Exam Session - Cert Prep: Google Professional Cloud Architect

🌸 **cloudacademy.com**/quiz/exam/3758580/results

#1

A hedge fund firm is using google cloud infrastructure for their compute and storage requirements. In order to comply with regulations, the company should store all the files available for audit by the authorities. All the files up to past 3 years should be available for audit before deletion. The employees are aware of the regulatory requirements, but sometimes they might delete the files accidentally. The company wants to avoid such accidents as they attract fines from the authorities. How should they manage the storage to be compliant to the regulation?

✕

Use cloud storage for storing data. Enable multi region buckets and back-up data to a nearline storage. Set object lifecycle policy to delete objects that are more than 3 years old.

✓

Use cloud storage for storing data. Add retention policy to the buckets with retention period of 3 years.

✕

Use cloud storage for storing data. Enable multi region buckets and back-up data to a coldline storage. Set object lifecycle policy to delete objects that are more than 3 years old.

✕

Use cloud storage for storing data. Enable object versioning for the buckets. Use object lifecycle policy to delete objects that are more than 3 years old.

Explanation

Retention policies can provide immutable storage on Cloud Storage. In conjunction with Detailed audit logging mode, which logs Cloud Storage request and response details, Bucket Lock can help with regulatory and compliance requirements, such as those associated with FINRA, SEC, and CFTC.

The hedge firm can add a retention policy that prohibits anyone from deleting an object for 3 years and comply with the regulation.

🔗 https://cloud.google.com/bigquery/docs/datasets-intro

#2

Your team has developed a model inference pipeline in Google Cloud. The pipeline is scheduled to run twice per day and the data files are stored in Cloud Storage. Due to the high demand for products and services offered by your company, the data now comes in more often. How would you make sure that the pipeline can run immediately when the new data is available with minimal effort? (Choose Two)

✓

Configure Cloud Pub/Sub notification for Cloud Storage, use Cloud Functions with a Cloud Pub/Sub trigger to trigger a pipeline run when the data files are created in Cloud Storage

✗

Configure Cloud Pub/Sub notification for Cloud Storage, use Cloud Functions with Cloud Pub/Sub polling logic to trigger a pipeline run when the data files are created in Cloud Storage

✗

Use a Cloud Storage polling application to check if there are any new data files, then trigger the pipeline run

✓

Configure Cloud Pub/Sub notification for Cloud Storage, use Cloud Run with a Cloud Pub/Sub push to trigger a pipeline run when the data files are created in Cloud Storage

Explanation

Both Cloud Functions and Cloud Run can be triggered to run the pipeline based on the Cloud Storage events published through Cloud Pub/Sub. The polling logic involves more effort than push triggering, so this is not the best answer to the question.

🔗 https://cloud.google.com/storage/docs/pubsub-notifications

#3

Your company is developing a data pipeline, which will be used as part of a broader ML pipeline for end-to-end machine learning lifecycle management. The data pipeline needs to be able to prepare data, transform data, analyze data, and load data to downstream systems like BigQuery, Cloud SQL. It is required to use Google Cloud for developing and deploying the pipeline. How do you develop the pipeline quickly with a no-code, low-code approach? (Choose Two)

✓

Use Dataprep to develop the pipeline

✗

Use Dataflow to develop the pipeline

✗

Use Dataproc to develop the pipeline

✓

Use Data Fusion to develop the pipeline

Explanation

Both Dataprep and Data Fusion in Google Cloud empower data engineers to develop ETL data pipelines with an easy-to-use, Web-based UI to design and develop data pipelines visually with no code or low code. There are built-in components for data preparation, data transformation, data analysis and data load.

The remaining choices are incorrect for the following reasons:

- Dataflow automates infrastructure for data processing for large datasets that must be scaled. You must write your own code to transform any data, which is not ideal in this solution.
- Dataproc is used to run open source data analytics at scale.

🔗 https://cloud.google.com/data-fusion

#4

_____ allows you to use a simple YAML configuration file to define how all your containers interact with each other and with external network connections.

✗

Config Management

✓

Anthos Service Mesh

✗

Cloud Run

✕

Anthos on bare metal

Explanation

While we can quickly end up with dozens or more network end points in between all of our microservices, with Anthos Service Mesh, we can again use a simple YAML configuration file to define how all our containers interact with each other, and with external network connections.

🔗 /course/introduction-developing-anthos-2111/understanding-anthos-service-mesh/ #5

You are working on an end-to-end ML pipeline design, which needs to meet the following requirements. Your team is using GitHub for the source code repository.Integration with Github Trigger build and model training automatically with code changes Use Cloud native services as much as possibleHow would you design the ML pipeline in Google Cloud? (Choose Two)

✕

Use Cloud Source Repository as Git repository, configure it with a Cloud Build trigger to run the Kubeflow pipeline on Google Kubernetes Engine

✓

Mirror Github Repository with Cloud Source Repository, configure it with a Cloud Build trigger to run the Kubeflow pipeline on AI Platform

✓

Configure GitHub trigger in Cloud Build to run the Kubeflow pipeline on AI Platform

✕

Sync source code from GitHub to Cloud Source Repository, configure it with a Cloud Build trigger to run the Kubeflow pipeline on Google Kubernetes Engine

Explanation

GitHub mirroring will automatically sync up the code changes from GitHub to Cloud source repository, and creating a pipeline in AI Platform simplifies the Kubeflow pipeline deployment. GitHub trigger in Cloud Build can trigger pipeline run based on code changes in GitHub.

The remaining choices are incorrect for the following reasons:

You do not need to create an additional Cloud Source Repository

🔗 https://cloud.google.com/build/docs/automating-builds/build-repos-from-github

#6

You are working in an organization where multiple GCP projects are used by a number of teams. While working on one of the projects, you faced some difficulties deploying a compute engine using the Deployment Manager. Your colleagues are no help, and you have contacted Google Support for the aid but their representative is asking for access to project resources. How would you do that?

✕

Add the email of the support executive in the IAM Users and provide the necessary roles.

✓

Go to security tab followed by Access Approvals then Click on Approve after reviewing the details

✕

Google Support has already access to all the resources of your project.

✕

There is no way to provide access to the support team.

Explanation

The security tab allows you to provide access to project resources to other users. Moreover, you can set up approval notifications via email or Cloud Pub/Sub.

The other choices are incorrect for the following reasons:

- Google support may have a number of ways to look for the issues but adding the support executive as an IAM Member will work as a normal IAM User. Also, Google Support executives should not be added as IAM Members, it can lead to security issues.
- Google support does not have automatic access to your resources.
- It is possible to provide access to Support team members.

🔗 https://cloud.google.com/access-approval/docs/quickstart#before-you-begin

#7

A financial data company currently shares data with its clients through desktop software and APIs, but is looking to share a particular dataset with their clients utilizing GCP. The requirements for sharing this data are as follows:Clients should be able to only read the data

and not update or modify any data. Different clients subscribe to different parts of the data and the company doesn't want to share the whole data set to all the clients. How should the company design the offering so that it can share the data set with clients for analysis?

✕

Create different data sets for different clients and store them in a bucket. Share each dataset as a read only object with respective clients

✕

Create a bucket for each client with uniform read access. Share the datasets in respective buckets that belong to the clients

✓

Load the dataset into BigQuery. Create views for different clients and give access to views to respective clients

✕

Register as a partner on Google cloud marketplace and upload the dataset as a solution. Redirect clients to access the dataset through the marketplace

Explanation

BigQuery datasets are top-level containers that are used to organize and control access to tables and views. This provides an easy way to share read only access to clients by creating a different view for each client.

Clients can also access data via BigQuery REST API and Data pipelines.

Creating a bucket for each client is a possible option, but BigQuery views provide a better approach to manage data permissions.

🔗 https://cloud.google.com/bigquery/docs/datasets-intro
#8

Your company has been developing a new feature for a GCP-hosted web-based CRM product. The marketing team wants to know if the new feature can improve the user engagement as well as minimize the user impact if the new feature doesn't work as expected. The CRM product is designed and developed using the modern microservices architecture and it is running on GKE. How do you implement a solution to accomplish this goal in Google Cloud?

✕

Use Spinnaker to deploy the new feature enabled CRM to a group of internal users to test first, use BigQuery to analyze the data collected through Cloud Monitoring and Google Analytics to decide if the new feature should be released to the external users or not

✕

Use Spinnaker to deploy the new feature enabled CRM to a small group of external users to test first, use BigQuery to analyze the data collected through Cloud Monitoring and Google Analytics to decide if the new feature should be released to all the external users or not

✕

Use Spinnaker to do a canary deployment of the CRM product with traffic split - 25% of the traffic is routed to the product with the new feature and 75% for the old product, then use BigQuery to analyze the data collected through Cloud Monitoring and Google Analytics to decide if the new feature should be released to all the users or not

✓

Use Spinnaker to do a canary deployment of the CRM product with traffic split - 10% of the traffic is routed to the product with the new feature and 90% for the old product, then use BigQuery to analyze the data collected through Cloud Monitoring and Google Analytics to decide if the new feature should be released to all the users or not

Explanation

The best strategy is to use the canary deployment for A/B testing and then change the traffic split ratio based on the test result. The new feature should only be released to a small percentage of users for testing to avoid negative impact if the feature doesn't work well as designed.

🔗https://cloud.google.com/architecture/implementing-canary-deployments

#9

A junior ML engineer recently joined your company and he was assigned a task to develop a data pipeline for preparing the data for model training and test. As the team lead, you asked the engineer to make sure the data is prepared and transformed in the correct way to avoid any potential data leakage. What does the engineer need to perform by leveraging Google Cloud services? (Choose Two)

✕

Use Cloud Data Prep to prepare and transform dataset, then split dataset into training and test

✓

Use Cloud Data Prep to split dataset into training and test, then prepare and transform training and test independently

✕

Use Cloud Dataflow split time-series dataset into training and test randomly, then prepare and transform training and test independently

✓

Use Cloud Dataflow split time-series dataset into training and test in chronological order, then prepare and transform training and test independently

Explanation

To avoid data leakage, we need to split the dataset first, then apply preparation and transformation. For time-series data, the dataset must be split in chronological order.

Dataprep is the best way to split and order the data, and Dataflow can be used to test in chronological order.

⊘ https://cloud.google.com/dataprep

#10

Your company hosts many applications on GCP that each store various kinds of data. The head of data compliance is concerned that if there is any PII (personally identifiable information) present in the data, it might attract fines if not processed correctly. He asked you to come up with a solution that identifies the PII, classifies it and anonymizes it if it has to be processed. He is aware of the dynamic nature of the applications and data and is looking for a solution that is easy to manage with minimum overhead. As a GCP cloud architect what solution will you propose? (Choose two)

✓

Use Cloud DLP (Data Loss Prevention) to scan data stored in Cloud Storage, Datastore and BigQuery & use Cloud Data Catalog to tag PII data

✕

Use Cloud Data Catalog to search the PII in Cloud Storage, Datastore and BigQuery

✓

Use Cloud DLP de-identification transformation templates for the datasets that are identified with PII & Cloud Dataflow to de-identify them

✕

Use Cloud DLP to de-identify the PII datasets and use them for processing

Explanation

Cloud Data Loss Prevention is a managed service from GCP to discover, classify and protect sensitive data.

The solution requires the following to be done:

1. Identifying the PII among the datasets - Cloud DLP can be used to scan for PII data
2. Label / classify the datasets - This can be done with Cloud Data Catalog with input from Cloud DLP
3. De-identify the PII - Cloud DLP de-identification templates can be used to the De-identify
4. Automate the process as the data keeps changing - Use Cloud Dataflow pipeline to process the data suing the de-identification templates

🔗 https://cloud.google.com/architecture/de-identification-re-identification-pii-using-cloud-dlp

#11

A startup company has developed an online crypto exchange service to serve the customers globally. The exchange service has a n-tier architecture, such as Web, REST API and databases, and it is hosted in Google Cloud. You are the lead of a QA and testing team. To make sure the platform can still operate under heavy load and in any regional natural disaster scenario. How would you design your load and DR test strategy?

✕

Deploy Locust onto GKE to run load test until the system fails and conduct DR test during regular business hours to evaluate possible business impact by configuring Cloud Load Balancer to cut off the HTTP traffic at the web tier

✕

Deploy Locust onto GKE to run load test until the system fails and conduct DR test during off-business hours to reduce possible business impact by configuring Cloud Load Balancer to cut off the HTTP traffic at the Web tier and API layer

✕

Deploy Locust onto GKE to run load test until the system stops taking new requests and conduct DR test during regular business hours to evaluate possible business impact by configuring Cloud Load Balancer to cut off the HTTP traffic at the Web tier and API layer

✓

Deploy Locust onto GKE to run load test until the system stops taking new requests and conduct DR test during off-business hours to reduce possible business impact by configuring Cloud Load Balancer to cut off the HTTP traffic at the Web tier, API layer and TCP traffic at database layer

Explanation

The purpose of load testing is not to break the systems, but to test the maximum number of users it could potentially support given the constraints of system resources. Even with the auto-scaling capability in the Cloud, the systems cannot be scaled limitlessly. DR tests should always be conducted in off-business hours in case things don't go as planned to minimize the business impact and use the production system for DR tests to discover any potential issues as well. The Web and REST API layers use HTTP load balancer and the database layer uses TCP load balancer.

🔗 https://cloud.google.com/architecture/distributed-load-testing-using-gke

#12

When you use Google Cloud Code to integrate Anthos with an IDE, _____ uses your local Docker installation to manage a single Kubernetes cluster on your development machine.

✗

OpenShift

✗

OpenStack

✓

Minikube

✗

Skaffold

Explanation

Cloud Code integrates a number of Google APIs into our IDE, and uses Minikube and Skaffold under the hood to streamline container-based development on our local machine. Minikube uses our local Docker installation to manage a single Kubernetes cluster on our development machine.

🔗 /course/introduction-developing-anthos-2111/integrating-anthos-with-an-ide-using-google-cloud-code/

#13

You are developing a data pipeline and data preparation includes data ingestion, data validation, and data transformation. After some research online, you found TensorFlow Transform has built-in transformation APIs and you wanted to apply the same transformation logic for both training and serving. How do you prevent data skew when TensorFlow Transform is used for data transformation?

✕

Build the transformation logic into the model itself

✕

Duplicate the transformation logic for both training and serving

✕

Containerized the transformation logic and deploy it as a service

✓

The output of tf.Transform should be exported as a TensorFlow graph to use for both training and serving.

Explanation

TensorFlow Transform is a library for preprocessing data with TensorFlow. The output of tf.Transform is exported as a TensorFlow graph to use for training and serving. Using the same graph for both training and serving can prevent skew since the same transformations are applied in both stages.

🔗 https://www.tensorflow.org/tfx/guide/tft

#14

You have built a three-tier application hosting critical workloads which you are planning to host on the Google Cloud Platform. Due to the low budget, the database is designed as a part of the application server. Your manager has asked you to design the infrastructure in a way that follows the Hot Disaster Recovery Pattern. How would you design the architecture?

✕

Deploy one compute engine in one zone, failover to on-premise server.

✓

Deploy two compute engines in two zones each located in different regions.

✗

Deploy two compute engines in two zones each located in the same region.

✗

Deploy two compute engines in two zones each located in the same region but in different projects.

Explanation

The correct choice here is to deploy two compute engines in two zones each located in different regions. This is correct because Hot DR Pattern has low RTO/RPO which means Fastest recovery. If you create a compute engine in 2 zones, if the Compute Engine goes down in 1 zone or 1 region, the other zone or region is still there. It is the most expensive approach.

The other choices are incorrect because:

- Deploying one compute engine in one zone and then failing over to on-premise server is incorrect because only one Instance is there and failover to on-premise doesn't make any sense, You will have to manage on-premise additionally.
- The two remaining choices are wrong because if the entire region goes down, there is no backup option available. Choosing different projects won't make any difference here.

🔗 https://cloud.google.com/solutions/dr-scenarios-planning-guide#dr_patterns

#15

Anthos has a _____ that checks configuration files and enforces their rules against every Kubernetes API request.

✗

Config Connector

✓

Policy Controller

✗

Service Mesh

✗

Config Knowledge Base

Explanation

Anthos has a Policy Controller that checks configuration files and enforces their rules against every Kubernetes API request. With this, we can create guardrails for our applications by defining security rules that are enforced on all of our containers across all of our Anthos deployments.

🔗 /course/introduction-developing-anthos-2111/understanding-anthos-config-management/
#16

_____ is a managed microservices platform that allows you to just build your application into a container, then let Google worry about handling all the infrastructure management from there.

✕

Service Mesh

✕

Config Connector

✕

Cloud Build

✓

Cloud Run

Explanation

Cloud Run is a managed microservices platform that allows us to just build our application into a container, then let Google worry about handling all the infrastructure management from there.

🔗 /course/introduction-developing-anthos-2111/building-microservices-on-anthos-with-google-cloud-run/
#17

You are part of a Cloud operation team at a video streaming company and your team manages a large number of VMs and Google Cloud APIs. How do you implement a solution to meet the following requirements in Google Cloud with minimum effort and cost? Track

and understand your usage of Google APIs and limit API requestsMonitor the uptime of all VMs on-premises, in AWS and GCPSearch and query system and application logs in a centralized consoleAnalyze and visualize the log data

✓

Use Cloud APIs & Services Dashboard to view API usage and configure the API quota per API, install the monitor agents on VMs for Cloud Monitoring to monitor VM uptime, use Cloud Logging to query log data and to create the dashboard charts to visualize the log data

✗

Use Cloud APIs & Services Dashboard to view API usage and configure the API quota per API, install the monitor agents on VMs for Cloud Monitoring to monitor VM uptime, use Cloud Logging to query log data and export the log data into Looker to analyze and visualize the log data

✗

Use Cloud API Gateway to view API usage and configure the API quota per API, install the monitor agents on VMs for Cloud Monitoring to monitor VM uptime, use Cloud Logging to query log data and export the log data into Data Studio to analyze and visualize the log data

✗

Use Cloud API Gateway to view API usage and configure the API quota per API, install the monitor agents on VMs for Cloud Monitoring to monitor VM uptime, use Cloud Logging to query log data and export the log data into BigQuery workbench to analyze and visualize the log data

Explanation

APIs Dashboard can help set the API quota limit or view the API usage, Cloud Monitoring can monitor VM uptime on-prem, in AWS and GCP, Cloud logging can search, query, analyze and visualize the log data with the minimum cost and effort.

🔗 https://cloud.google.com/apis/docs/monitoring

#18

You are working with a major US mobile carrier company to develop a model to identify spam and promotional phone calls. The goal is to detect these 2 types of calls as much as possible and to avoid blocking the important calls. The phone call data is already loaded into BigQuery. How will you train a model to achieve the goal by leveraging Google Cloud?

✗

Use BigQuery ML to train a multiclass model and optimize for recall

✓

Use BigQuery ML to train a multiclass model and optimize for precision

✗

Use BigQuery ML to train a multiclass model and optimize for accuracy

✗

Use BigQuery ML to train a multiclass model and optimize for F1 score

Explanation

There are three classes in the dataset – spam calls, promotion calls, and important / expected calls. To avoid blocking good calls, we need to reduce false spam and false promotion calls, the model should be trained to optimize for precision.

🔗 https://cloud.google.com/bigquery-ml/docs/introduction

#19

Your team is about to deploy new infrastructure for a client who has asked you to restrict the team to only the us-central-1 region. How can you fulfill the given requirement for all the projects in the organization?

✓

Organization Policy Constraints

✗

Restrict regions in projects

✗

Custom IAM policy

✗

There is no such feature available in Google cloud

Explanation

Organization policy constraints can be used to restrict the users to use a particular region at organization level.

The remaining choices are incorrect for the following reasons:

There is no such custom policy you can create where you can restrict users from using a particular region. Only Organization policy constraints can be used to restrict the users at the organization level.

🔗 https://cloud.google.com/resource-manager/docs/organization-policy/org-policy-constraints

#20

There is one application that has been utilizing a lot of bandwidth - sending out large packets. This particular app attempts to control the TCP window size so that it can maximize its own performance, to the detriment of other services running on the same WM. Which Linux tunable below would you adjust to set the maximum OS send buffer size for all connections?

✕

Net.core.rmem_max

✓

Net.core.wmem_max

✕

net.ipv4.tcp_rmem

✕

net.ipv4.tcp_wmem

Explanation

Net.core.wmem_max allows an admin with root access to set the send buffer size for all types of connections.

🔗 https://cloud.google.com/solutions/tcp-optimization-for-network-performance-in-gcp-and-hybrid

#21

A global insurance company that uses Google Cloud Platform plans for its employees to work from home. It has requested a scalable, cost-effective solution that can enable encrypted desktop streaming so that employees can access corporate resources. Which of the following would you recommend?

✕

Google workspace

✓

Google Cloud Virtual Desktop

✗

Create an encrypted connection to the office network

✗

Enable Remote Desktop Protocol (RDP) to connect to remote desktops

Explanation

Google's Virtual Desktop cloud enables access to corporate resources that is secure and scalable and for these reasons is the most appropriate solution in this scenario. Virtual Desktop includes User authentication and authorization with Google Workspace, IAP, or Active Directory.

Google Workspace is a collection of cloud computing, productivity, and collaboration tools, software, and products developed and marketed by Google. It is not a desktop streaming application but a suite of cloud solutions.

Creating an encrypted connection to the office network is appropriate in this scenario, but Google's Virtual Desktop includes encrypted connections as well as user authentication and authorization with Google Workspace, IAP, or Active Directory.

Remote Desktop Protocol (RDP) is a proprietary protocol developed by Microsoft which provides a user with a graphical interface to connect to another computer over a network connection. The user employs RDP client software for this purpose, while the other computer must run RDP server software. Enabling RDP to connect to the office desktop is not a secure, scalable, and cost-efficient solution in this scenario because the company uses Google and Virtual Desktop includes the security features offered by RDP.

🔗 https://cloud.google.com/solutions/virtual-desktops

#22

A social media company allows users to modify their profile pictures by adding badges and applying filters. Users can use the modified picture as their updated profile picture. The filters and badges are applied through an API call and the users tend to change the filters frequently while trying different options. The API calls cost the company and they are looking for a solution that reduces the load on API without impacting the user experience. The company runs the app on GCP and uses cloud storage to store images. Their engineering lead has consulted you for advice to build a cost efficient solution. As a GCP architect, what is your recommendation to them?

✗

Generate different possible profile pictures and store them in the cloud storage along with the user's profile picture. Display the picture based on the filter / badge selected by the user. Enable CDN for the cloud storage.

✓

Enable object versioning for the cloud storage. When the user generates a new modification, store it as a new version of the profile picture. Display earlier versions when the user selects an already chosen filter / badge.

✗

Enable object versioning for cloud storage. Generate all possible combinations of the picture and store them as different versions. Display the picture based on the filter / badge selected by the user.

✗

Increase the throughput of the APIs in Cloud Endpoints. Configure the throughput to withstand peak user traffic.

Explanation

It is hard to know the filters / badges that the users use on their profile pictures. The optimal solution is to store the ones that the user generates and show them back without calling the API again. This can be easily implemented by enabling object versioning in the cloud storage.

Generating all possible profile combinations is both inefficient and costly.

Throughput is not relevant to the stated scenario

🔗 https://cloud.google.com/storage/docs/object-versioning

#23

Your company is developing an offline mobile application that helps visually impaired people identify goods. The management team wants to deliver the product as soon as possible without having to develop everything from scratch. How would you develop the mobile application? (Choose Two)

✗

Train a custom machine learning model using Google Cloud Vision. Deploy it to AI Platform, the mobile application will make REST API calls to use the model for prediction

✓

Train an AutoML vision model for edge deployment and embed the model as part of the mobile application

✓

Use TensorFlow Lite to train a custom vision model and embed the model into the mobile application

✗

Use pre-trained Vision API models to detect objects and faces by making REST API calls as the user scans an object

Explanation

To identify personal goods, a custom vision model is required. The mobile app needs to work without Internet connection, so the vision model has to be deployed to the mobile device. For this reason, AutoML will be the best option.

The remaining choices are incorrect for the following reasons:

API calls cannot be made without an internet connection.

🔗 https://cloud.google.com/products/ai

#24

Your company has recently acquired another company operating in Spain to expand your market in Europe. You have to integrate their legacy systems into your company's systems. Your company uses GCP as the primary cloud to manage your applications. Their legacy applications are developed over years of time and not easy to replicate them on cloud. What is the fastest way to integrate this systems into your company's systems?

✓

Containerize the legacy applications using GKE and run them on the on-prem instances. Use Anthos for managing the applications

✗

Create snapshot of the legacy systems and run them on compute instances on GCP

✗

Containerize the legacy applications using GKE and run the GKE instances on GCP

✗

Use transfer appliance to securely ship the data from on-prem systems to GCP

Explanation

The legacy systems are on-prem and it would be difficult to migrate them on cloud. You should containerize the applications and run them on GKE.

Google Anthos can be used to consistently run and manage Kubernetes workloads across on-prem systems and GCP.

All other options are not optimal and take time to integrate with their existing GCP systems.

🔗 https://cloud.google.com/anthos/docs/concepts/overview
#25

A global fashion label gets 30% of their revenue from online channels. Their e-commerce website serves customers in multiple geographic regions. They use Cloud CDN to provide a better experience for their users. Their head of e-commerce division thinks that there is an opportunity to reduce the cost of operations of the website. Their CDN costs are a major concern and they are looking for ways to optimize the cost without impacting the user experience. They have asked for your recommendation on how to optimize the CDN costs. (Choose two)

✓

Enable caching for all the common images and non-personalized content

✗

Enable caching for all the content on the e-commerce site

✓

Optimize images by resizing and formatting them appropriately

✗

Use high resolution images for all the content and use multi region cloud storage to store them

Explanation

Multi region cloud storage is not an option for this use-case as it might impact the user experience.

Caching should be enabled for common content and not for personalized content - there is no advantage in caching the personalized content as it is likely to be shown to a single user.

Optimizing image size and format will reduce their size and allow for optimal data consumption.

🔗 https://cloud.google.com/blog/products/networking/introducing-lower-simpler-pricing-for-cloud-cdn
#26

An analytics consulting firm uses a windows server on prem to host Microsoft Active Directory and centrally manage their users and applications. They are planning to migrate the windows server to cloud and looking for solutions.It is important that the server is highly available and fault tolerant as the employees use it globally to connect to different applications. As a GCP cloud architect what solution will you recommend to the firm?

✓

Create a custom mode VPC network with 2 subnets spanning 2 zones. Create Windows Server virtual instances and enable Active Directory Domain Services. Configure a new domain with Active Directory. Join the new Windows Server instances to the new domain and configure firewall rules to allow traffic to the virtual machines.

✗

Create a VPC with one subnet spanning 2 zones. Create Windows Server virtual instances and enable Active Directory Domain Services. Configure a new domain with Active Directory. Join the new Windows Server instances to the new domain and configure firewall rules to allow traffic to the virtual machines.

✗

Create a custom mode VPC network with 2 subnets spanning 2 zones. Create Windows server virtual instances and enable Active Directory Domain Services. Create a load balancer with auto scaling group policy to run two virtual machines.

✗

Create a VPC with one subnet spanning 2 zones. Create Windows server virtual instances and enable Active Directory Domain Services. Create a load balancer with auto scaling group policy to run two virtual machines.

Explanation

To create a highly available and fault tolerant architecture, the servers must be deployed in 2 zones. Two server instances should be created in each zone / subnet and should be configured to allow traffic between them. Two subnets should be created - one in each zone. For this reason, choices having less than two subnets or not spanning two zones are incorrect.

Load balancer and auto scaling group are not the right choice to deploy a highly available Active Directory. For this reason, the AD option using load balancers is incorrect.

🔗https://cloud.google.com/architecture/deploy-fault-tolerant-active-directory-environment

#27

The data science team has adopted TensorFlow TFX as the framework to build and manage ML pipelines. You have developed the TFX pipeline for data ingestion, data transformation, model training, and evaluation. Now you need to make sure that the dataset doesn't have missing values and the infrastructure is ready to serve the model before the model can be deployed. How would you change the pipeline to meet these requirements?

✓

Add ExampleValidator component for missing values and InfraValidator to check if the model is servable from the infrastructure.

✗

Add ExampleGen component for missing values and InfraValidator to check if the model is servable from the infrastructure.

✗

Add ExampleGen component for missing values and Evaluator to check if the model is servable from the infrastructure.

✗

Add ExampleValidator component for missing values and Evaluator to check if the model is servable from the infrastructure.

Explanation

The correct TFX components are ExampleValidator for missing values and InfraValidator for checking the serving infrastructure readiness.

The remaining choices are incorrect for the following reasons:

- The ExampleGen component is used to generate Examples that will be read by other TFX components.
- The Evaluator component performs an analysis for scalable processing.

🔗 https://cloud.google.com/certification/guides/machine-learning-engineer

#28

Your team has developed pipelines using Dataflow and TFX in Google Cloud. Recently your company adopted a hybrid cloud strategy, so the products and must be able to run on both premises and Cloud. You need to select an orchestration tool to run the data and ML pipelines. Which tools should you use to satisfy the hybrid Cloud requirement? (Choose Two)

✓

Apache Airflow

✓

Google's Kubeflow

✗

AI Platform Pipelines

✗

Vertex AI Pipelines

Explanation

Apache Airflow is an open-source orchestration framework that can be self-hosted on-premises. Cloud Composer is a managed Apache Airflow service in Google Cloud.

Kubeflow is another open-source framework created for MLOps with built-in orchestration support. Kubeflow can be self-hosted on-premises.

The remaining choices are incorrect for the following reasons:

> AI Platform Pipeline and Vertex AI Pipeline are the managed Kubeflow in Google Cloud.

🔗 https://cloud.google.com/vertex-ai/docs/pipelines/introduction

#29

You have been working with other ML engineers to develop a facial recognition model for security cameras. The face model went through multiple rounds of testing to identify and address possible sources of gender and skin color bias. What else does your team need to put in place to further protect user data privacy? (Choose Three)

✓

Face Model should be encrypted and deployed to the security camera

✓

Face recognition should occur locally on the camera device, captured images and videos are only stored in the local SIM card

✕

Delete the uploaded images and videos from the Cloud storage after the face recognition occurs

✓

Detach all Personally Identifiable Information (PII) from the biometrics.

Explanation

To protect user data privacy, the images and videos are better stored locally instead of uploading to Cloud storage. If the user data is uploaded, data must be encrypted before the upload happens. The model encryption can help prevent any kind of hack/change of manipulating the model prediction results. With the local prediction, the prediction latency is low and there is no need to upload data into the Cloud. Additionally, removing PII from being tied to biometrics better protects any user privacy.

🔗 https://ai.google/responsibilities/

#30

You work at a public traded security company, which provides the biometrics identity verification service at major international airports. You are responsible for training the complex ResNet image recognition model. Because the service is in high demand as more airports have adapted this tech, the model is taking weeks to train. The model is trained by using a distributed strategy with hundreds of GPU-powered machines. You need to reduce the training time from weeks to days. You also found significant spikes of network I/Os during the most recent training. How do you address the issue? (Choose Two)

✕

Check the utilization rate of GPUs

✓

Check the network bandwidth in the training cluster

✓

Check the size of the VMs used for training

✕

Check the size of the training set

Explanation

For distributed training, the network bandwidth is critical and often neglected by ML engineers since most people focus on the performance of GPUs and TPUs. Higher network bandwidths can improve the performance of distributed workloads. In Google Cloud, typically the bigger VMs have more bandwidths than the smaller VMs.

🔗 https://cloud.google.com/compute/docs/gpus/gpu-network-bandwidth

#31

You recently joined a start-up that developed a mobile application to allow users to upload / share short videos. As part of the machine learning engineering team, you are working on a solution to moderate and analyze the uploaded videos for filtering out inappropriate or misinformative content. How would you design the solution to test the results with less time and effort?

✕

Cloud Pub/Sub, Cloud Function, Cloud Vision API, Cloud Logging

✕

Cloud Pub/Sub, Dataflow, Cloud Vision API, Cloud Logging

✓

Cloud Pub/Sub, Cloud Function, Video Intelligence API, BigQuery

✕

Cloud Pub/Sub, Cloud Function, AutoML Video, BigQuery

Explanation

Video Intelligence API has built-in support for content moderation. The results are stored in BigQuery, so it is easy to analyze the data and to integrate with reporting tools, like Data Studio, Looker, etc.. The remaining choices are incorrect for the following reasons:

- AutoML Video model training will need more time and effort to train, and is mainly used for domain-specific content.
- Cloud Logging is for logging and audit, but not meant for data analysis and reporting.

🔗 https://cloud.google.com/architecture/processing-marketing-submissions-using-video-intelligence
#32

A mobile gaming firm that is planning to launch a multiplayer version of their flagship game. They are using BigTable as a database and an application layer running on GKE containers. Since it is hard to predict the traffic, they are planning to use Ingress for load balancing to dynamically scale the application layer. They want to restrict the traffic from the web layer to be restricted to the application layer and not the database layer. What is the easiest way to achieve this?

✕

Create a different subnet to each layer. Use VPC network peering to allow traffic between web layer & application layer and application & database layer

✓

Create custom tags to identify the GKE containers and create firewall rules using the tags to allow the desired traffic flow

✕

Create custom tags to identify the GKE containers and set up routes using the tags to allow the desired traffic flow

✕

Create custom labels to identify the GKE containers and create firewall rules using the labels to allow the desired traffic flow

Explanation

Tags lets you reference the instances all at once, such as with a firewall rule. They can be used to manage the firewall rules where the instances are dynamically managed by a load balancer.

Firewalls should be used to route the traffic between the two layers.

🔗https://cloud.google.com/resource-manager/docs/creating-managing-labels

#33

Your team is planning to migrate its on-premises internal software to G Suite services. Your team has already manually addressed several of the security and network risks outlined by your company's compliance rules. You now have to convince higher management that your application will actually be safer in G Suite than it was on-premises. What controls would you put in place to ensure network security is taken care of and convince higher management to migrate?

✕

Place required Firewall rules in the set up

✕

Place Cloud Armor in the set up

✓

No need to add security controls. Network Security is Google's responsibility.

✕

Place a set of VPCs in the set up to gain a more secure environment.

Explanation

Google takes care of network security in GSuite. The other choices are incorrect for the following reasons:

- The firewall rules are meant for traffic management, not for network security
- A VPC only helps you create a network on the Google Cloud.
- Cloud Armor handles the network security for applications, but G Suite is already taken care of by Google

🔗https://cloud.google.com/security/infrastructure/design#cio-level_summary

#34

A company provides geo special data through APIs to their clients. The APIs are hosted via on-premise web servers. The company uses Fluentd to collect logs from the servers and other data sources. The product managers in the company are looking for data to understand the customer behavior and want to analyze the logs in real time. They are looking for a cloud based solution to set-up their analytics workload on cloud. The company has approached you for a solution that helps them to store, analyze and visualize log data. What do you recommend?

✗

Collect the logs from Fluentd to cloud storage. Use Cloud Dataflow to process the logs and send the output to a BigQuery table. Create a dashboard in Data Studio to visualize the output for product managers.

✗

Create a BigTable and populate it with output from Fluentd. Process data in BigTable and create a dashboard in Data Studio to visualize the output for product managers.

✗

Use Cloud Dataflow to ingest logs from Fluentd output. Process the data and create reports in Google sheets that can be shared with the product managers.

✓

Configure Fluentd output plugin to use BigQuery as a destination. Use BigQuery to analyze the data. Create a dashboard in Data Studio to visualize the output for product managers.

Explanation

The company is looking for a solution to analyze logs in realtime. Bigquery can be used to process logs in realtime and create dashboards in Data Studio.

A Fluentd output plugin for BigQuery can be used to send data to Bigquery, so this option is the best choice.

Dataflow is not a good option as it is good for batch processing, not sending data to Bigquery.

BigTable is not suitable for analytical work loads.

🔗https://cloud.google.com/architecture/fluentd-bigquery

#35

How does Google Cloud suggest that organizations use third-party identity providers to enable users access to Google Cloud with their corporate credentials?

✗

By delegating responsibility to service accounts and groups

✗

By implementing the principle of least privilege

✓

By federating third-party identity providers with Google Cloud

✕

By migrating unmanaged accounts to personal accounts

Explanation

If the organization uses a third-party identity provider, the organizations' user directory should be synchronized with Cloud Identity to let users access Google Cloud with their corporate credentials.

Delegating responsibility with service accounts and groups is associated with assigning IAM roles, not with enabling a user's access to Google Cloud with their corporate credentials.

The principle of least privilege is not related to enabling users access to Google Cloud with their corporate credentials but with access to resources within Google Cloud.

Migration of unmanaged accounts is required to be implemented when members of the organizational domain have used their corporate email ID to create a personal Google Account.

🔗 https://cloud.google.com/docs/enterprise/best-practices-for-enterprise-organizations#groups-and-service-accounts
#36

What is Google Cloud Armor?

✓

a DDoS defense service and web application firewall

✕

a permissions management system for Google Cloud resources

✕

an encryption key management service

✕

a service for storing API keys, passwords, certificates, and other sensitive data

Explanation

Google Cloud Armor is an enterprise-grade DDoS defense service and web application firewall.

🔗 /course/introduction-google-cloud-armor-2380/overview-of-google-cloud-armor/
#37

A start-up in the decentralized finance space provides portfolio management services for customers holding digital assets. In order to manage the digital assets they take custody of their customer's private keys which are very sensitive and prone to hacking. They plan to use the private keys of high value assets only when required and store them offline in their on-premise systems. They use GCP as their primary infrastructure and would like to know how to access and update the private keys securely only when required.What is the best way to achieve this? (Choose three)

✓

Create a VM in a separate VPC and use it to temporarily store the private keys. Create a peering connection with the main VPC to update the or access the private keys.

✓

Store the private keys on premise and copy them to the VM through cloud VPN.

✓

Copy the updated private keys back to on-prem system and delete the VM instance

✗

Update the private keys and disconnect the on-prem system from the GCP.

Explanation

Cloud VPN is the best way to connect the on prem system to the GCP as the data needs to be accessed only a few times.

Creating a temporary VM in a separate VPC will make it more secure and avoid exposing the on-prem systems directly to the main VPC.

The best way to achieve the required solution is to use the temporary VM to update the private keys whenever required and deleting it after usage, so that they are not stored on the cloud.

🔗 https://cloud.google.com/hybrid-connectivity#section-6
#38

You are an architect designing the disaster recover (DR) strategy for an enterprise customer whose solution runs on Google Cloud Platform. Given the mission critical nature of the application, the customer wants low Recovery Point Objective (RPO) and Recovery Time Objective (RTO). The primary deployment site runs in us-central1 with the DR site in europe-west1. Given the the short window of RPO and RTO, you are concerned about the time it takes in exporting and importing the snapshots of persistent disks between the primary and DR regions. On further analysis, you learn about a feature of GCE that addresses the concern of the cross-region copy of snapshots. Which feature is that?

✓

Snapshots are global resources in GCE. They are available across all the regions by default.

✕

Google Cloud Platform offers Disaster Recovery as a Service that doesn't require copying the snapshots across regions.

✕

Persistent disks are global resources in GCE. They are available across all the regions by default. The same disk can be mounted on the instances running in primary and DR sites.

✕

Google Developer Console has a scheduler that can automatically copy snapshots between regions.

Explanation

Snapshots are global resources which means they are available to all the regions globally. This avoids the need to manually export and import snapshots between regions. A snapshot that was taken from a persistent disk attached to an instance in us-central will be instantly available in europe-west.

🔗 https://developers.google.com/compute/docs/overview

#39

Your organization has partially migrated to the cloud, and many of your servers are maintained in an on-premises data center. You have noticed increased throughput latency when application components on the cloud and the corporate data center communicate. You have confirmed that load balancers are in place and configured correctly. How might you adjust the configuration of this hybrid environment to minimize latency and improve application performance?

✓

Enable window-size scaling from the command line to increase bandwidth.

✕

Enable Round-Trip Time optimization from the command line to increase bandwidth.

✕

Do nothing. This latency is necessary and acceptable because it prevents a backlog of packets consuming the resources of the receiving server.

✕

After calling the [RTT.insert] method, check the RTT status by calling [RTT.get] with the job ID and location, and check the [status.state] value to learn the job status.

Explanation

Due to legacy uses of TCP, TCP window size - the amount of data that can be sent at once might be configured too conservatively. Increasing this window size can dramatically improve bandwidth. Enabling Round-Trip Time optimization is incorrect because RTT is a fixed value in this scenario. Doing nothing hints at the legacy application of TCP but is incorrect when using modern hardware.

🔗https://cloud.google.com/solutions/tcp-optimization-for-network-performance-in-gcp-and-hybrid
#40

You are using Google's Vertex AI Platform for model deployment and serving. To help automate the model deployment process, you have been asked to develop a script. Assuming you have the following information, how do you write the gcloud command to deploy the model? Region: US CentralEndpoint ID: 141243234235 Model ID: 3723324923Machine Type: Standard 4 vCPUsGPUs: 2 Nvidia Tesla T4VM Auto Scale: from 1 to 4No traffic split

✕

gcloud beta ai endpoints deploy-model 141243234235

  --region=us-central1 --model=3723324923 --machine-type=n1-standard-2

  --accelerator=count=2,type=nvidia-tesla-t4

  --min-replica-count=1 --max-replica-count=4

  --traffic-split=0=100

✕

gcloud beta ai endpoints deploy-model 141243234235

  --region=us-central1 --model=3723324923 --machine-type=n1-standard-4

  --accelerator=count=2,type=nvidia-tesla-t4

  --min-replica-count=1 --max-replica-count=4

  --traffic-split=100

✓

gcloud beta ai endpoints deploy-model 141243234235

  --region=us-central1 --model=3723324923 --machine-type=n1-standard-4

  --accelerator=count=2,type=nvidia-tesla-t4

  --min-replica-count=1 --max-replica-count=4

  --traffic-split=0=100

✗

gcloud beta ai endpoints deploy-model 3723324923

  --region=us-central1 --endpoint=141243234235 --machine-type=n1-standard-4

  --accelerator=count=2,type=nvidia-tesla-t4

  --min-replica-count=1 --max-replica-count=4

  --traffic-split=0=100

Explanation

The correct gcloud syntax is:

- The last number of machine type indicates the number of vCPUs, so n1-standard-4 has 4 vCPUs.
- The model is deployed to an endpoint, and the first parameter should be the endpoint ID instead of the model ID.
- No traffic split means 100% traffic goes to the model deployed, the model is referenced by a number, so the traffic split should be specified as *--traffic-split=0=100* .

🔗 https://cloud.google.com/vertex-ai/docs/predictions/deploy-model-api

#41

A major department store has its ecommerce site deployed in Google Cloud. The ecommerce platform is based on microservice architecture and was developed using multiple programming languages. Due to the distributed nature of the platform, it is very challenging to troubleshoot issues in the production environment. Currently each microservice generates its own log file on a local disk to reduce performance impact. Your team needs to design a solution to allow live troubleshooting in various production environments – GKE, App Engine, and Cloud Function. How do you implement the solution in GCP and test it with minimum business impact?

✕

Install log agent at every microservice and forward the log data into Cloud Logging, use Cloud Logging query to troubleshoot any errors

✕

Use the Cloud logging SDK at every microservice to ingest the log data into Cloud Logging asynchronously, use Cloud Logging query to troubleshoot any errors

✕

Enable Cloud Debugger API and add the debugger support at every microservice with snapshots and logpoints to allow live production troubleshoot

✓

Enable Cloud Debugger API and add the debugger support at every microservice with snapshots and logpoints in canary mode to allow live production troubleshoot

Explanation

Both Cloud Logging and Cloud Debugger can assist troubleshooting in production, but Cloud Debugger can troubleshoot the code with the logging data in live production, that's something that the log data alone cannot match. The canary mode allows testing the Cloud Debugger in a small number of nodes before rolling it out to all the nodes to reduce the potential business impact in case things don't go as planned.

🔗https://cloud.google.com/debugger/docs

#42

You have recently migrated data to the Google Cloud Platform, and you are ready to connect your on-premise networks to Google Cloud. Review the requirements below and choose the best connection option. Guaranteed Network Availability and High Bandwidth: low Private

Network connection: Not required Custom Routing: Not required Google Workspace Access: Required Budget to establish connection: None Which option fits the requirements best?

✓

Direct Peering

✕

Carrier Peering

✕

Dedicated Interconnect

✕

Partner Interconnect

Explanation

Direct Peering is the best choice. It is essentially free. Custom routing is not an option, and the connection is supported over the public internet rather than a private connection. Google Workspace applications are available to users.

🔗 https://cloud.google.com/network-connectivity/docs/direct-peering

#43

An eSports company has implemented the data lake using Google Cloud Storage and the company has a quarterly security audit process to check the GCS bucket creation and deletion activities. How do you compose a log query to find those activities in the first of 2022?

✕

resource.type="gcs_bucket" AND

log_id("cloudaudit.googleapis.com/activity") AND

protoPayload.method_name="gcs.buckets.create" OR

protoPayload.method_name="gcs.buckets.delete" AND

timestamp>="2022-01-01" AND timestamp<="2022-03-31"

✓

resource.type="gcs_bucket" AND

log_id("cloudaudit.googleapis.com/activity") AND

(protoPayload.method_name="storage.buckets.create" OR

protoPayload.method_name="storage.buckets.delete") AND

(timestamp>="2022-01-01T00:00:00Z" AND timestamp<="2022-03-31T00:00:00Z")

✕

resource.type="gcs_bucket" AND

log_id("cloudaudit.googleapis.com") AND

(protoPayload.method_name="storage.buckets.create" OR

protoPayload.method_name="storage.buckets.delete") AND

(timestamp>="2022-01-01" AND timestamp<="2022-03-31")

✕

resource.type="gcs_bucket" AND

log_id("cloudaudit.googleapis.com/activity") AND

(protoPayload.method_name="gcs.buckets.create" OR

protoPayload.method_name="gcs.buckets.delete") AND

(timestamp>="2022-01-01T00:00:00Z" AND timestamp<="2022-03-31T00:00:00Z")

Explanation

You can build queries based on the LogEntry indexed field using the logical operators AND and OR. Using the resource.type field in the following examples, the Logging query language grammar looks like this:

- Simple restriction: resource.type = "gae_app"
- Conjunctive restriction: resource.type = "gae_app" AND severity = ERROR
- Disjunctive restriction: resource.type = "gae_app" OR resource.type = "gce_instance"
- Alternatively: resource.type = ("gae_app" OR "gce_instance")
- Complex conjunctive/disjunctive expression: resource.type = "gae_app" AND (severity = ERROR OR "error")

🔗 https://cloud.google.com/logging/docs/view/logging-query-language

#44

You are working as a Security Engineer for a University where you have set up an online attendance application that is deployed on a GCP Compute Engine. You are using Cloud Identity-Aware Proxy to allow only authenticated faculties to mark attendance. Recently, one of the faculties tried to bypass IAP and directly access the Application. You want to make sure that the application should only allow traffic from Cloud IAP. What modification would you do to the existing system?

✓

Verify the JWT assertion from the incoming requests in the application.

✗

Verify the Identity headers from the incoming requests in the application.

✗

Verify the X-forwarded-for headers from the incoming requests in the application.

✗

Verify the Email Id from the incoming requests in the application.

Explanation

JWT assertion contains the user's identity which can be verified using signed headers. JWT Header contains cryptographically signed objects.

The remaining choices are incorrect for the following reasons:

- There is no such Identity/X-Forwarded header available, only the JWT header can be used to verify the identity.
- The IP address of the request sender can be found in the Email ID, but here we need an identity to be verified.

🔗 https://cloud.google.com/iap/docs/signed-headers-howto#securing_iap_headers

#45

Your company has chosen to use Google AI Platform. There are over 80 data scientists in the company and you are asked to develop a strategy to organize and filter the training jobs, models, and resources in a consistent, clean way. Which approach will you use to design the strategy?

✗

Create a Google Cloud project per data scientist to make all the resources can only be accessed by the data scientist assigned to the project.

✓

Create an organization policy to enforce the label usage in AI Platform. Apply a label to each resource and use labels to organize resources into different categories, so the users can filter the results by the label when viewing the resources

✗

Load the AI Platform log data into BigQuery, use SQL to analyze the resource usage, and then create a view that maps the users to the resources accordingly

✗

Configure appropriate IAM resource policies to ensure only the appropriate users have access to their respective resources. Specify project structure and resource hierarchy.

Explanation

In Google Cloud, an organization policy can be created and leveraged to enforce or restrain certain activities, such as labeling resources. The resource labels or tags can be used to organize and filter resources for different purposes, one good example is to use resource labels for cost analysis and billing back charges.

🔗 https://cloud.google.com/resource-manager/docs/organization-policy/overview
#46

A global technology firm acquires clients by letting them download reports after submitting a simple online form. They are currently using GCP infrastructure to host their website and content and using cloud storage to store the reports. They observed that clients in some locations are facing issues in downloading the content and they are losing potential clients. They also have observed few users accessing the reports without submitting the form and want to avoid such behavior. What services in GCP should they be using that will help them with the above mentioned problems? (Choose two)

✗

Enable multi-regional storage for cloud storage. This enables the reports to be available in multiple regions.

✗

Enable multi-regional storage with turbo replication for cloud storage. This enables the reports to be available in multiple regions.

✓

Use signed urls with limited expiry time to give access to the reports

✓

Enable Cloud CDN for the cloud storage where the reports are stored

Explanation

Signed urls are temporary urls that will prevent users from sharing the static url to access the content.

CDNs help in distributing the content globally without replicating them in multiple cloud storage locations.

Multi-region storage will not necessarily help improve performance, so these choices are incorrect.

🔗 https://cloud.google.com/cdn/docs/overview?hl=en&skip_cache=true
#47

A major car manufacturer deployed tens of thousands of machine sensors to collect machine operation state data for developing a predictive maintenance model. You are asked to design a data pipeline solution to prepare and transform the sensor data for model training. The solution needs to meet the following requirements.The pipeline can process both streaming and batch dataThe solution can scale automatically to support large datasetsThe solution doesn't need any infrastructure support or maintenanceThe analysts can use SQL to prepare, transform, and analyze the dataHow would you design the data pipeline in Google Cloud?

✓

Ingest data to Pub/sub, use Dataflow to stream or batch process data into BigQuery

✕

Ingest data to Pub/sub, use Dataproc to stream or batch process data into Cloud SQL

✕

Ingest data to Pub/sub, use Dataflow to stream or batch process data into Cloud SQL

✕

Ingest data to Pub/sub, use Dataproc to stream or batch process data into BigQuery

Explanation

Cloud SQL doesn't support streaming use case, but if the data volume is low, it could be an option. In this case, though, large data sets must be supported.

Both Dataflow and BigQuery support streaming and batch data loading, and both support to use SQL for data operations. Dataproc is used for ETLs, but cannot support SQL.

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

#48

Your company got contracted to develop a housing forecast model for a major mortgage lending provider. After you received the dataset, you found there were a lot of missing values for the household education level. You need to develop a strategy to deal with the missing values. How do you develop the model in Google Cloud? (Choose Two)

✓

Import the data into Vertex AI dataset, use Vertex AI AutoML to train a forecast model with the dataset

✗

Import the data into BigQuery, calculate the mean value and use it to replace the missing values, train a forecast model using BigQuery ML

✗

Import the data into BigQuery, calculate the median value and use it replace the missing values, train a forecast model using BigQuery ML

✓

Import the data into BigQuery, use regression imputation for the household education level since it is highly related to the household income, train a forecast model using BigQuery ML

Explanation

Neither mean or median value is a good choice for the missing education level, since it doesn't take into consideration any meaningful relationship among the other features. Regression imputation can predict the missing values based on other variables, such as the highly related household income. If the percentage of the missing values is very small, it's okay to delete those data with missing values. AutoML can work with missing values, because it does data imputation and feature engineering behind the scene without any extra coding involved. BQ ML does need to have the data prepared for model training.

🔗 https://cloud.google.com/vertex-ai/docs/tutorials/train-tensorflow-bigquery

#49

You have finished developing and testing a ML pipeline on Vertex AI Platform. The ML developers usually check in their code changes at the end of the day. You don't want to test the pipeline every time there are new code check-ins. How do you schedule the pipeline to run at midnight during the weekdays using the Vertex AI pipeline SDK?

✓

api_client = AIPlatformClient(project_id=PROJECT_ID, region=REGION)

api_client.create_schedule_from_job_spec(

  job_spec_path=COMPILED_PIPELINE_PATH,

  schedule="0 0 * * 1-5",

  time_zone=TIME_ZONE,

  parameter_values=PIPELINE_PARAMETERS

)

✗

api_client = AIPlatformClient(project_id=PROJECT_ID, region=REGION)

api_client.create_pipeline_schedule (

  job_spec_path=COMPILED_PIPELINE_PATH,

  schedule="0 0 * * 1-5",

  time_zone=TIME_ZONE,

  parameter_values=PIPELINE_PARAMETERS

)

✗

api_client = AIPlatformClient()

api_client.create_pipeline_schedule (

project_id=PROJECT_ID,

region=REGION

```
    job_spec_path=COMPILED_PIPELINE_PATH,

    schedule=="* 0 * * 1-5",

    time_zone=TIME_ZONE,

    parameter_values=PIPELINE_PARAMETERS

)
```

✕

```
api_client = AIPlatformClient()

api_client.create_schedule_from_job_spec(

project_id=PROJECT_ID,

region=REGION

    job_spec_path=COMPILED_PIPELINE_PATH,

    schedule=="* 0 * * 1-5",

    time_zone=TIME_ZONE,

    parameter_values=PIPELINE_PARAMETERS

)
```

Explanation

To answer this question, you must know the SDK APIs and cron job syntax.

The correct syntax should be:

AIPlatformClient(project_id=PROJECT_ID, region=REGION) and

api_client.create_schedule_from_job_spec are the right APIs to use. The cron job syntax is "0 0 * * 1-5" for the mid-night of weekdays.

🔗https://cloud.google.com/scheduler/docs/configuring/cron-job-schedules

#50

A financial service provider runs their GCP infrastructure in the London (europe-west2) region. They promise high service levels to their customers and cannot risk regional unavailability. The head of IT wants to have a disaster recovery plan for their Cloud SQL

instances in case the region fails or becomes unavailable. Regulation requires that they keep the data in the European region. What are the steps for a complete disaster recovery plan that will give them near zero Recovery Point Objective? (Choose three)

✓

Create cross-region read replicas of the SQL instances in Belgium (europe-west1). If failover is required, make the cross-region read replica as primary.

✓

Create a new standby instance in different zone in Belgium (europe-west1)

✗

Create stand-by instances for the SQL instances in London (europe-west3)

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Create a new cross-region replica in Frankfurt (europe-west3) and attach to the primary instance.

Explanation

A complete DR plan consists of the following steps:

1. Set up cross region read replica in another region
2. Make the replica primary in case failover is required
3. Create a cross region replica in another region and attach it to the new primary

This prevents data loss to minimum in case of a regional unavailability and gives near zero RPO