud Storage, Google App Engine, Google Network Load Balancer

C. Google Kubernetes Registry, Google Container Engine, Google HTTP(S) Load Balancer

D. Google Cloud Functions, Google Cloud Pub/Sub, Google Cloud Deployment Manager

Answer: C