Google Certified Professional - Cloud Architect.exam.47q

Number: GoogleCloudArchitect
Passing Score: 800
Time Limit: 120 min

Google Certified Professional – Cloud Architect (English)

Testlet 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.

QUESTION 1

Mountkirk Games has deployed their new backend on Google Cloud Platform (GCP). You want to create a through 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

Correct Answer: A
Section: [none]
Explanation

Explanation/Reference:
Explanation:

From scenario: 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

QUESTION 2
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

Correct Answer: D
Section: [none]
Explanation

Explanation/Reference:
Explanation:
Google Cloud Functions is a serverless environment to build and connect cloud services.
Google Cloud Pub/Sub brings the scalability, flexibility, and reliability of enterprise message-oriented middleware to the cloud. By providing many-to-many, asynchronous messaging that decouples senders and receivers, it allows for secure and highly available communication between independently written applications. Google Cloud Pub/Sub delivers low-latency, durable messaging that helps developers quickly integrate systems hosted on the Google Cloud Platform and externally.

Incorrect Answers:

A: Cloud Dataflow is a fully-managed service for transforming and enriching data in stream (real time) and batch (historical) modes.

C: Store your private Docker container images on Cloud Platform for fast, scalable retrieval and deployment. Container Registry is a private Docker repository that works with popular continuous delivery systems. It runs on Cloud Platform to provide consistent uptime on an infrastructure protected by Google's security. You pay only for storage and internet egress you use, there is no per-image fee.

Reference: https://cloud.google.com/load-balancing/ https://cloud.google.com/solutions/ansible-with-spinnaker-tutorial http://blog.armory.io/what-is-immutable-infrastructure/ https://cloud.google.com/compute/docs/load-balancing/http/

QUESTION 3
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

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:
Explanation: 503 is service unavailable error. If the database was online everyone would get the 503 error.

QUESTION 4
Mountkirk Games needs to create a repeatable and configurable mechanism for deploying isolated application environments. Developers and testers can access each other's environments and resources, but they cannot access staging or production resources. The staging environment needs access to some services from production.

What should you do to isolate development environments from staging and production?

A. Create a project for development and test and another for staging and production
B. Create a network for development and test and another for staging and production
C. Create one subnetwork for development and another for staging and production
D. Create one project for development, a second for staging and a third for production

Correct Answer: A
Section: [none]
Explanation

Explanation/Reference:
References: https://cloud.google.com/appengine/docs/standard/go/creating-separate-dev-environments

QUESTION 5
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. Kubernetes 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

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:
Explanation:
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

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

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

Testlet 1

Company Overview

TerramEarth manufactures heavy equipment for the mining and agricultural industries: about 80% of their business is from mining and 20% from agriculture. They currently have over 500 dealers and service centers in 100 countries. Their mission is to build products that make their customers more productive.

Company background

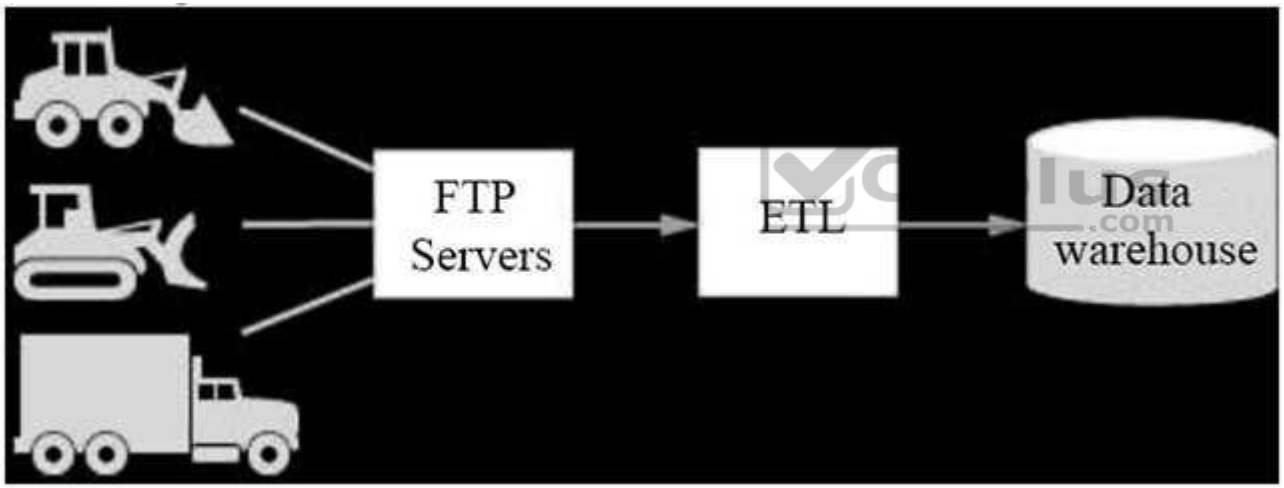
TerramEarth was formed in 1946, when several small, family owned companies combined to retool after World War II. The company cares about their employees and customers and considers them to be extended members of their family.

TerramEarth is proud of their ability to innovate on their core products and find new markets as their customers' needs change. For the past 20 years, trends in the industry have been largely toward increasing productivity by using larger vehicles with a human operator.

Solution Concept

There are 20 million TerramEarth vehicles in operation that collect 120 fields of data per second. Data is stored locally on the vehicle and can be accessed for analysis when a vehicle is serviced. The data is downloaded via a maintenance port. This same port can be used to adjust operational parameters, allowing the vehicles to be upgraded in the field with new computing modules.

Approximately 200,000 vehicles are connected to a cellular network, allowing TerramEarth to collect data directly. At a rate of 120 fields of data per second with 22 hours of operation per day, Terram Earth collects a total of about 9 TB/day from these connected vehicles. **Existing Technical Environment**



TerramEarth's existing architecture is composed of Linux-based systems that reside in a data center. These systems gzip CSV files from the field and upload via FTP, transform and aggregate them, and place the data in their data warehouse. Because this process takes time, aggregated reports are based on data that is 3 weeks old.

With this data, TerramEarth has been able to preemptively stock replacement parts and reduce unplanned downtime of their vehicles by 60%. However, because the data is stale, some customers are without their vehicles for up to 4 weeks while they wait for replacement parts.

Business Requirements

- Decrease unplanned vehicle downtime to less than 1 week, without increasing the cost of carrying surplus inventory

- Support the dealer network with more data on how their customers use their equipment to better position new products and services
- Have the ability to partner with different companies – especially with seed and fertilizer suppliers in the fast-growing agricultural business – to create compelling joint offerings for their customers.

CEO Statement

We have been successful in capitalizing on the trend toward larger vehicles to increase the productivity of our customers. Technological change is occurring rapidly, and TerramEarth has taken advantage of connected devices technology to provide our customers with better services, such as our intelligent farming equipment. With this technology, we have been able to increase farmers' yields by 25%, by using past trends to adjust how our vehicles operate. These advances have led to the rapid growth of our agricultural product line, which we expect will generate 50% of our revenues by 2020.

CTO Statement

Our competitive advantage has always been in the manufacturing process, with our ability to build better vehicles for lower cost than our competitors. However, new products with different approaches are constantly being developed, and I'm concerned that we lack the skills to undergo the next wave of transformations in our industry. Unfortunately, our CEO doesn't take technology obsolescence seriously and he considers the many new companies in our industry to be niche players. My goals are to build our skills while addressing immediate market needs through incremental innovations.

QUESTION 1
Your development team has created a structured API to retrieve vehicle data. They want to allow third parties to develop tools for dealerships that use this vehicle event data. You want to support delegated authorization against this data.

What should you do?

A. Build or leverage an OAuth-compatible access control system
B. Build SAML 2.0 SSO compatibility into your authentication system
C. Restrict data access based on the source IP address of the partner systems
D. Create secondary credentials for each dealer that can be given to the trusted third party

Correct Answer: A
Section: [none]
Explanation

Explanation/Reference:
Explanation:
Delegate application authorization with OAuth2

Cloud Platform APIs support OAuth 2.0, and scopes provide granular authorization over the methods that are supported. Cloud Platform supports both serviceaccount and user-account OAuth, also called three-legged OAuth.

References: https://cloud.google.com/docs/enterprise/best-practices-for-enterprise-organizations#delegate_application_authorization_with_oauth2
https://cloud.google.com/appengine/docs/flexible/go/authorizing-apps

QUESTION 2
TerramEarth plans to connect all 20 million vehicles in the field to the cloud. This increases the volume to 20 million 600 byte records a second for 40 TB an hour.

How should you design the data ingestion?

A. Vehicles write data directly to GCS
B. Vehicles write data directly to Google Cloud Pub/Sub
C. Vehicles stream data directly to Google BigQuery
D. Vehicles continue to write data using the existing system (FTP)

Correct Answer: C
Section: [none]
Explanation

Explanation/Reference:
Explanation:
Streamed data is available for real-time analysis within a few seconds of the first streaming insertion into a table.

Instead of using a job to load data into BigQuery, you can choose to stream your data into BigQuery one record at a time by using the tabledata().insertAll() method. This approach enables querying data without the delay of running a load job.

References: https://cloud.google.com/bigquery/streaming-data-into-bigquery

QUESTION 3
Which of TerramEarth's legacy enterprise processes will experience significant change as a result of increased Google Cloud Platform adoption?
A. Opex/capex allocation, LAN changes, capacity planning B.
Capacity planning, TCO calculations, opex/capex allocation
C. Capacity planning, utilization measurement, data center expansion
D. Data Center expansion, TCO calculations, utilization measurement

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:

QUESTION 4
TerramEarth has equipped all connected trucks with servers and sensors to collect telemetry data. Next year they want to use the data to train machine learning models. They want to store this data in the cloud while reducing costs.

What should they do?

A. Have the vehicle's computer compress the data in hourly snapshots, and store it in a Google Cloud Storage (GCS) Nearline bucket
B. Push the telemetry data in real-time to a streaming dataflow job that compresses the data, and store it in Google BigQuery
C. Push the telemetry data in real-time to a streaming dataflow job that compresses the data, and store it in Cloud Bigtable
D. Have the vehicle's computer compress the data in hourly snapshots, and store it in a GCS Coldline bucket

Correct Answer: D
Section: [none]
Explanation

Explanation/Reference:
Explanation:
Storage is the best choice for data that you plan to access at most once a year, due to its slightly lower availability, 90-day minimum storage duration, costs for data access, and higher per-operation costs. For example:
Cold Data Storage - Infrequently accessed data, such as data stored for legal or regulatory reasons, can be stored at low cost as Coldline Storage, and be available when you need it.

Disaster recovery - In the event of a disaster recovery event, recovery time is key. Cloud Storage provides low latency access to data stored as Coldline Storage.

References: https://cloud.google.com/storage/docs/storage-classes

QUESTION 5

Your agricultural division is experimenting with fully autonomous vehicles. You want your architecture to promote strong security during vehicle operation.

Which two architectures should you consider? (Choose two.)

A. Treat every micro service call between modules on the vehicle as untrusted.
B. Require IPv6 for connectivity to ensure a secure address space.
C. Use a trusted platform module (TPM) and verify firmware and binaries on boot.
D. Use a functional programming language to isolate code execution cycles.
E. Use multiple connectivity subsystems for redundancy.
F. Enclose the vehicle's drive electronics in a Faraday cage to isolate chips.

Correct Answer: CF
Section: [none]
Explanation

Explanation/Reference:
Testlet 1

Company Overview
Dress4win is a web-based company that helps their users organize and manage their personal wardrobe using a website and mobile application. The company also cultivates an active social network that connects their users with designers and retailers. They monetize their services through advertising, e-commerce, referrals, and a premium app model.

Company Background
Dress4win's application has grown from a few servers in the founder's garage to several hundred servers and appliances in a collocated data center. However, the capacity of their infrastructure is now insufficient for the application's rapid growth. Because of this growth and the company's desire to innovate faster, Dress4win is committing to a full migration to a public cloud.

Solution Concept
For the first phase of their migration to the cloud, Dress4win is considering moving their development and test environments. They are also considering building a disaster recovery site, because their current infrastructure is at a single location. They are not sure which components of their architecture they can migrate as is and which components they need to change before migrating them.

Existing Technical Environment
The Dress4win application is served out of a single data center location.
▪ Databases:
- MySQL - user data, inventory, static data
- Redis - metadata, social graph, caching▪ Application servers:
- Tomcat - Java micro-services

- Nginx - static content
- Apache Beam - Batch processing ▪ Storage appliances:
- iSCSI for VM hosts
- Fiber channel SAN - MySQL databases
- NAS - image storage, logs, backups ▪ Apache Hadoop/Spark servers: - Data analysis
- Real-time trending calculations ▪ MQ servers:
- Messaging
- Social notifications
- Events

▪ Miscellaneous servers:

- Jenkins, monitoring, bastion hosts, security scanners

Business Requirements

▪ Build a reliable and reproducible environment with scaled parity of production.

▪ Improve security by defining and adhering to a set of security and Identity and Access Management (IAM) best practices for cloud. ▪ 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

▪ Evaluate and choose an automation framework for provisioning resources in cloud.

▪ Support failover of the production environment to cloud during an emergency.

▪ Identify production services that can migrate to cloud to save capacity.

▪ Use managed services whenever possible.

▪ Encrypt data on the wire and at rest.

▪ Support multiple VPN connections between the production data center and cloud environment.

CEO Statement

Our investors are concerned about our ability to scale and contain costs with our current infrastructure. They are also concerned that a new competitor could use a public cloud platform to offset their up-front investment and freeing them to focus on developing better features.

CTO Statement

We have invested heavily in the current infrastructure, but much of the equipment is approaching the end of its useful life. We are consistently waiting weeks for new gear to be racked before we can start new projects. Our traffic patterns are highest in the mornings and weekend evenings; during other times, 80% of our capacity is sitting idle.

CFO Statement

Our capital expenditure is now exceeding our quarterly projections. Migrating to the cloud will likely cause an initial increase in spending, but we expect to fully transition before our next hardware refresh cycle. Our total cost of ownership (TCO) analysis over the next 5 years puts a cloud strategy between 30 to 50% lower than our current model.

QUESTION 1
The Dress4Win security team has disabled external SSH access into production virtual machines (VMs) on Google Cloud Platform (GCP).

The operations team needs to remotely manage the VMs, build and push Docker containers, and manage Google Cloud Storage objects.

What can they do?

A. Grant the operations engineer access to use Google Cloud Shell.
B. Configure a VPN connection to GCP to allow SSH access to the cloud VMs.
C. Develop a new access request process that grants temporary SSH access to cloud VMs when an operations engineer needs to perform a task.
D. Have the development team build an API service that allows the operations team to execute specific remote procedure calls to accomplish their tasks.

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:

QUESTION 2
Dress4Win has asked you to recommend machine types they should deploy their application servers to.

How should you proceed?

A. Perform a mapping of the on-premises physical hardware cores and RAM to the nearest machine types in the cloud.
B. Recommend that Dress4Win deploy application servers to machine types that offer the highest RAM to CPU ratio available.
C. Recommend that Dress4Win deploy into production with the smallest instances available, monitor them over time, and scale the machine type up until the desired performance is reached.
D. Identify the number of virtual cores and RAM associated with the application server virtual machines align them to a custom machine type in the cloud, monitor performance, and scale the machine types up until the desired performance is reached.

Correct Answer: A
Section: [none]
Explanation

Explanation/Reference:

QUESTION 3
Dress4Win would like to become familiar with deploying applications to the cloud by successfully deploying some applications quickly, as is. They have asked for your recommendation.

What should you advise?

A. Identify self-contained applications with external dependencies as a first move to the cloud.
B. Identify enterprise applications with internal dependencies and recommend these as a first move to the cloud.
C. Suggest moving their in-house databases to the cloud and continue serving requests to on-premise applications.
D. Recommend moving their message queuing servers to the cloud and continue handling requests to on-premise applications.

Correct Answer: C
Section: [none]
Explanation

Explanation/Reference:

QUESTION 4
Dress4Win has configured a new uptime check with Google Stackdriver for several of their legacy services. The Stackdriver dashboard is not reporting the services as healthy.

What should they do?

A. Install the Stackdriver agent on all of the legacy web servers.
B. In the Cloud Platform Console download the list of the uptime servers' IP addresses and create an inbound firewall rule

C. Configure their load balancer to pass through the User-Agent HTTP header when the value matches GoogleStackdriverMonitoring-UptimeChecks (https://cloud.google.com/monitoring)
D. Configure their legacy web servers to allow requests that contain user-Agent HTTP header when the value matches GoogleStackdriverMonitoring-UptimeChecks (https://cloud.google.com/monitoring)

Correct Answer: D
Section: [none]
Explanation

Explanation/Reference:

QUESTION 5
As part of their new application experience, Dress4Wm allows customers to upload images of themselves.
The customer has exclusive control over who may view these images.

Customers should be able to upload images with minimal latency and also be shown their images quickly on the main application page when they log in.

Which configuration should Dress4Win use?

A. Store image files in a Google Cloud Storage bucket. Use Google Cloud Datastore to maintain metadata that maps each customer's ID and their image files.
B. Store image files in a Google Cloud Storage bucket. Add custom metadata to the uploaded images in Cloud Storage that contains the customer's unique ID.
C. Use a distributed file system to store customers' images. As storage needs increase, add more persistent disks and/or nodes. Assign each customer a unique ID, which sets each file's owner attribute, ensuring privacy of images.
D. Use a distributed file system to store customers' images. As storage needs increase, add more persistent disks and/or nodes. Use a Google Cloud SQL database to maintain metadata that maps each customer's ID to their image files.

Correct Answer: A
Section: [none]
Explanation

Explanation/Reference:

Question Set 1

QUESTION 1
You want to make a copy of a production Linux virtual machine in the US-Central region. You want to manage and replace the copy easily if there are changes on the production virtual machine. You will deploy the copy as a new instance in a different project in the US-East region.

What steps must you take?

A. Use the Linux dd and netcat commands to copy and stream the root disk contents to a new virtual machine instance in the US-East region.
B. Create a snapshot of the root disk and select the snapshot as the root disk when you create a new virtual machine instance in the US-East region.
C. Create an image file from the root disk with Linux dd command, create a new virtual machine instance in the US-East region
D. Create a snapshot of the root disk, create an image file in Google Cloud Storage from the snapshot, and create a new virtual machine instance in the US-East region using the image file the root disk.

Correct Answer: D
Section: [none]
Explanation

Explanation/Reference:

QUESTION 2
Your company runs several databases on a single MySQL instance. They need to take backups of a specific database at regular intervals. The backup activity needs to complete as quickly as possible and cannot be allowed to impact disk performance.

How should you configure the storage?

A. Configure a cron job to use the gcloud tool to take regular backups using persistent disk snapshots.
B. Mount a Local SSD volume as the backup location. After the backup is complete, use gsutil to move the backup to Google Cloud Storage.
C. Use gcsfise to mount a Google Cloud Storage bucket as a volume directly on the instance and write backups to the mounted location using mysqldump.
D. Mount additional persistent disk volumes onto each virtual machine (VM) instance in a RAID10 array and use LVM to create snapshots to send to Cloud Storage

Correct Answer: C
Section: [none]
Explanation

Explanation/Reference:

References: https://github.com/mvarrieur/MySQL-backup-to-Google-Cloud-Storage
https://cloud.google.com/storage/docs/gcs-fuse

QUESTION 3
You are helping the QA team to roll out a new load-testing tool to test the scalability of your primary cloud services that run on Google Compute Engine with Cloud Bigtable.

Which three requirements should they include? Choose 3 answers.

A. Ensure that the load tests validate the performance of Cloud Bigtable
B. Create a separate Google Cloud project to use for the load-testing environment
C. Schedule the load-testing tool to regularly run against the production environment
D. Ensure all third-party systems your services use is capable of handling high load
E. Instrument the production services to record every transaction for replay by the load-testing tool
F. Instrument the load-testing tool and the target services with detailed logging and metrics collection

Correct Answer: BEF
Section: [none]
Explanation

Explanation/Reference:

QUESTION 4
Your customer is moving their corporate applications to Google Cloud Platform. The security team wants detailed visibility of all projects in the organization. You provision the Google Cloud Resource Manager and set up yourself as the org admin.

What Google Cloud Identity and Access Management (Cloud IAM) roles should you give to the security team?

A. Org viewer, project owner
B. Org viewer, project viewer
C. Org admin, project browser
D. Project owner, network admin

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:

QUESTION 5
Your company places a high value on being responsive and meeting customer needs quickly. Their primary business objectives are release speed and agility. You want to reduce the chance of security errors being accidentally introduced.

Which two actions can you take? Choose 2 answers.

A. Ensure every code check-in is peer reviewed by a security SME
B. Use source code security analyzers as part of the CI/CD pipeline
C. Ensure you have stubs to unit test all interfaces between components
D. Enable code signing and a trusted binary repository integrated with your CI/CD pipeline
E. Run a vulnerability security scanner as part of your continuous-integration /continuous-delivery (CI/CD) pipeline

Correct Answer: BE
Section: [none]
Explanation

Explanation/Reference:

QUESTION 6
You want to enable your running Google **Kubernetes** Engine cluster to scale as demand for your application changes.

What should you do?

A. Add additional nodes to your Kubernetes Engine cluster using the following command: `gcloud container clusters resize CLUSTER_Name – -size 10`

B. Add a tag to the instances in the cluster with the following command: `gcloud compute instances add-tags INSTANCE - -tags enableautoscaling max-nodes-10`

C. Update the existing Kubernetes Engine cluster with the following command: `gcloud alpha container clusters update mycluster - -enable-autoscaling - -min-nodes=1 - -max-nodes=10`

D. Create a new Kubernetes Engine cluster with the following command: `gcloud alpha container clusters create mycluster - -enable-autoscaling - -min-nodes=1 - -max-nodes=10` and redeploy your application

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:
Explanation:

Cluster autoscaling
--enable-autoscaling
Enables autoscaling for a node pool.
Enables autoscaling in the node pool specified by --node-pool or the default node pool if --node-pool is not provided.
Where:
--max-nodes=MAX_NODES
Maximum number of nodes in the node pool.
Maximum number of nodes to which the node pool specified by --node-pool (or default node pool if unspecified) can scale.

Incorrect Answers:
C, D: Warning: Do not use Alpha Clusters or alpha features for production workloads.

Note: You can experiment with Kubernetes alpha features by creating an alpha cluster. Alpha clusters are short-lived clusters that run stable Kubernetes releases with all Kubernetes APIs and features enabled. Alpha clusters are designed for advanced users and early adopters to experiment with workloads that take advantage of new features before those features are production-ready. You can use Alpha clusters just like normal Kubernetes Engine clusters.

References: https://cloud.google.com/sdk/gcloud/reference/container/clusters/create

QUESTION 7

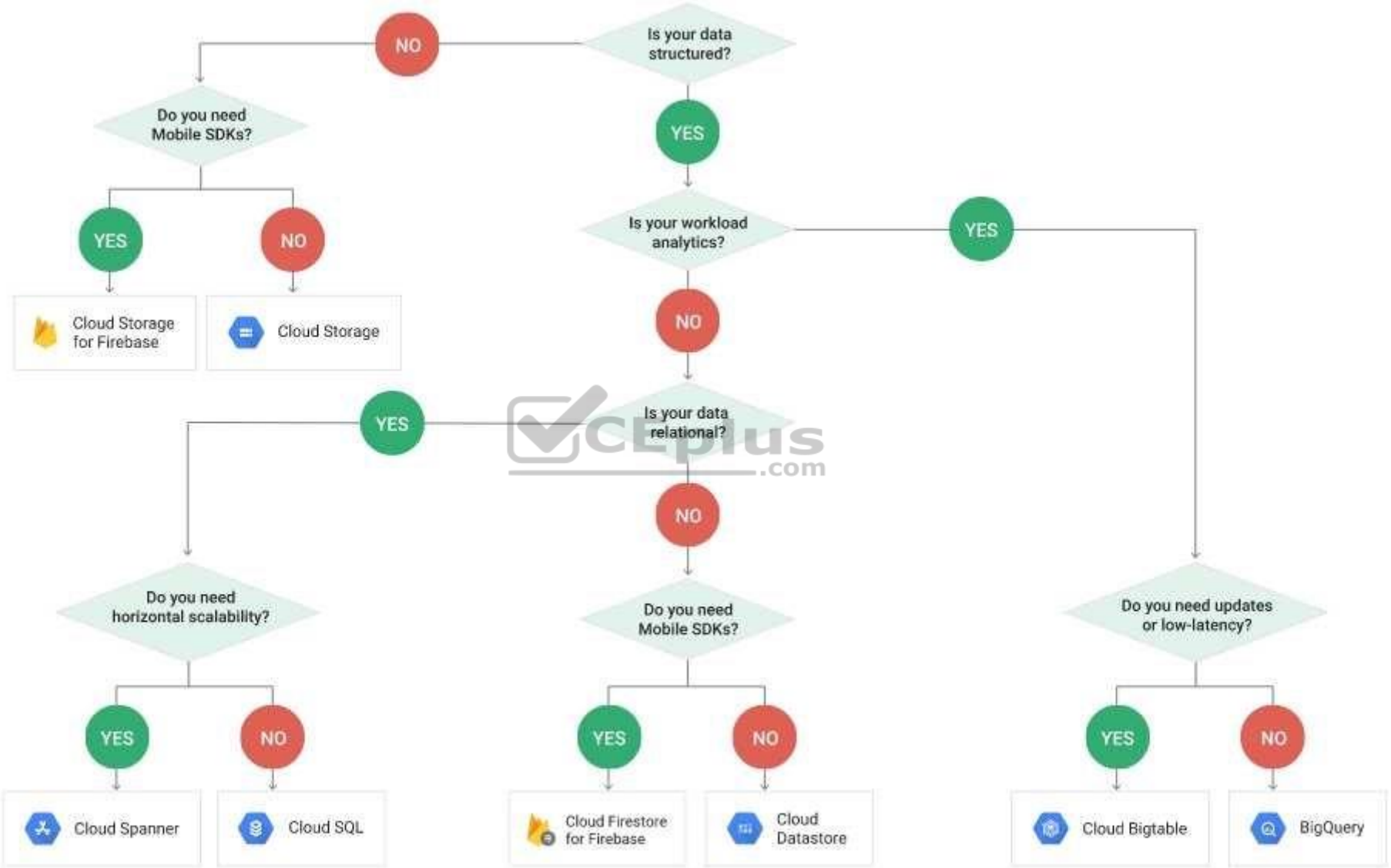
Your marketing department wants to send out a promotional email campaign. The development team wants to minimize direct operation management. They project a wide range of possible customer responses, from 100 to 500,000 click-through per day. The link leads to a simple website that explains the promotion and collects user information and preferences.

Which infrastructure should you recommend? Choose 2 answers.

A. Use Google App Engine to serve the website and Google Cloud Datastore to store user data.
B. Use a Google Container Engine cluster to serve the website and store data to persistent disk.
C. Use a managed instance group to serve the website and Google Cloud Bigtable to store user data.
D. Use a single Compute Engine virtual machine (VM) to host a web server, backend by Google Cloud SQL.

Correct Answer: AC
Section: [none]
Explanation

Explanation/Reference:
Explanation:



References: https://cloud.google.com/storage-options/

QUESTION 8
Your company just finished a rapid lift and shift to Google Compute Engine for your compute needs. You have another 9 months to design and deploy a more cloudnative solution. Specifically, you want a system that is no-ops and auto-scaling.

Which two compute products should you choose? Choose 2 answers.

A. Compute Engine with containers
B. Google Kubernetes Engine with containers
C. Google App Engine Standard Environment
D. Compute Engine with custom instance types
E. Compute Engine with managed instance groups

Correct Answer: BC
Section: [none]
Explanation

Explanation/Reference:
Explanation:

B: With Container Engine, Google will automatically deploy your cluster for you, update, patch, secure the nodes.
Kubernetes Engine's cluster autoscaler automatically resizes clusters based on the demands of the workloads you want to run.
C: Solutions like Datastore, BigQuery, AppEngine, etc are truly NoOps.
App Engine by default scales the number of instances running up and down to match the load, thus providing consistent performance for your app at all times while minimizing idle instances and thus reducing cost.
Note: At a high level, NoOps means that there is no infrastructure to build out and manage during usage of the platform. Typically, the compromise you make with NoOps is that you lose control of the underlying infrastructure.

References: https://www.quora.com/How-well-does-Google-Container-Engine-support-Google-Cloud-Platform%E2%80%99s-NoOps-claim

QUESTION 9
One of your primary business objectives is being able to trust the data stored in your application. You want to log all changes to the application data.

How can you design your logging system to verify authenticity of your logs?

A. Write the log concurrently in the cloud and on premises
B. Use a SQL database and limit who can modify the log table
C. Digitally sign each timestamp and log entry and store the signature

D. Create a JSON dump of each log entry and store it in Google Cloud Storage

Correct Answer: D
Section: [none]
Explanation

Explanation/Reference:
Explanation:
Write a log entry. If the log does not exist, it is created. You can specify a severity for the log entry, and you can write a structured log entry by specifying --payloadtype=json and writing your message as a JSON string:

gcloud logging write LOG STRING gcloud logging write LOG
JSON-STRING --payload-type=json

References: https://cloud.google.com/logging/docs/reference/tools/gcloud-logging

QUESTION 10
Your company has decided to make a major revision of their API in order to create better experiences for their developers. They need to keep the old version of the API available and deployable, while allowing new customers and testers to try out the new API. They want to keep the same SSL and DNS records in place to serve both APIs.

What should they do?

A. Configure a new load balancer for the new version of the API
B. Reconfigure old clients to use a new endpoint for the new API
C. Have the old API forward traffic to the new API based on the path
D. Use separate backend pools for each API path behind the load balancer

Correct Answer: D
Section: [none]
Explanation

Explanation/Reference:

QUESTION 11
Your company plans to migrate a multi-petabyte data set to the cloud. The data set must be available 24hrs a day. Your business analysts have experience only with using a SQL interface.

How should you store the data to optimize it for ease of analysis?

A. Load data into Google BigQuery
B. Insert data into Google Cloud SQL
C. Put flat files into Google Cloud Storage
D. Stream data into Google Cloud Datastore

Correct Answer: A
Section: [none]
Explanation

Explanation/Reference:
Explanation:
BigQuery is Google's serverless, highly scalable, low cost enterprise data warehouse designed to make all your data analysts productive. Because there is no infrastructure to manage, you can focus on analyzing data to find meaningful insights using familiar SQL and you don't need a database administrator.

BigQuery enables you to analyze all your data by creating a logical data warehouse over managed, columnar storage as well as data from object storage, and spreadsheets.

References: https://cloud.google.com/bigquery/

QUESTION 12
An application development team believes their current logging tool will not meet their needs for their new cloud-based product. They want a better tool to capture errors and help them analyze their historical log data. You want to help them find a solution that meets their needs.

What should you do?

A. Direct them to download and install the Google StackDriver logging agent
B. Send them a list of online resources about logging best practices

C. Help them define their requirements and assess viable logging tools
D. Help them upgrade their current tool to take advantage of any new features

Correct Answer: A
Section: [none]
Explanation

Explanation/Reference:
Explanation:
The Stackdriver Logging agent streams logs from your VM instances and from selected third party software packages to Stackdriver Logging. Using the agent is optional but we recommend it. The agent runs under both Linux and Microsoft Windows.

Note: Stackdriver Logging allows you to store, search, analyze, monitor, and alert on log data and events from Google Cloud Platform and Amazon Web Services (AWS). Our API also allows ingestion of any custom log data from any source. Stackdriver Logging is a fully managed service that performs at scale and can ingest application and system log data from thousands of VMs. Even better, you can analyze all that log data in real time. References:
https://cloud.google.com/logging/docs/agent/installation

QUESTION 13
You need to reduce the number of unplanned rollbacks of erroneous production deployments in your company's web hosting platform. Improvement to the QA/Test processes accomplished an 80% reduction.

Which additional two approaches can you take to further reduce the rollbacks? Choose 2 answers.

A. Introduce a green-blue deployment model
B. Replace the QA environment with canary releases
C. Fragment the monolithic platform into microservices
D. Reduce the platform's dependency on relational database systems
E. Replace the platform's relational database systems with a NoSQL database

Correct Answer: AC
Section: [none]
Explanation

Explanation/Reference:

QUESTION 14

To reduce costs, the Director of Engineering has required all developers to move their development infrastructure resources from on-premises virtual machines (VMs) to Google Cloud Platform. These resources go through multiple start/stop events during the day and require state to persist. You have been asked to design the process of running a development environment in Google Cloud while providing cost visibility to the finance department.

Which two steps should you take? Choose 2 answers.

A. Use the - -no-auto-delete flag on all persistent disks and stop the VM
B. Use the - -auto-delete flag on all persistent disks and terminate the VM
C. Apply VM CPU utilization label and include it in the BigQuery billing export
D. Use Google BigQuery billing export and labels to associate cost to groups
E. Store all state into local SSD, snapshot the persistent disks, and terminate the VM
F. Store all state in Google Cloud Storage, snapshot the persistent disks, and terminate the VM

Correct Answer: CE
Section: [none]
Explanation

Explanation/Reference:
Explanation:
C: Billing export to BigQuery enables you to export your daily usage and cost estimates automatically throughout the day to a BigQuery dataset you specify.

Labels applied to resources that generate usage metrics are forwarded to the billing system so that you can break down your billing charges based upon label criteria. For example, the Compute Engine service reports metrics on VM instances. If you deploy a project with 2,000 VMs, each of which is labeled distinctly, then only the first 1,000 label maps seen within the 1 hour window will be preserved.

E: You cannot stop an instance that has a local SSD attached. Instead, you must migrate your critical data off of the local SSD to a persistent disk or to another instance before you delete the instance completely.
You can stop an instance temporarily so you can come back to it at a later time. A stopped instance does not incur charges, but all of the resources that are attached to the instance will still be charged. Alternatively, if you are done using an instance, delete the instance and its resources to stop incurring charges.

References:
https://cloud.google.com/billing/docs/how-to/export-data-bigquery
https://cloud.google.com/compute/docs/instances/stopping-or-deleting-an-instance

QUESTION 15
Your company wants to track whether someone is present in a meeting room reserved for a scheduled meeting. There are 1000 meeting rooms across 5 offices on 3 continents. Each room is equipped with a motion sensor that reports its status every second. The data from the motion detector includes only a sensor ID and several different discrete items of information. Analysts will use this data, together with information about account owners and office locations.

Which database type should you use?

A. Flat file
B. NoSQL
C. Relational
D. Blobstore

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:
Explanation:
Relational databases were not designed to cope with the scale and agility challenges that face modern applications, nor were they built to take advantage of the commodity storage and processing power available today. NoSQL fits well for:

- Developers are working with applications that create massive volumes of new, rapidly changing data types — structured, semi-structured, unstructured and polymorphic data.

Incorrect Answers:
D: The Blobstore API allows your application to serve data objects, called blobs, that are much larger than the size allowed for objects in the Datastore service. Blobs are useful for serving large files, such as video or image files, and for allowing users to upload large data files. References:

https://www.mongodb.com/nosql-explained

QUESTION 16
You set up an autoscaling instance group to serve web traffic for an upcoming launch. After configuring the instance group as a backend service to an HTTP(S) load balancer, you notice that virtual machine (VM) instances are being terminated and re-launched every minute. The instances do not have a public IP address. You have verified the appropriate web response is coming from each instance using the curl command. You want to ensure the backend is configured correctly.

What should you do?

A. Ensure that a firewall rules exists to allow source traffic on HTTP/HTTPS to reach the load balancer.
B. Assign a public IP to each instance and configure a firewall rule to allow the load balancer to reach the instance public IP.
C. Ensure that a firewall rule exists to allow load balancer health checks to reach the instances in the instance group.
D. Create a tag on each instance with the name of the load balancer. Configure a firewall rule with the name of the load balancer as the source and the instance tag as the destination.

Correct Answer: C

Section: [none]
Explanation

Explanation/Reference:
Explanation:
The best practice when configuration a health check is to check health and serve traffic on the same port. However, it is possible to perform health checks on one port, but serve traffic on another. If you do use two different ports, ensure that firewall rules and services running on instances are configured appropriately. If you run health checks and serve traffic on the same port, but decide to switch ports at some point, be sure to update both the backend service and the health check.
Backend services that do not have a valid global forwarding rule referencing it will not be health checked and will have no health status.

References: https://cloud.google.com/compute/docs/load-balancing/http/backend-service

QUESTION 17
You write a Python script to connect to Google BigQuery from a Google Compute Engine virtual machine. The script is printing errors that it cannot connect to BigQuery.

What should you do to fix the script?

A. Install the latest BigQuery API client library for Python
B. Run your script on a new virtual machine with the BigQuery access scope enabled C. Create a new service account with BigQuery access and execute your script with that user
D. Install the bq component for gcloud with the command gcloud components install bq.

Correct Answer: A
Section: [none]
Explanation

Explanation/Reference:
Explanation:

Applications that use BigQuery must be associated with a Google Cloud Platform Console project with the BigQuery API enabled.
Reference: https://cloud.google.com/bigquery/create-simple-app-api

QUESTION 18
Your company has successfully migrated to the cloud and wants to analyze their data stream to optimize operations. They do not have any existing code for this analysis, so they are exploring all their options. These options include a mix of batch and stream processing, as they are running some hourly jobs and liveprocessing some data as it comes in.

Which technology should they use for this?

A. Google Cloud Dataproc
B. Google Cloud Dataflow
C. Google Container Engine with Bigtable
D. Google Compute Engine with Google BigQuery

Correct Answer: B
Section: [none]
Explanation
Explanation/Reference:
Explanation:
Cloud Dataflow is a fully-managed service for transforming and enriching data in stream (real time) and batch (historical) modes with equal reliability and expressiveness -- no more complex workarounds or compromises needed.

References: https://cloud.google.com/dataflow/

QUESTION 19
Your customer is receiving reports that their recently updated Google App Engine application is taking approximately 30 seconds to load for some of their users. This behavior was not reported before the update.

What strategy should you take?

A. Work with your ISP to diagnose the problem
B. Open a support ticket to ask for network capture and flow data to diagnose the problem, then roll back your application
C. Roll back to an earlier known good release initially, then use Stackdriver Trace and Logging to diagnose the problem in a development/test/staging environment
D. Roll back to an earlier known good release, then push the release again at a quieter period to investigate. Then use Stackdriver Trace and Logging to diagnose the problem

Correct Answer: C
Section: [none]
Explanation

Explanation/Reference:
Explanation:
Stackdriver Logging allows you to store, search, analyze, monitor, and alert on log data and events from Google Cloud Platform and Amazon Web Services (AWS). Our API also allows ingestion of any custom log data from any source. Stackdriver Logging is a fully managed service that performs at scale and can ingest application and system log data from thousands of VMs. Even better, you can analyze all that log data in real time. References:
https://cloud.google.com/logging/

QUESTION 20
A production database virtual machine on Google Compute Engine has an `ext4`-formatted persistent disk for data files. The database is about to run out of storage space.

How can you remediate the problem with the least amount of downtime?

A. In the Cloud Platform Console, increase the size of the persistent disk and use the resize2fs command in Linux.
B. Shut down the virtual machine, use the Cloud Platform Console to increase the persistent disk size, then restart the virtual machine
C. In the Cloud Platform Console, increase the size of the persistent disk and verify the new space is ready to use with the fdisk command in Linux
D. In the Cloud Platform Console, create a new persistent disk attached to the virtual machine, format and mount it, and configure the database service to move the files to the new disk
E. In the Cloud Platform Console, create a snapshot of the persistent disk restore the snapshot to a new larger disk, unmount the old disk, mount the new disk and restart the database service

Correct Answer: A
Section: [none]
Explanation

Explanation/Reference:
Explanation:
On Linux instances, connect to your instance and manually resize your partitions and file systems to use the additional disk space that you added.
Extend the file system on the disk or the partition to use the added space. If you grew a partition on your disk, specify the partition. If your disk does not have a partition table, specify only the disk ID.

sudo resize2fs /dev/[DISK_ID][PARTITION_NUMBER] where [DISK_ID] is the device name and [PARTITION_NUMBER] is the partition number for the device where you are resizing the file system. References: https://cloud.google.com/compute/docs/disks/add-persistent-disk

QUESTION 21
Your application needs to process credit card transactions. You want the smallest scope of Payment Card Industry (PCI) compliance without compromising the ability to analyze transactional data and trends relating to which payment methods are used.

How should you design your architecture?

A. Create a tokenizer service and store only tokenized data
B. Create separate projects that only process credit card data
C. Create separate subnetworks and isolate the components that process credit card data
D. Streamline the audit discovery phase by labeling all of the virtual machines (VMs) that process PCI data
E. Enable Logging export to Google BigQuery and use ACLs and views to scope the data shared with the auditor

Correct Answer: A
Section: [none]
Explanation

Explanation/Reference:
https://www.sans.org/reading-room/whitepapers/compliance/ways-reduce-pci-dss-audit-scope-tokenizing-cardholder-data-33194

QUESTION 22
You have been asked to select the storage system for the click-data of your company's large portfolio of websites. This data is streamed in from a custom website analytics package at a typical rate of 6,000 clicks per minute. With bursts of up to 8,500 clicks per second. It must have been stored for future analysis by your data science and user experience teams.

Which storage infrastructure should you choose?

A. Google Cloud SQL
B. Google Cloud Bigtable
C. Google Cloud Storage
D. Google Cloud Datastore

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:
Explanation:
Google Cloud Bigtable is a scalable, fully-managed NoSQL wide-column database that is suitable for both real-time access and analytics workloads.
Good for:
▪ Low-latency read/write access
▪ High-throughput analytics
▪ Native time series support
Common workloads: ▪ IoT,
finance, adtech
▪ Personalization, recommendations
▪ Monitoring
▪ Geospatial datasets ▪
Graphs

Incorrect Answers:

C: Google Cloud Storage is a scalable, fully-managed, highly reliable, and cost-efficient object / blob store.
Is good for:
- Images, pictures, and videos
- Objects and blobs
Unstructured data

D: Google Cloud Datastore is a scalable, fully-managed NoSQL document database for your web and mobile applications.
Is good for:
- Semi-structured application data
- Hierarchical data
Durable key-value data
Common workloads:
- User profiles
- Product catalogs
- Game state

References: https://cloud.google.com/storage-options/

QUESTION 23
You are creating a solution to remove backup files older than 90 days from your backup Cloud Storage bucket. You want to optimize ongoing Cloud Storage spend.

What should you do?

A. Write a lifecycle management rule in XML and push it to the bucket with gsutil
B. Write a lifecycle management rule in JSON and push it to the bucket with gsutil
C. Schedule a cron script using `gsutil ls -lr gs://backups/**` to find and remove items older than 90 days
D. Schedule a cron script using `gsutil ls -l gs://backups/**` to find and remove items older than 90 days and schedule it with cron

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:

QUESTION 24
You want to optimize the performance of an accurate, real-time, weather-charting application. The data comes from 50,000 sensors sending 10 readings a second, in the format of a timestamp and sensor reading.

Where should you store the data?

A. Google BigQuery
B. Google Cloud SQL
C. Google Cloud Bigtable
D. Google Cloud Storage

Correct Answer: C
Section: [none]
Explanation

Explanation/Reference:
Explanation:
Google Cloud Bigtable is a scalable, fully-managed NoSQL wide-column database that is suitable for both real-time access and analytics workloads.

Good for:
- Low-latency read/write access
- High-throughput analytics
- Native time series support

Common workloads:
- IoT,

finance, adtech
- Personalization, recommendations
- Monitoring
- Geospatial datasets
- Graphs

References: https://cloud.google.com/storage-options/

QUESTION 25
Your company's user-feedback portal comprises a standard LAMP stack replicated across two zones. It is deployed in the us-central1 region and uses autoscaled managed instance groups on all layers, except the database. Currently, only a small group of select customers have access to the portal. The portal meets a 99,99% availability SLA under these conditions. However next quarter, your company will be making the portal available to all users, including unauthenticated users. You need to develop a resiliency testing strategy to ensure the system maintains the SLA once they introduce additional user load.

What should you do?

A. Capture existing users input, and replay captured user load until autoscale is triggered on all layers. At the same time, terminate all resources in one of the zones
B. Create synthetic random user input, replay synthetic load until autoscale logic is triggered on at least one layer, and introduce "chaos" to the system by terminating random resources on both zones
C. Expose the new system to a larger group of users, and increase group size each day until autoscale logic is triggered on all layers. At the same time, terminate random resources on both zones
D. Capture existing users input, and replay captured user load until resource utilization crosses 80%. Also, derive estimated number of users based on existing user's usage of the app, and deploy enough resources to handle 200% of expected load

Correct Answer: D
Section: [none]
Explanation

Explanation/Reference:

QUESTION 26
One of the developers on your team deployed their application in Google Container Engine with the Dockerfile below. They report that their application deployments are taking too long.

```
FROM ubuntu:16.04

COPY . /src

RUN apt-get update && apt-get install -y python python-pip

RUN pip install -r requirements.txt
```

You want to optimize this Dockerfile for faster deployment times without adversely affecting the app's functionality.

Which two actions should you take? Choose 2 answers.

A. Remove Python after running pip

B. Remove dependencies from requirements.txt
C. Use a slimmed-down base image like Alpine Linux
D. Use larger machine types for your Google Container Engine node pools
E. Copy the source after he package dependencies (Python and pip) are installed

Correct Answer: CE
Section: [none]
Explanation

Explanation/Reference:
Explanation:
The speed of deployment can be changed by limiting the size of the uploaded app, limiting the complexity of the build necessary in the Dockerfile, if present, and by ensuring a fast and reliable internet connection.

Note: Alpine Linux is built around musl libc and busybox. This makes it smaller and more resource efficient than traditional GNU/Linux distributions. A container requires no more than 8 MB and a minimal installation to disk requires around 130 MB of storage. Not only do you get a fully-fledged Linux environment but a large selection of packages from the repository.

References: https://groups.google.com/forum/#!topic/google-appengine/hZMEkmmObDU
https://www.alpinelinux.org/about/

QUESTION 27
During a high traffic portion of the day, one of your relational databases crashes, but the replica is never promoted to a master. You want to avoid this in the future.

What should you do?

A. Use a different database
B. Choose larger instances for your database
C. Create snapshots of your database more regularly
D. Implement routinely scheduled failovers of your databases

Correct Answer: C
Section: [none]
Explanation

Explanation/Reference:
Explanation:
Take regular snapshots of your database system.

If your database system lives on a Compute Engine persistent disk, you can take snapshots of your system each time you upgrade. If your database system goes down or you need to roll back to a previous version, you can simply create a new persistent disk from your desired snapshot and make that disk the boot disk for a new Compute Engine instance. Note that, to avoid data corruption, this approach requires you to freeze the database system's disk while taking a snapshot.
Reference: https://cloud.google.com/solutions/disaster-recovery-cookbook

QUESTION 28
Your organization requires that metrics from all applications be retained for 5 years for future analysis in possible legal proceedings.

Which approach should you use?

A. Grant the security team access to the logs in each Project
B. Configure Stackdriver Monitoring for all Projects, and export to BigQuery
C. Configure Stackdriver Monitoring for all Projects with the default retention policies
D. Configure Stackdriver Monitoring for all Projects, and export to Google Cloud Storage

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:
Explanation:
Stackdriver Logging provides you with the ability to filter, search, and view logs from your cloud and open source application services. Allows you to define metrics based on log contents that are incorporated into dashboards and alerts. Enables you to export logs to BigQuery, Google Cloud Storage, and Pub/Sub.
References: https://cloud.google.com/stackdriver/

QUESTION 29
Your company has decided to build a backup replica of their on-premises user authentication PostgreSQL database on Google Cloud Platform. The database is 4 TB, and large updates are frequent. Replication requires private address space communication.

Which networking approach should you use?

A. Google Cloud Dedicated Interconnect
B. Google Cloud VPN connected to the data center network
C. A NAT and TLS translation gateway installed on-premises
D. A Google Compute Engine instance with a VPN server installed connected to the data center network

Correct Answer: A

Section: [none]
Explanation

Explanation/Reference:
Explanation:
Google Cloud Dedicated Interconnect provides direct physical connections and RFC 1918 communication between your on-premises network and Google's network. Dedicated Interconnect enables you to transfer large amounts of data between networks, which can be more cost effective than purchasing additional bandwidth over the public Internet or using VPN tunnels.

Benefits:
- Traffic between your on-premises network and your VPC network doesn't traverse the public Internet. Traffic traverses a dedicated connection with fewer hops, meaning there are less points of failure where traffic might get dropped or disrupted.
- Your VPC network's internal (RFC 1918) IP addresses are directly accessible from your on-premises network. You don't need to use a NAT device or VPN tunnel to reach internal IP addresses. Currently, you can only reach internal IP addresses over a dedicated connection. To reach Google external IP addresses, you must use a separate connection.
- You can scale your connection to Google based on your needs. Connection capacity is delivered over one or more 10 Gbps Ethernet connections, with a maximum of eight connections (80 Gbps total per interconnect).
- The cost of egress traffic from your VPC network to your on-premises network is reduced. A dedicated connection is generally the least expensive method if you have a high-volume of traffic to and from Google's network.

References: https://cloud.google.com/interconnect/docs/details/dedicated

QUESTION 30
Auditors visit your teams every 12 months and ask to review all the Google Cloud Identity and Access Management (Cloud IAM) policy changes in the previous 12 months. You want to streamline and expedite the analysis and audit process.

What should you do?

A. Create custom Google Stackdriver alerts and send them to the auditor
B. Enable Logging export to Google BigQuery and use ACLs and views to scope the data shared with the auditor
C. Use cloud functions to transfer log entries to Google Cloud SQL and use ACLs and views to limit an auditor's view D. Enable Google Cloud Storage (GCS) log export to audit logs into a GCS bucket and delegate access to the bucket

Correct Answer: D
Section: [none]
Explanation

Explanation/Reference:

QUESTION 31
You are designing a large distributed application with 30 microservices. Each of your distributed microservices needs to connect to a database back-end. You want to store the credentials securely.

Where should you store the credentials?

A. In the source code
B. In an environment variable
C. In a secret management system
D. In a config file that has restricted access through ACLs

Correct Answer: C
Section: [none]
Explanation

Explanation/Reference:
References: https://cloud.google.com/kms/docs/secret-management

QUESTION 32
A development manager is building a new application. He asks you to review his requirements and identify what cloud technologies he can use to meet them. The application must:

1. Be based on open-source technology for cloud portability
2. Dynamically scale compute capacity based on demand
3. Support continuous software delivery
4. Run multiple segregated copies of the same application stack
5. Deploy application bundles using dynamic templates
6. Route network traffic to specific services based on URL

Which combination of technologies will meet all of his requirements?

A. Google Kubernetes Engine, Jenkins, and Helm
B. Google Kubernetes Engine and Cloud Load Balancing
C. Google Kubernetes Engine and Cloud Deployment Manager
D. Google Kubernetes Engine, Jenkins, and Cloud Load Balancing

Correct Answer: D
Section: [none]

Explanation

Explanation/Reference:
Explanation:

Jenkins is an open-source automation server that lets you flexibly orchestrate your build, test, and deployment pipelines. Kubernetes Engine is a hosted version of Kubernetes, a powerful cluster manager and orchestration system for containers.
When you need to set up a continuous delivery (CD) pipeline, deploying Jenkins on Kubernetes Engine provides important benefits over a standard VM-based deployment

Incorrect Answers:
A: Helm is a tool for managing Kubernetes charts. Charts are packages of pre-configured Kubernetes resources.
Use Helm to:
- Find and use popular software packaged as Kubernetes charts
- Share your own applications as Kubernetes charts
- Create reproducible builds of your Kubernetes applications
- Intelligently manage your Kubernetes manifest files
- Manage releases of Helm packages

References: https://cloud.google.com/solutions/jenkins-on-kubernetes-engine