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QUESTION 1

Your team is writing a backend application to implement the business logic for an interactive voice response (IVR) system that will support a payroll application. The IVR system has the following technical characteristics:

1.

Each customer phone call is associated with a unique IVR session.

2.

The IVR system creates a separate persistent gRPC connection to the backend for each session.

3.

If the connection is interrupted, the IVR system establishes a new connection, causing a slight latency for that call.

You need to determine which compute environment should be used to deploy the backend application. Using current call data, you determine that:

1.

Call duration ranges from 1 to 30 minutes.

2.

Calls are typically made during business hours.

3.

There are significant spikes of calls around certain known dates (e.g., pay days), or when large payroll changes occur.

You want to minimize cost, effort, and operational overhead. Where should you deploy the backend application?

A. Compute Engine

B. Google Kubernetes Engine cluster in Standard mode

C. Cloud Functions

D. Cloud Run

Correct Answer: D

This page shows Cloud Run-specific details for developers who want to use gRPC to connect a Cloud Run service with other services, for example, to provide simple, high performance communication between internal microservices. You can use all gRPC types, streaming or unary, with Cloud Run.

Possible use cases include:

Communication between internal microservices.

High loads of data (gRPC uses protocol buffers, which are up to seven times faster than REST calls).

Only a simple service definition is needed, you don\\'t want to write a full client library. Use streaming gRPCs in your

gRPC server to build more responsive applications and APIs.

https://cloud.google.com/run/docs/tutorials/secure-services#:~:text=The%20backend%20service%20is%20private,Google%20Cloud%20exce pt%20where%20necessary.

QUESTION 2

You are developing an application that consists of several microservices running in a Google Kubernetes Engine cluster. One microservice needs to connect to a third-party database running on-premises. You need to store credentials to the database and ensure that these credentials can be rotated while following security best practices. What should you do?

A. Store the credentials in a sidecar container proxy, and use it to connect to the third-party database.

B. Configure a service mesh to allow or restrict traffic from the Pods in your microservice to the database.

C. Store the credentials in an encrypted volume mount, and associate a Persistent Volume Claim with the client Pod.

D. Store the credentials as a Kubernetes Secret, and use the Cloud Key Management Service plugin to handle encryption and decryption.

Correct Answer: D

https://cloud.google.com/kubernetes-engine/docs/how-to/encrypting-secrets By default, Google Kubernetes Engine (GKE) encrypts customer content stored at rest, including Secrets. GKE handles and manages this default encryption for you without any additional action on your part. Application-layer secrets encryption provides an additional layer of security for sensitive data, such as Secrets, stored in etcd. Using this functionality, you can use a key managed with Cloud KMS to encrypt data at the application layer. This

encryption protects against attackers who gain access to an offline copy of etcd.

QUESTION 3

You recently developed an application. You need to call the Cloud Storage API from a Compute Engine instance that doesn\\'t have a public IP address. What should you do?

A. Use Carrier Peering

B. Use VPC Network Peering

C. Use Shared VPC networks

D. Use Private Google Access

Correct Answer: D

https://cloud.google.com/vpc/docs/private-google-access

QUESTION 4

You are developing a Java Web Server that needs to interact with Google Cloud services via the Google Cloud API on

the user\\'s behalf. Users should be able to authenticate to the Google Cloud API using their Google Cloud identities. Which workflow should you implement in your web application?

A. 1) When a user arrives at your application, prompt them for their Google username and password. 2) Store an SHA password hash in your application\\'s database along with the user\\'s username. 3) The application authenticates to the Google Cloud API using HTTPs requests with the user\\'s username and password hash in the Authorization request header.

B. 1) When a user arrives at your application, prompt them for their Google username and password. 2) Forward the user\\'s username and password in an HTTPS request to the Google Cloud authorization server, and request an access token. 3) The Google server validates the user\\'s credentials and returns an access token to the application. 4) The application uses the access token to call the Google Cloud API.

C. 1) When a user arrives at your application, route them to a Google Cloud consent screen with a list of requested permissions that prompts the user to sign in with SSO to their Google Account. 2) After the user signs in and provides consent, your application receives an authorization code from a Google server. 3) The Google server returns the authorization code to the user, which is stored in the browser\\'s cookies. 4) The user authenticates to the Google Cloud API using the authorization code in the cookie.

D. 1) When a user arrives at your application, route them to a Google Cloud consent screen with a list of requested permissions that prompts the user to sign in with SSO to their Google Account. 2) After the user signs in and provides consent, your application receives an authorization code from a Google server. 3) The application requests a Google Server to exchange the authorization code with an access token. 4) The Google server responds with the access token that is used by the application to call the Google Cloud API.

Correct Answer: D

https://developers.google.com/identity/protocols/oauth2#webserver

The Google OAuth 2.0 endpoint supports web server applications that use languages and frameworks such as PHP, Java, Python, Ruby, and ASP.NET. The authorization sequence begins when your application redirects a browser to a Google URL; the URL includes query parameters that indicate the type of access being requested. Google handles the user authentication, session selection, and user consent. The result is an authorization code, which the application can exchange for an access token and a refresh token.

QUESTION 5

You need to configure a Deployment on Google Kubernetes Engine (GKE). You want to include a check that verifies that the containers can connect to the database. If the Pod is failing to connect, you want a script on the container to run to complete a graceful shutdown. How should you configure the Deployment?

A. Create two jobs: one that checks whether the container can connect to the database, and another that runs the shutdown script if the Pod is failing.

B. Create the Deployment with a livenessProbe for the container that will fail if the container can\\'t connect to the database. Configure a Prestop lifecycle handler that runs the shutdown script if the container is failing.

C. Create the Deployment with a PostStart lifecycle handler that checks the service availability. Configure a PreStop lifecycle handler that runs the shutdown script if the container is failing.

D. Create the Deployment with an initContainer that checks the service availability. Configure a Prestop lifecycle handler that runs the shutdown script if the Pod is failing.

Correct Answer: B

https://cloud.google.com/architecture/best-practices-for-running-cost-effective-kubernetes-applications-on-gke#make_sure_your_applications_are_shutting_down_in_accordance_with_kubernetes_ expectations