05. Google 的雲端服務與管理機制

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Google Cloud Platform

- https://cloud.google.com/?hl=zh-tw

無伺服器的應用程式

App Engine 讓您毫不費力即可建構、執行及擴充應用程式。

自訂機器類型

您可根據需求和預算自訂 Compute Engine。

容器讓操作更輕鬆

Container Engine 讓您能夠快速實作 Kubernetes。

在數分鐘內處理 TB 規模的資料

BigQuery：載入、使用「SELECT」並執行。完全不需叢集。

可分別或同時處理批次及串流資料

Cloud Dataflow 透過開放原始碼 API 提供擴充性高的資料處理功能。

受管理的深度學習

Cloud Machine Learning 讓您的應用程式能夠解讀圖片、文字等資訊。

管理多個雲端

StackDriver 讓您能在單一主控台管理 Cloud Platform 和 AWS 工作負載。

全球自動配置

Cloud Load Balancing 不需暖機，每秒可處理 0 至 1 百萬次查詢。

用多少付多少

提供以分鐘計費和自訂機器等創新方案，確保您佈建的資源不會過剩，也不需為了未使用的部分而付費。

必須要有一個 google 帳號

歡迎！

您的新電子郵件地址是 yuncloud106@gmail.com

感謝您建立 Google 帳戶。您可以使用這個帳戶訂閱 YouTube 頻道、進行免費視訊通訊、在 Google 地圖上儲存您喜愛的地點；還有更多實用功能等您探索。

前往 Google Developers Console

使用免費試用

打造未來趨勢
軟體強化，速度升級。

- 使用 Google 的核心基礎架構、資料分析和機器學習技術。
- 安全無虞且功能完善，適合所有企業使用。
- 致力提供開放原始碼環境與領先業界的成本效益。

免費試用

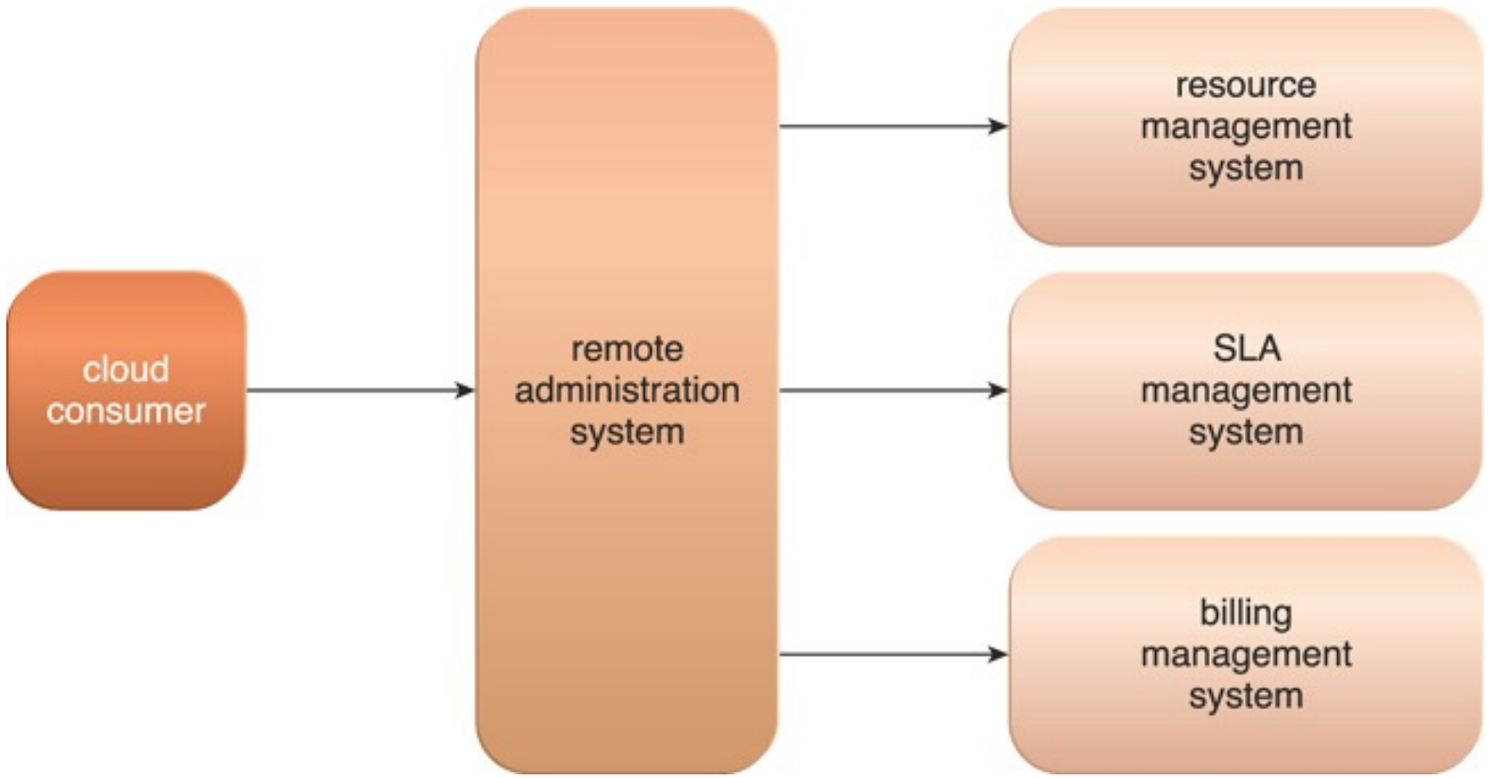
與銷售人員聯絡

作業 1

- 請申請一個 google 帳號，登入成免費 Google Cloud 使用者，停在開始使用畫面，擷取該畫面。
  如果你沒有信用卡，請停在信用卡輸入畫面，並擷取該畫面。

雲端管理機制

- 特性：透過網路進行遠端管理
  - Portal, Dashboard, Command
  - 管理的對象：存取管理、資源管理、合約管理及帳務管理



Portal 的類型

- Usage and Administration Portal - A general purpose portal that centralizes management controls to different cloud-based IT resources and can further provide IT resource usage reports.

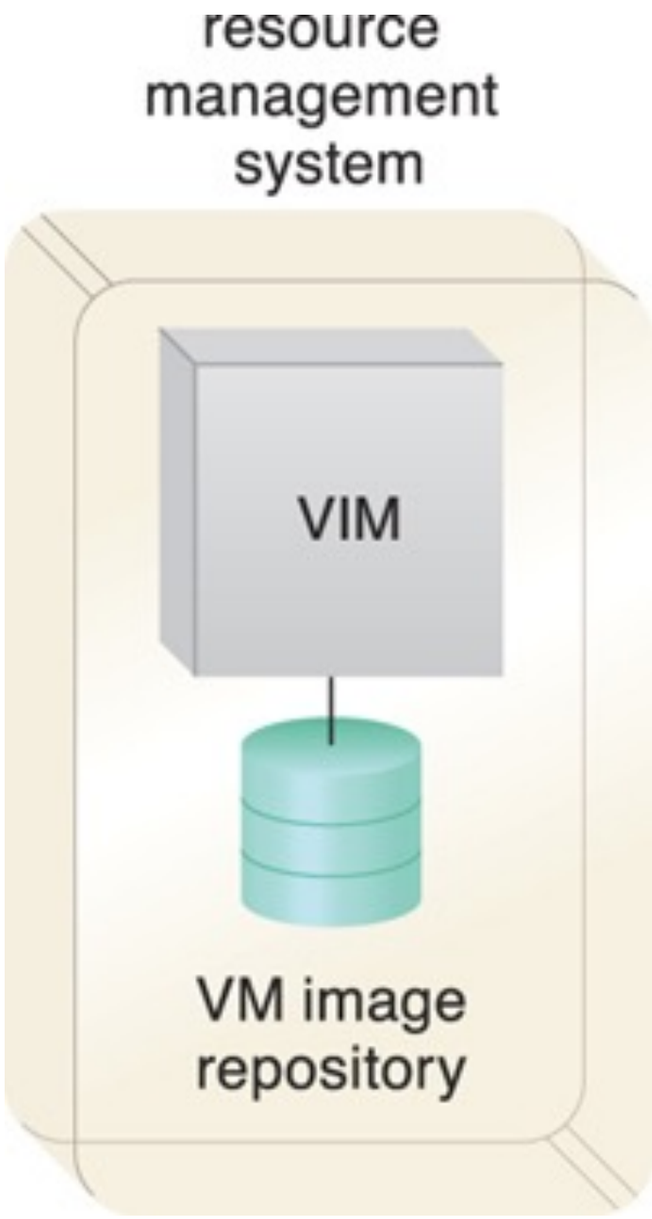
- Self-Service Portal – This is essentially a shopping portal that allows cloud consumers to search an up-to-date list of cloud services and IT resources that are available from a cloud provider.

Remote 管理的大致內容

- configuring and setting up cloud services
- provisioning and releasing IT resource for on-demand cloud services
- monitoring cloud service status, usage, and performance
- monitoring QoS and SLA fulfillment
- managing leasing costs and usage fees
- managing user accounts, security credentials, authorization, and access control
- tracking internal and external access to leased services
- planning and assessing IT resource provisioning
- capacity planning

Resource Management System

- VIM: Virtual Infrastructure Manager
- Instance
- Hypervisor



Tasks for Resource Management

- Managing virtual IT resource templates that are used to create pre-built instances, such as virtual server images

- Allocating and releasing virtual IT resources into the available physical infrastructure in response to the starting, pausing, resuming, and termination of virtual IT resource instances

- Coordinating IT resources in relation to the involvement of other mechanisms, such as resource replication, load balancer, and failover system

- Enforcing usage and security policies throughout the lifecycle of cloud service instances

- Monitoring operational conditions of IT resources

SLA Management System

- SLA: Service Level Agreement
- A repository used to store and retrieve collected SLA data based on pre-defined metrics and reporting parameters.
- It will further rely on one or more SLA monitor mechanisms to collect the SLA data that can then be made available in near-real time to usage and administration portals to provide on-going feedback regarding active cloud services.
- The metrics monitored for individual cloud services are aligned with the SLA guarantees in corresponding cloud provisioning contracts.

Billing Management System

- The billing management system mechanism is dedicated to the collection and processing of usage data as it pertains to cloud provider accounting and cloud consumer billing.

- Pay-per-use monitors to gather runtime usage data that is stored in a repository that the system components then draw from for billing, reporting, and invoicing purposes.

試用 Compute Engine
(虛擬機器)

新增專案或使用現有專案

- Google Cloud Platform 會將各項資源整理到專案當中，讓您集中收集單一應用程式的所有相關資源。

- 專案名稱 My Project 56016

- 專案 ID composite-rhino-182612

Compute Engine

- Open the menu on the left side of the console. Then, select the Compute Engine section.

- 等待 Compute Engine 初始化 (It takes minutes)

建立虛擬機器執行個體

- 於 VM 執行個體，點選 [建立] 按鈕。
- 選取開機磁碟映像檔：在開機磁碟部分中，點選 [變更] 即可開始設定開機磁碟。
  在作業系統映像檔分頁中選擇 [Debian 8] 映像檔，然後點選 [選取]。
- 允許 HTTP 流量： 在防火牆部分中，選取 [允許 HTTP 流量]。
- 點選 [建立] 按鈕即可建立執行個體。

作業 2

- 請建立名稱為 instance-學號後3碼的 VM執行個體

使用 SSH 與 Linux 連線

- SSH (Secure Shell Protocol) 與 Telnet
- 使用 SSH 連線到所建立的虛擬機器

作業 3

- w
- df

作業 4

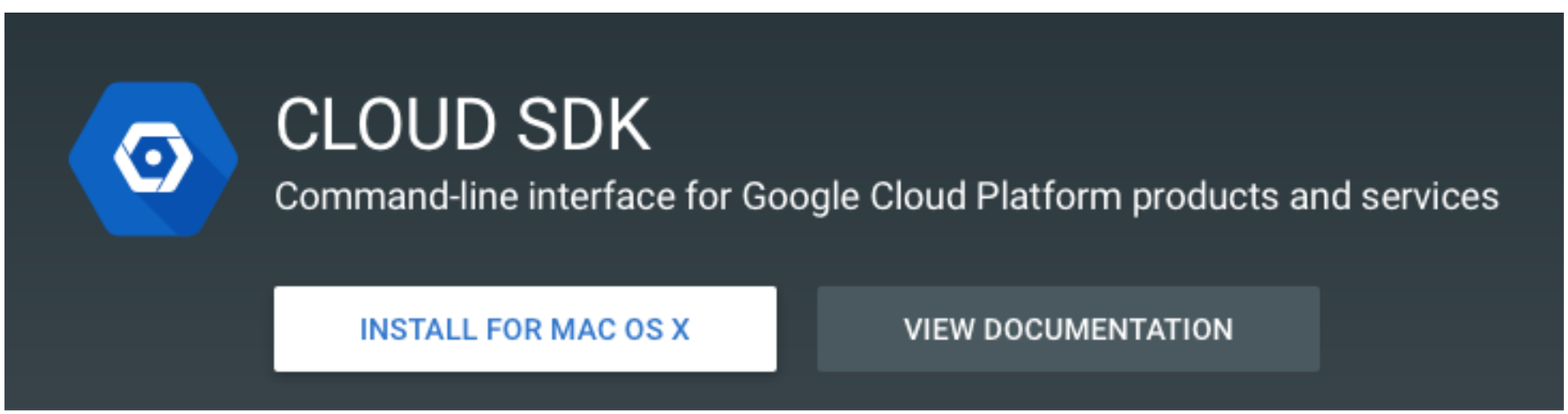
- 安裝 Apache Web Server
  sudo apt-get update && apt-get install apache2 -y

- 點選外部 IP 以顯示 Apache Web Server 的預設畫面
  echo '<!doctype html><html><body><h1>I am Telung Pan, a smart guy!</h1></body></html>' | sudo tee /var/www/html/index.html

- 清除此 VM Instance

Google Cloud SDK
gcloud

- The Cloud SDK is a set of tools for Cloud Platform
- It contains gcloud, gsutil, and bq, which you can use to access Google Compute Engine, Google Cloud Storage, Google BigQuery, and other products and services from the command-line.



gcloud

- https://cloud.google.com/sdk/docs/quickstart-mac-os-x

- download the Cloud SDK installer

- Python installed.

- 安裝後，要求登入
- 以自己帳號登入
- 允許授權
- 後續進行登入指令 gcloud init

- 新增專案 (project)
  gcloud alpha projects create project-id (例如：g9220812-1234)
  或直接到 Console https://console.developers.google.com/project

新增專案

專案名稱

My Project

您的專案 ID 為「daring-diode-149712」 編輯

顯示進階選項...

取消 建立

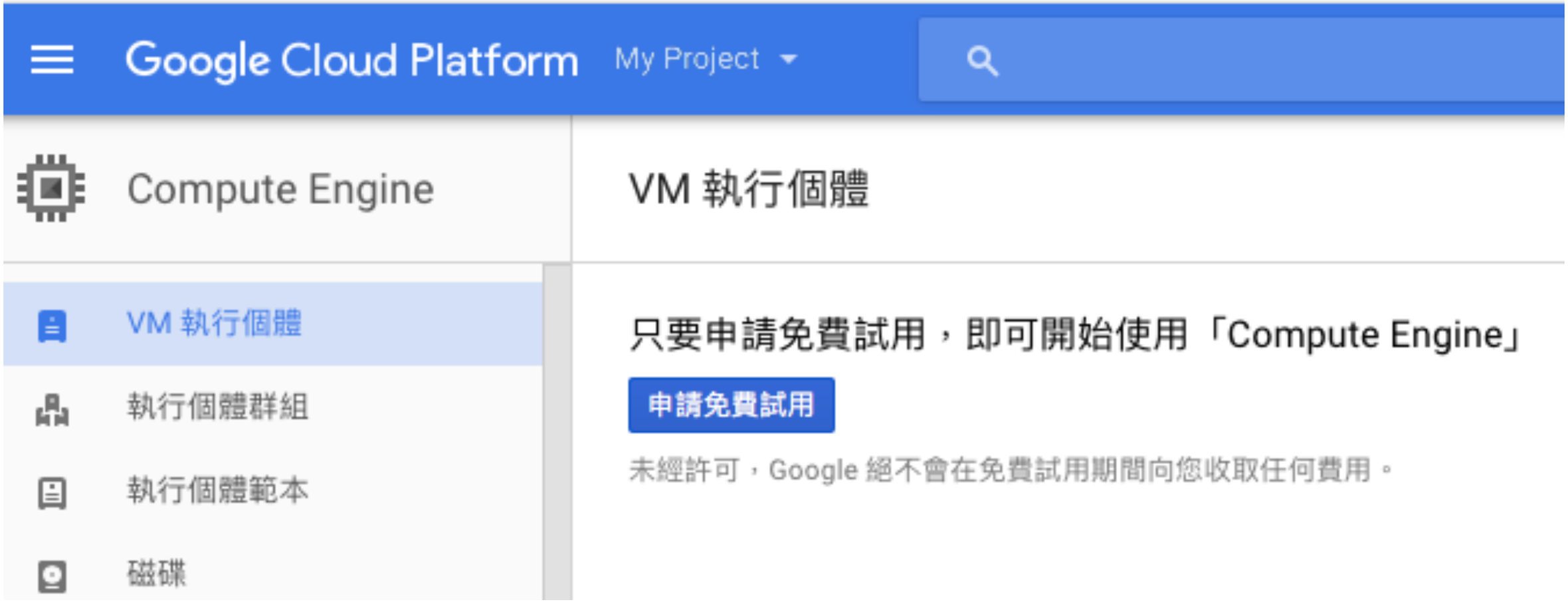
What is gcloud?

- gcloud is a tool that provides the primary command-line interface to Google Cloud Platform.
- You can use this tool to perform many common platform tasks either from the command-line, or in scripts and other automations.
  - Google Cloud SQL instances
  - Google Container Engine clusters
  - Google Cloud Dataproc clusters and jobs
  - Google Cloud DNS managed zones and record sets
  - Google Cloud Deployment manager deployments

基本指令

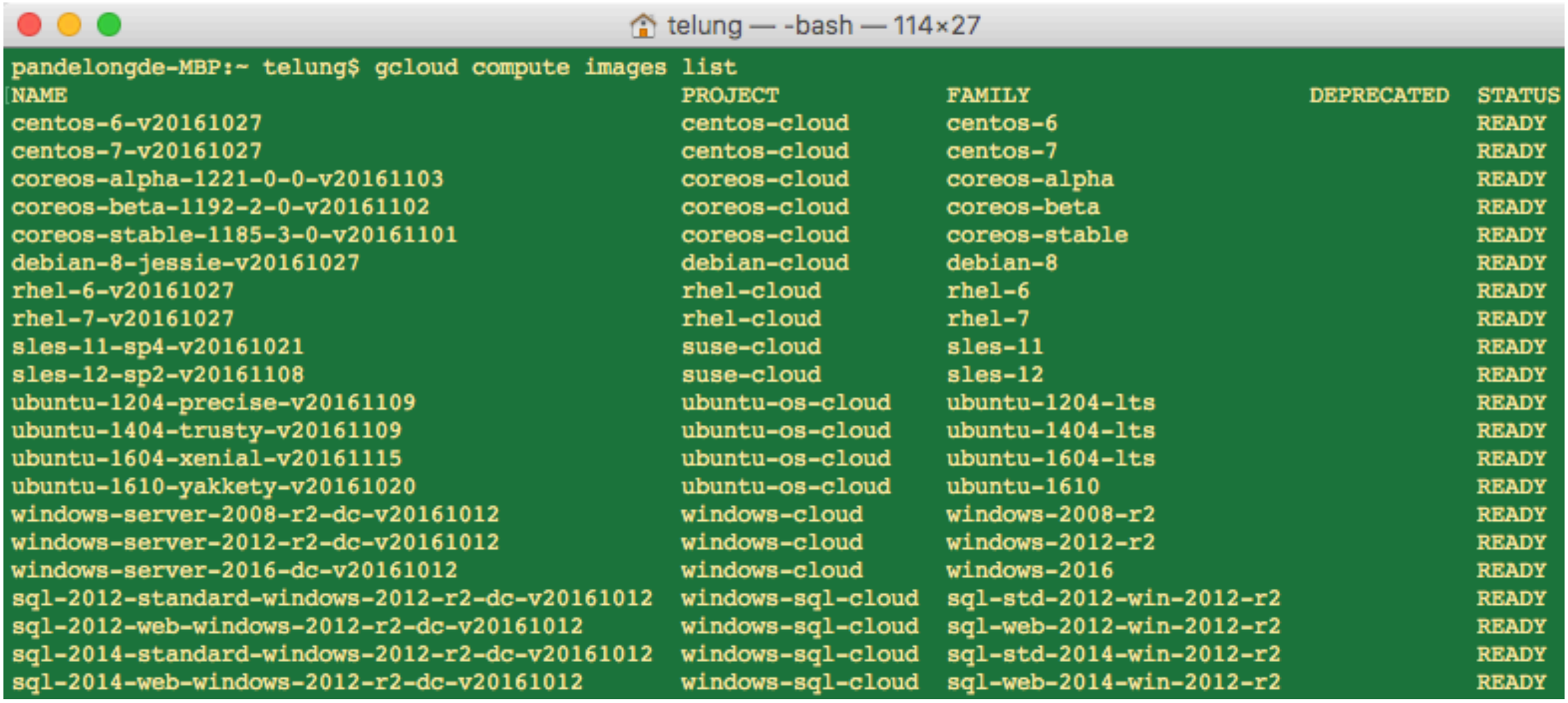
- gcloud components list
- gcloud components update
- gcloud init (重新指定帳號與專案名稱)
- gcloud auth login (重新驗證帳號)

Virtual Machine Instances



Creating and Starting an Instance

- gcloud compute images list



Creating an instance from an image

- Creating an instance from a public image
- _ from a private image
- _ with an image stared with you
- _ from a snapshot
- _ with access to other Google Cloud Services
- _ in a custom subnet network

- gcloud compute instances create

gcloud compute instances create pan-instance \ --image-family rhel-6 \ --image project rhel-cloud

Check an instance’s status

- gcloud compute instances describe rhel-6

- gcloud compute --project "daring-diode-149712" ssh --zone "asia-east1-a" "rhel-6"