Google Cloud Skills Boost Google Cloud

02 Google Cloud Fundamentals: Core Infrastructure

Introducing Google Cloud

1. What type of cloud computing service lets you bind your application code to libraries that give access to the infrastructure your application needs?
   - ☐ Virtualized data centers
   - ☑ Platform as a service
   - ☐ Infrastructure as a service
   - ☐ Software as a service

> 說明：平台即服務（PaaS）讓應用程式綁定基礎設施所需的函式庫。

2. Why might a Google Cloud customer use resources in several regions around the world?
   - ☐ To improve security
   - ☐ To offer localized application versions in different regions
   - ☐ To earn discounts
   - ☑ To bring their applications closer to users around the world, and for improved fault tolerance

> 說明：把應用程式靠近全球使用者，並提升容錯性。

3. What is the primary benefit to a Google Cloud customer of using resources in several zones within a region?
   - ☐ For getting discounts on other zones
   - ☑ For improved fault tolerance
   - ☐ For expanding services to customers in new areas
   - ☐ For better performance

> 說明：使用多個可用區提升故障容忍度。

Resources and Access in the Cloud

1. Choose the correct completion: Services and APIs are enabled on a per-_____ basis.
   - ☐ Organization
   - ☑ Project
   - ☐ Billing account
   - ☐ Folder

> 說明：服務與 API 是以專案（Project）為單位啟用的。

2. Which of these values is globally unique, permanent, and unchangeable, but can be modified by the customer during creation?
   - ☐ The project name
   - ☐ The project's billing credit-card number
   - ☐ The project number
   - ☑ The project ID

> 說明：專案 ID 在建立時可設定，但之後不能更改，且全球唯一。

3. Order these IAM role types from broadest to finest-grained.
   - ☐ Predefined roles, custom roles, basic roles
   - ☑ Basic roles, predefined roles, custom roles
   - ☐ Custom roles, predefined roles, basic roles

> 說明：IAM 權限範圍從大到小排序：基本角色 → 預設角色 → 自訂角色。

Getting Started with VPC Networking and Google Compute Engine

1. Which firewall rule allows the ping to mynet-r2-vm's external IP address?
   - ☐ mynetwork-allow-ssh
   - ☑ mynetwork-allow-icmp
   - ☐ mynetwork-allow-rdp
   - ☐ mynetwork-allow-custom

> 說明：允許 ICMP（ping）流量的防火牆規則。

2. How does Cloud Load Balancing allow you to balance HTTP-based traffic?
   - ☐ Across multiple physical machines in a single data center.
   - ☐ Across multiple virtual machine instances in a single Compute Engine region.
   - ☑ Across multiple Compute Engine regions.
   - ☐ Across multiple Google Cloud Platform services.

> 說明：HTTP 流量可跨多個 Compute Engine 區域進行負載平衡。

3. For which of these interconnect options is a Service Level Agreement available?
   - ☐ Standard Network Tier

- ☐ Direct Peering
- ☑ Dedicated Interconnect
- ☐ Carrier Peering

> 說明：專線互連（Dedicated Interconnect）提供服務水準協議（SLA）。

Storage in the Cloud

1. What is the correct use case for Cloud Storage?
   - ☑ Cloud Storage is well suited to providing durable and highly available object storage.
   - ☐ Cloud Storage is well suited to providing RDBMS services.
   - ☐ Cloud Storage is well suited to providing data warehousing services.
   - ☐ Cloud Storage is well suited to providing the root file system of a Linux virtual machine.

> 說明：Cloud Storage 適合用來提供持久且高可用性的物件儲存。

2. Why would a customer consider the Coldline storage class?
   - ☑ To save money on storing frequently accessed data.
   - ☐ To improve security.
   - ☐ To use the Coldline Storage API.
   - ☐ To save money on storing infrequently accessed data.

> 說明：Coldline 適合儲存不常存取的資料，能節省成本。

3. Which relational database service can scale to higher database sizes?
   - ☑ Spanner
   - ☐ Firestore
   - ☐ Bigtable
   - ☐ Cloud SQL

> 說明：Spanner 可以支援更大規模的資料庫。

Containers in the Cloud

1. What is a Kubernetes pod?
   - ☐ A group of nodes
   - ☐ A group of clusters
   - ☑ A group of containers
   - ☐ A group of VMs

> 說明：Pod 是一組容器。

2. Where do the resources used to build Google Kubernetes Engine clusters come from?
   - ☐ Bare-metal servers
   - ☐ App Engine
   - ☑ Compute Engine
   - ☐ Cloud Storage

Applications in the Cloud

1. Which of these statements about Cloud Run functions are correct? Select three. 'Cloud Run functions:' **Multi Choice**
   - ☑ Is a scalable functions-as-a-service platform.
   - ☑ Is integrated with Cloud Logging.
   - ☐ Require servers or VMs to be provisioned.
   - ☑ Can be used to extend Cloud services.
   - ☐ Can only be invoked by sending HTTP requests.

說明：Cloud Run Functions 是可擴展的平台，整合了 Cloud Logging，也可延伸其他雲端服務。

2. Why might a Google Cloud customer choose to use Cloud Run functions?
   - ☑ Their application contains event-driven code that they don't want to provision compute resources for.
   - ☐ Their application has a legacy monolithic structure that they want to separate into microservices.
   - ☐ Cloud Run functions is a free service for hosting compute operations.
   - ☐ Cloud Run functions is the primary way to run C++ applications in Google Cloud.

說明：如果應用程式包含事件驅動的程式碼，又不想管理運算資源，適合使用 Cloud Run Functions。

3. Which scenario is best suited for using Cloud Run instead of Cloud Run functions?
   - ☐ Sending an email notification whenever a new document is added to a specific folder in Cloud Storage.
   - ☐ Resizing images on demand when requested by a user through a web interface.
   - ☑ Hosting a dynamic web application that allows users to upload and share photos.
   - ☐ Generating thumbnails for images uploaded to a Cloud Storage bucket.

說明：如果要承載動態網頁應用，適合使用 Cloud Run。

Prompt Engineering

1. Which of the following is not a good practice for constructing prompts?
   - ☐ Avoid ambiguity.
   - ☐ Vary your prompts.
   - ☑ Include long and detailed sentences.
   - ☐ Keep it short and simple.

說明：編寫提示（Prompt）時，長且複雜的句子不是好習慣，應避免。

2. Which one of the following is not a type of prompt?
   - ☐ Zero-shot
   - ☐ One-shot
   - ☑ Role prompt

    ☐ Two-shot

> 說明：在常見的提示類型中，沒有「角色提示（Role prompt）」這個分類。

3. How can you avoid hallucinations when using a large language model?
    ☑ Train the model on a clean, curated dataset.
    ☐ Train the LLM on a smaller dataset.
    ☐ Do not add any context to your prompts.
    ☐ Train the model to operate with very few constraints.

> 說明：使用乾淨且經過整理的資料集訓練模型，可以減少產生虛構內容（幻覺現象）。

4. Generative AI is a type of artificial intelligence that can ___.
    ☐ Perform complex calculations and mathematical operations.
    ☐ Generate responses on real-time data.
    ☐ Make predictions about future events.
    ☑ Generate text, images, or other data using generative models.

> 說明：生成式 AI 是一種可以利用生成模型創造文字、影像或其他資料的人工智慧。

03 Essential Google Cloud Infrastructure: Foundation

Interacting with Google Cloud

1. To create a persistent state in Cloud Shell, which file would you configure?
    ☐ .my_variables
    ☑ .bashrc
    ☐ .config
    ☐ .profile

> 說明： 在 Cloud Shell 中設定 .bashrc 可保存個人環境設定。

2. What is the difference between the Google Cloud Console and Cloud Shell?
    ☐ The Cloud Console is a command-line tool, while Cloud Shell is a graphical user interface
    ☐ Cloud Shell is a locally installed tool, while the Cloud Console is a temporary virtual machine.
    ☐ There is no difference as these tools are 100% identical.
    ☑ Cloud Shell is a command-line tool, while the Cloud Console is a graphical user interface

> 說明：Cloud Shell 是指令列工具；Cloud Console 是圖形化介面。

3. Which of the following does not allow you to interact with Google Cloud?
    ☑ Cloud Explorer
    ☐ REST-based API
    ☐ Cloud Shell
    ☐ Google Cloud Console

> 說明：Cloud Explorer 不是用來與 GCP 互動的正式工具。

Vistual Networks

1. Without a VPC network, you cannot create VM instances, containers, or App Engine applications.
   - ☑ True
   - ☐ False

> 說明：沒有 VPC 網路就無法建立虛擬機、容器或 App Engine。

2. Which firewall rule allows the ping to mynet-notus-vm's external IP address?
   - ☐ mynetwork-allow-ssh
   - ☑ mynetwork-allow-icmp
   - ☐ mynetwork-allow-custom
   - ☐ mynetwork-allow-rdp

> 說明：允許 ICMP（例如 ping）流量的防火牆規則。

3. Which instances should you be able to ping from mynet-us-vm using internal IP addresses? **Multi Choose**

- ☑ mynet-notus-vm
- ☐ managementnet-us-vm
- ☑ privatenet-us-vm

> 說明：從 mynet-us-vm 內部 IP 可以 ping 到 mynot-notus-vm 與 privatenet-us-vm。

4. Did the command prompt change to `@vm-internal` ?
   - ☑ True
   - ☐ False

> 說明：提示符號應該會變成 @vm-internal。

5. Currently, which of your VM instances can access the image from your bucket?
   - ☐ Cloud Shell
   - ☑ vm-internal

> 說明：目前只有 vm-internal 可以存取 bucket 中的圖片。

6. What are the three types of networks offered in Google Cloud?
   - ☐ Gigabit network, 10 gigabit network, and 100 gigabit network
   - ☐ IPv4 unicast network, IPv4 multicast network, IPv6 network
   - ☐ Zonal, regional, and global
   - ☑ Default network, auto network, and custom network.

> 說明：Google Cloud 提供：預設網路、自動網路、客製網路。

7. What is one benefit of applying firewall rules by tag rather than by address?
   - ☐ Tags on firewall rules control which ephemeral IP addresses VMs will receive.
   - ☑ When a VM is created with a matching tag, the firewall rules apply irrespective of the IP address it is assigned.
   - ☐ Tags in network traffic help with network sniffing.

☐ Tags help organizations track firewall billing.

> 說明：Google Cloud 提供：預設網路、自動網路、客製網路。

8. In Google Cloud, what is the minimum number of IP addresses that a VM instance needs?
   ☑ One: Only an internal IP address
   ☐ Two: One internal and one external IP address
   ☐ Three: One internal, one external and one alias IP address

> 說明：虛擬機至少需要一個內部 IP 位址。

Vistual Machines

1. What are sustained use discounts?
   ☑ Automatic discounts that you get for running specific Compute Engine resources for a significant portion of the billing month
   ☐ Purchase commitments for specific resources you know you will use
   ☐ Per-second billing that starts after a 1 minute minimum
   ☐ Discounts you receive by using preemptible VM instances

> 說明：長期使用折扣：當資源在一個月內使用時間達標，會自動獲得折扣。

2. Which statement is true of Virtual Machine Instances in Compute Engine?
   ☑ In Compute Engine, a VM is a networked service that simulates the features of a computer.
   ☐ All Compute Engine VMs are single tenancy and do not share CPU hardware.
   ☐ A VM in Compute Engine always maps to a single hardware computer in a rack.
   ☐ Compute Engine uses VMware to create Virtual Machine Instances.

> 說明：Compute Engine 的虛擬機是模擬電腦功能的網路服務。

3. Which statement is true of persistent disks?
   ☐ Persistent disks are always HDDs (magnetic spinning disks).
   ☑ Persistent disks are encrypted by default.
   ☐ Persistent disks are physical hardware devices connected directly to VMs.
   ☐ Once created, a persistent disk cannot be resized.

> 說明：持久磁碟預設會進行加密。

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