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Mix Questions

Question: 1

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 the package dependencies (Python and pip) are installed.

Answer: C,E

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: 2

Your solution is producing performance bugs in production that you did not see in staging and test environments. You want to adjust your test and deployment procedures to avoid this problem in the future. What should you do?

A. Deploy fewer changes to production.
B. Deploy smaller changes to production.

C. Increase the load on your test and staging environments.
D. Deploy changes to a small subset of users before rolling out to production.

Answer: D

Question: 3

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.

Answer: D

https://cloud.google.com/endpoints/docs/openapi/lifecycle-management

Question: 4

A small number of API requests to your microservices-based application take a very long time. You know that each request to the API can traverse many services. You want to know which service takes the longest in those cases. What should you do?

A. Set timeouts on your application so that you can fail requests faster.
B. Send custom metrics for each of your requests to Stackdriver Monitoring.
C. Use Stackdriver Monitoring to look for insights that show when your API latencies are high.
D. Instrument your application with Stackdnver Trace in order to break down the request latencies at each microservice.

Answer: D

https://cloud.google.com/trace/docs/overview

Question: 5

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.

Answer: C

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: 6

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.

Answer: B

https://cloud.google.com/monitoring/api/v3/metrics
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: 7

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

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Answer: A

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https://cloud.google.com/docs/enterprise/best-practices-for-enterprise-organizations
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: 8

Your company is forecasting a sharp increase in the number and size of Apache Spark and Hadoop jobs being run on your local datacenter You want to utilize the cloud to help you scale this upcoming demand with the least amount of operations work and code change. Which product should you use?

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

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Answer: B

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Explanation:
Google Cloud Dataproc is a fast, easy-to-use, low-cost and fully managed service that lets you run the Apache Spark and Apache Hadoop ecosystem on Google Cloud Platform. Cloud Dataproc provisions big or small clusters rapidly, supports many popular job types, and is integrated with other Google Cloud Platform services, such as Google Cloud Storage and Stackdriver Logging, thus helping you reduce TCO.

References: https://cloud.google.com/dataproc/docs/resources/faq

Question: 9

Your company's test suite is a custom C++ application that runs tests throughout each day on Linux virtual machines. The full test suite takes several hours to complete, running on a limited number of on premises servers reserved for testing. Your company wants to move the testing infrastructure to the cloud, to reduce the amount of time it takes to fully test a change to the system, while changing the tests as little as possible. Which cloud infrastructure should you recommend?

A. Google Compute Engine unmanaged instance groups and Network Load Balancer
B. Google Compute Engine managed instance groups with auto-scaling
C. Google Cloud Dataproc to run Apache Hadoop jobs to process each test
D. Google App Engine with Google Stackdriver for logging

Answer: B

https://cloud.google.com/compute/docs/instance-groups/
Google Compute Engine enables users to launch virtual machines (VMs) on demand. VMs can be launched from the standard images or custom images created by users.
Managed instance groups offer autoscaling capabilities that allow you to automatically add or remove instances from a managed instance group based on increases or decreases in load. Autoscaling helps your applications gracefully handle increases in traffic and reduces cost when the need for resources is lower.

Question: 10

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.

Answer: D

Question: 11

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

Answer: C

https://cloud.google.com/docs/authentication/production#providing_credentials_to_your_application

Question: 12

The operations manager asks you for a list of recommended practices that she should consider when migrating a J2EE application to the cloud. Which three practices should you recommend? Choose 3 answers

A. Port the application code to run on Google App Engine.
B. Integrate Cloud Dataflow into the application to capture real-time metrics.
C. Instrument the application with a monitoring tool like Stackdriver Debugger.
D. Select an automation framework to reliably provision the cloud infrastructure.
E. Deploy a continuous integration tool with automated testing in a staging environment.
F. Migrate from MySQL to a managed NoSQL database like Google Cloud Datastore or Bigtable.

Answer: ADE

References: https://cloud.google.com/appengine/docs/standard/java/tools/uploadinganapp
https://cloud.google.com/appengine/docs/standard/java/building-app/cloud-sql

Question: 13

You want to enable your running Google Container Engine cluster to scale as demand for your application changes. What should you do?

A. ○ Add additional nodes to your Container 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 enable
-autoscaling max-nodes-10
```

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

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

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

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Answer: C

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https://cloud.google.com/kubernetes-engine/docs/concepts/cluster-autoscaler
To enable autoscaling for an existing node pool, run the following command:
gcloud   container   clusters   update   [CLUSTER_NAME]   --enable-autoscaling   \
--min-nodes 1 --max-nodes 10 --zone [COMPUTE_ZONE] --node-pool default-pool

Question: 14

A lead engineer wrote a custom tool that deploys virtual machines in the legacy data center. He wants
to migrate the custom tool to the new cloud environment You want to advocate for the adoption of
Google Cloud Deployment Manager What are two business risks of migrating to Cloud Deployment
Manager? Choose 2 answers

A. Cloud Deployment Manager uses Python.
B. Cloud Deployment Manager APIs could be deprecated in the future.
C. Cloud Deployment Manager is unfamiliar to the company's engineers.
D. Cloud Deployment Manager requires a Google APIs service account to run.
E. Cloud Deployment Manager can be used to permanently delete cloud resources.
F. Cloud Deployment Manager only supports automation of Google Cloud resources.

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Answer: BF

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Question: 15

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 gccloud with the command gcloud components install bq.

Answer: A

https://cloud.google.com/bigquery/docs/python-client-migration
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: 16

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 cloud-native 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

Answer: BC

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: 17

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 Container Engine, Jenkins, and Helm
B. Google Container Engine and Cloud Load Balancing
C. Google Compute Engine and Cloud Deployment Manager
D. Google Compute Engine, Jenkins, and Cloud Load Balancing

Answer: D

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
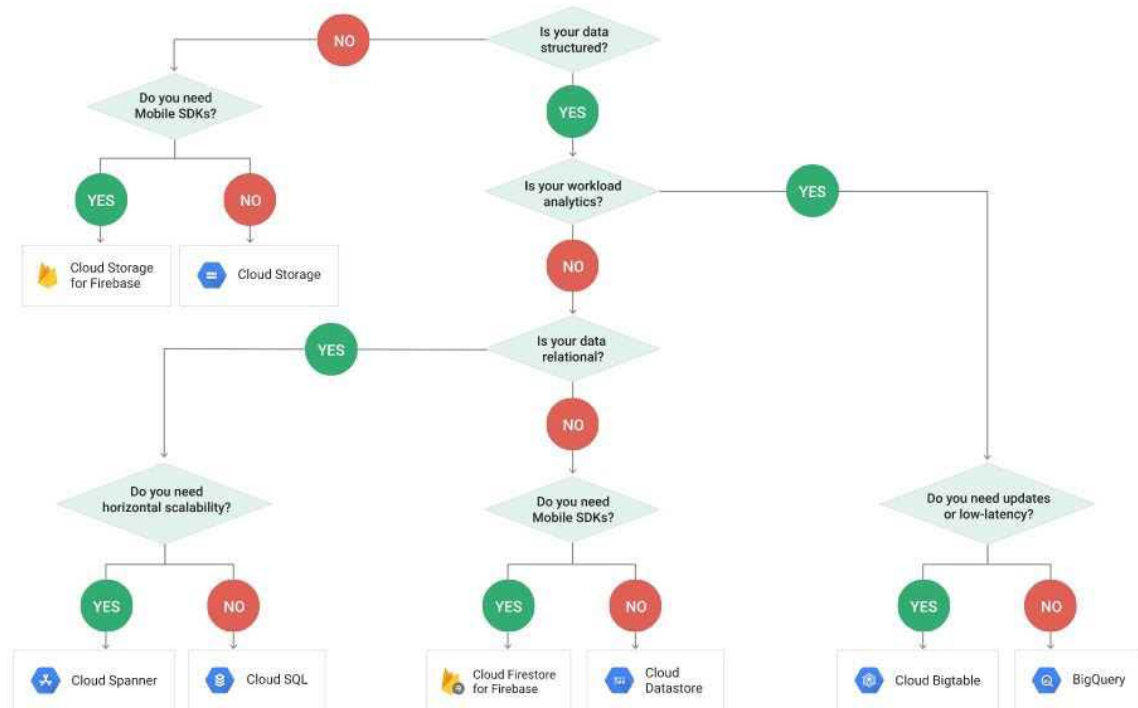
Question: 18

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-throughs per day. The link leads to a simple website that explains the promotion and collects user information and preferences. Which infrastructure should you recommend?

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, backed by Google Cloud SQL.

Explanation:

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

Question: 19

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.

https://cloud.google.com/storage/docs/access-logs
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 --payload-type=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: 20

You have created several preemptible Linux virtual machine instances using Google Compute Engine. You want to properly shut down your application before the virtual machines are preempted. What should you do?

A. Create a shutdown script named k99.shutdown in the /etc/rc.6.d/ directory.

B. Create a shutdown script registered as a xinetd service in Linux and configure a Stackdnver endpoint check to call the service.

C. Create a shutdown script and use it as the value for a new metadata entry with the key shutdown-script in the Cloud Platform Console when you create the new virtual machine instance.

D. Create a shutdown script, registered as a xinetd service in Linux, and use the gcloud compute instances add-metadata command to specify the service URL as the value for a new metadata entry with the key shutdown-script-url

Answer: C

Explanation:

A startup script, or a shutdown script, is specified through the metadata server, using startup script metadata keys.

Reference: https://cloud.google.com/compute/docs/startupscript

https://cloud.google.com/compute/docs/shutdownscript

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