



# Azure 基本組成

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Alan Tsai



# 這節主要重點



- Region 以及 Region Pair
- Availability Set/Zone
- Azure Management Component
- Azure Management Tool

# Region 以及 Region Pair

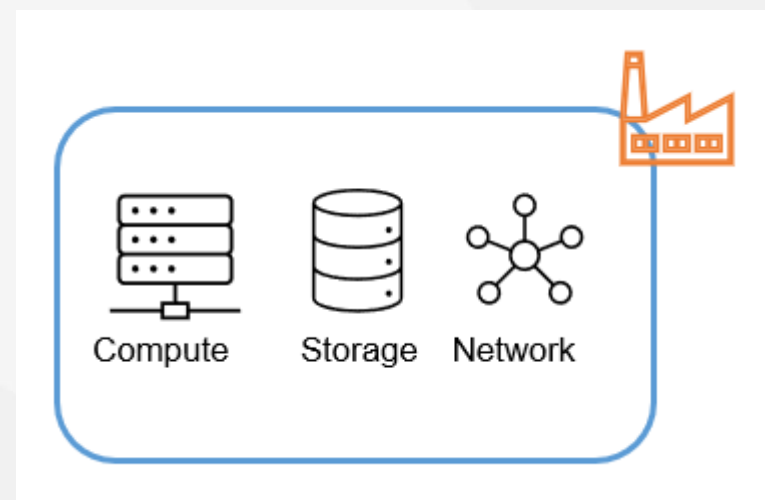




# 什麼是 Data Center



- 最基本的組成單位
- Economies of scale
- 安全
  - 90+ 合規認證
  - ISO 27001





# 什麼是 Region



- 地理位置上 data center 在的地方
  - 可能有 1 到多個 data center

- 60+ 個 region
- 140 個國家



[Azure geographies](#)



# Dublin



[Inside Azure datacenter architecture with Mark Russinovich - BRK3060](#)

@Alan Tsai 的學習筆記



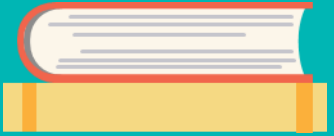


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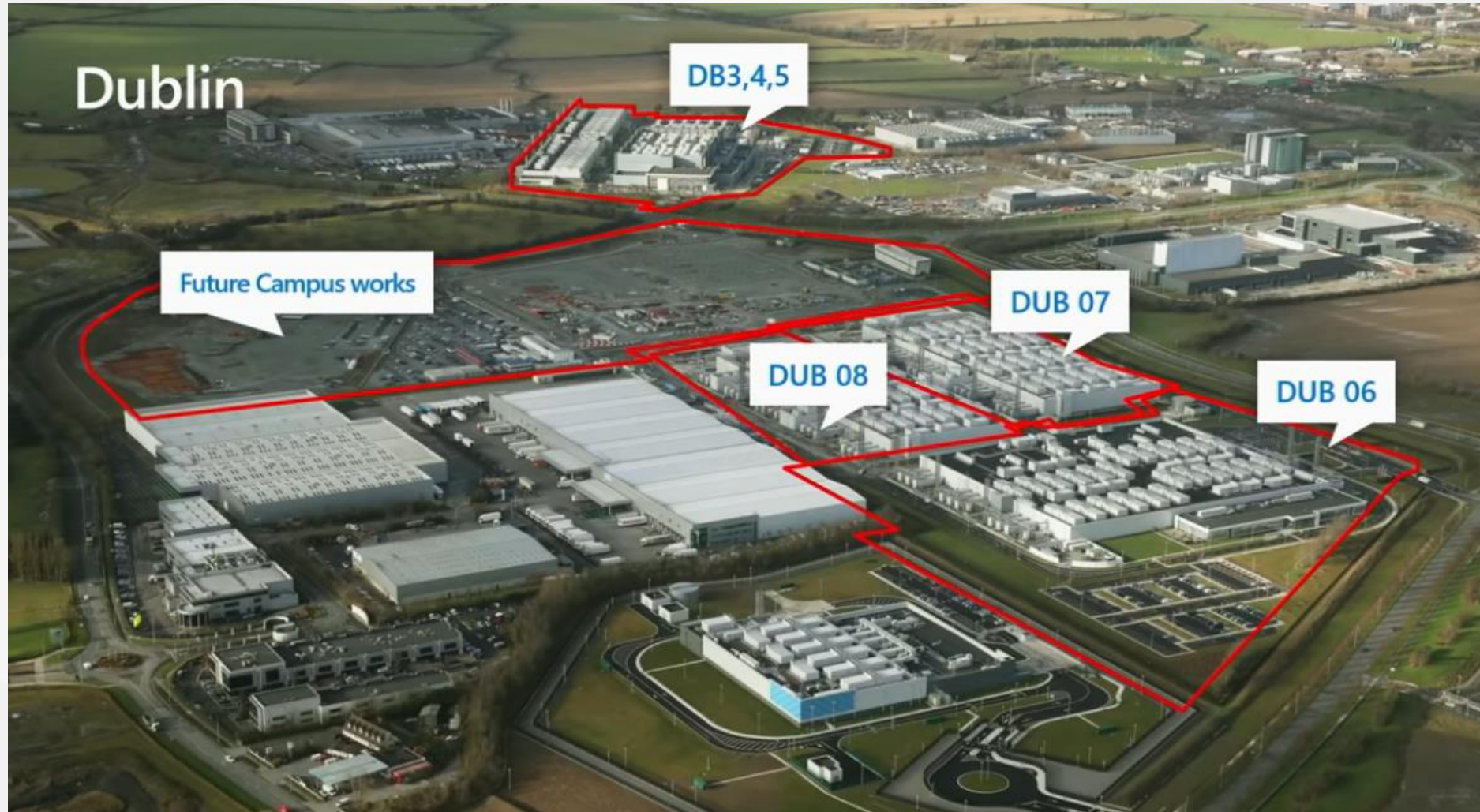
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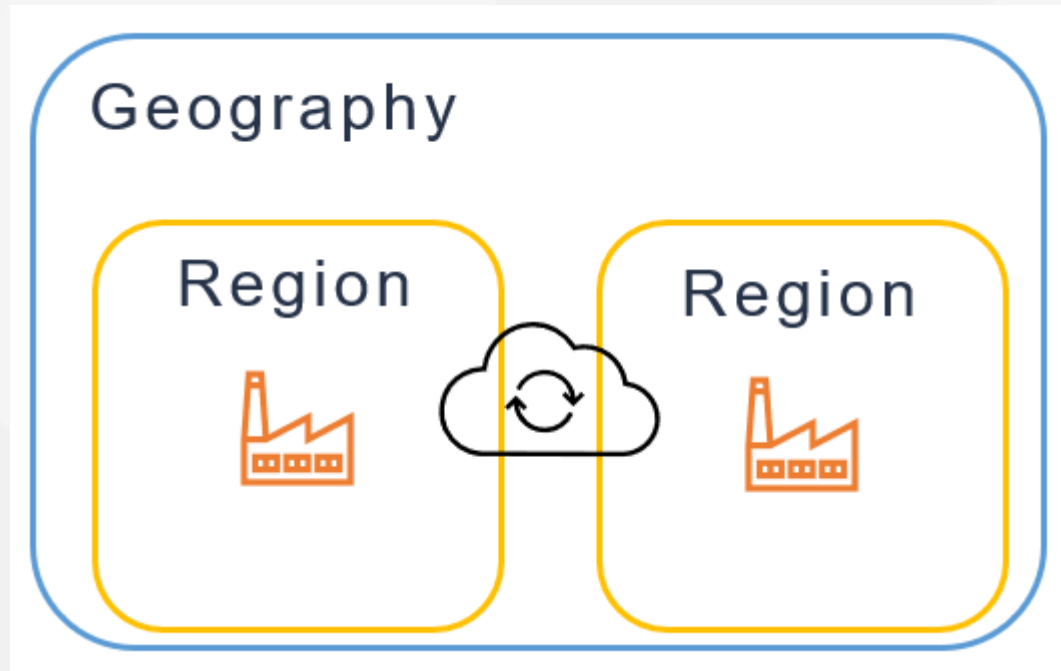


# Region Pair



- Region 有個對應的另外一個 Region
- 物理分開 300 英里以上
- Pair Region 不會同時之間被更新
- Region 復原的順序

[Azure Paired Regions](#)



# Availability Set/Zone

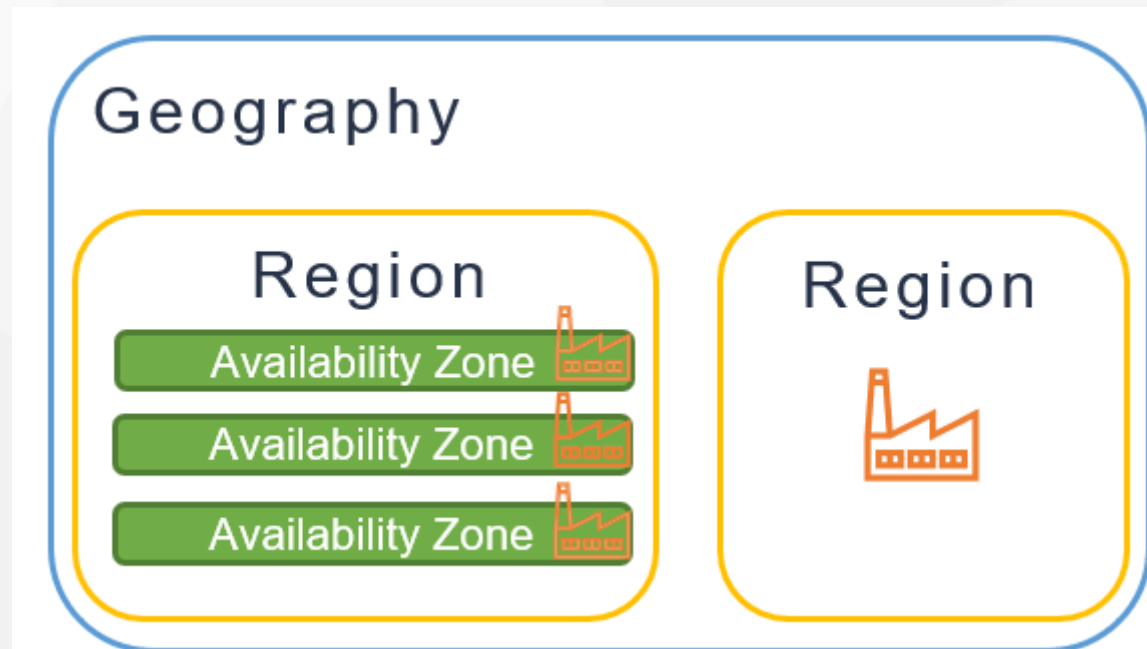




# Availability Zone



- 每一個 Zone 是獨立分開的資料中心
  - 水、電
- 不是所有的 Region 有支援
  - 有支援會有 3 個 Zone
- Zone 之間連線是透過私有光纖







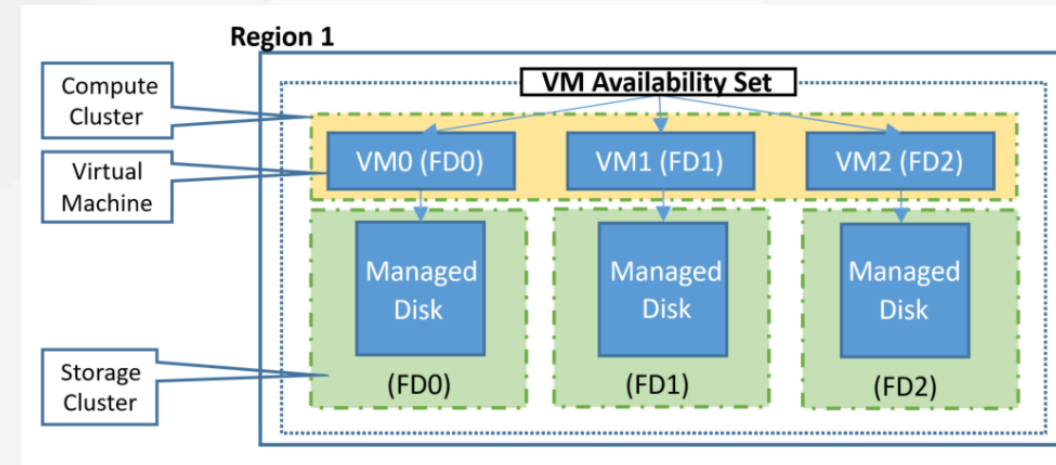
# Availability Set



- 不可預期的錯誤
  - 機器壞掉
  - Fault Domain
- 可預期的錯誤
  - 機器更新
  - Update Domain
- 把資源放在不同的機櫃



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# 這些會影響到高可用



- VM
- 99.99% - 2 台以上部署在 2 個以上的 Availability zone
- 99.95% - 2 台以上部署在同 1 個 Availability Set

## SLA for Virtual Machines

### Uptime and downtime with 99.99 % SLA

[ [simple](#) / [flexible](#) ]

Agreed SLA level:  % (enter SLA level and hit the <enter> key)

SLA level of 99.99 % uptime/availability results in the following periods of allowed downtime/unavailability:

- **Daily:** 8s
- **Weekly:** 1m 0s
- **Monthly:** 4m 22s
- **Quarterly:** 13m 8s
- **Yearly:** 52m 35s

### Uptime and downtime with 99.95 % SLA

[ [simple](#) / [flexible](#) ]

Agreed SLA level:  % (enter SLA level and hit the <enter> key)

SLA level of 99.95 % uptime/availability results in the following periods of allowed downtime/unavailability:

- **Daily:** 43s
- **Weekly:** 5m 2s
- **Monthly:** 21m 54s
- **Quarterly:** 1h 5m 44s
- **Yearly:** 4h 22m 58s

# Resource 、Resource Group Subscription 、Management Group

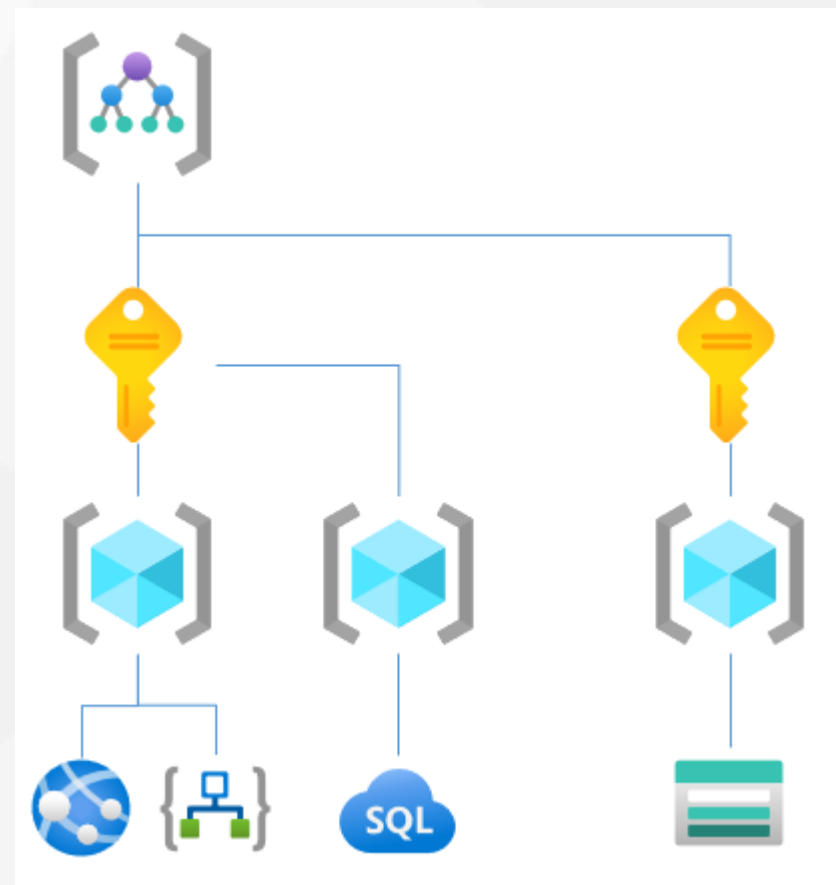




# Azure 管理層



- Management Group
- Subscription
- Resource Group
- Resource















# Azure Resource



- 任何一個 Azure Service 建立出來的都是 Resource
  - 虛擬機 (VM)
  - 網路
  - 資料庫

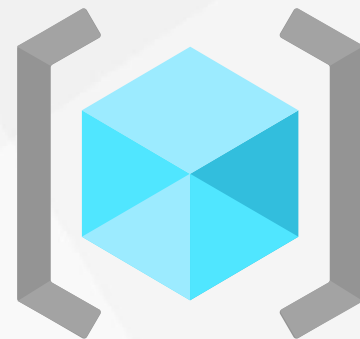
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<input type="checkbox"/>  datadisk	Disk	Japan East
<input type="checkbox"/>  graphic	Virtual machine	Japan East
<input type="checkbox"/>  graphic-nsg	Network security group	Japan East
<input type="checkbox"/>  graphic-vnet	Virtual network	Japan East
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<input type="checkbox"/>  graphic_disk2	Disk	Japan East
<input type="checkbox"/>  graphic_OsDisk_1_c6dba9314ffa42a5a386956b9041655a	Disk	Japan East
<input type="checkbox"/>  public-ip	Public IP address	Japan East



# Azure Resource Group



- 所有的 Resource 一定要放在 1 個 Resource Group
- 邏輯層把相同性質 Resource 放在一起
  - Resource 可以在不同的 Region
- 可以用來做 RBAC (Role Base Access Control) 管理
- 可以透過 ARM Template 進行快速部署





# Subscription



- 用來記錄使用情況
  - 計算費用
- 可以用來控制權限
- 有不同類型的 Subscription
  - 影響到 Resource 的費用

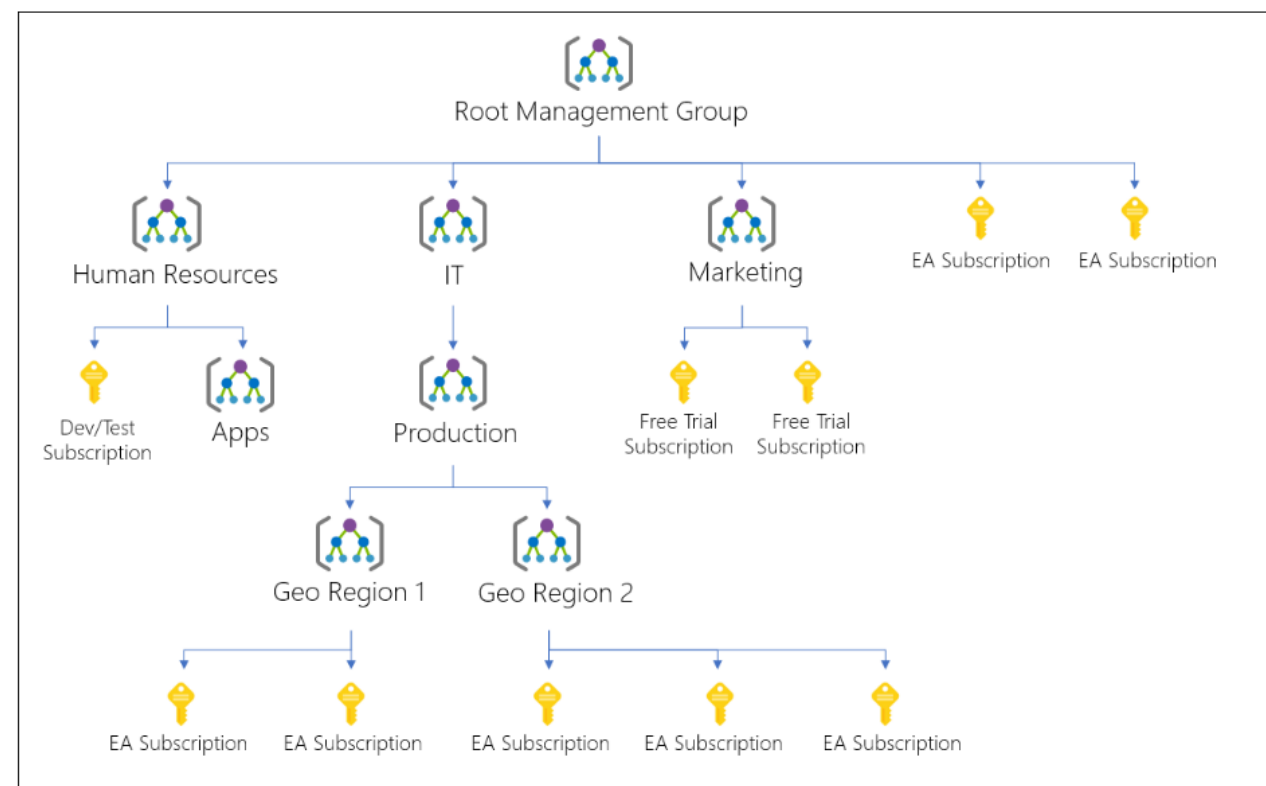




# Management Group



- 統一管理多個 Subscription
- Subscription 從上繼承繼承
  - Azure Policy
- 同一個 Directory 最多 10,000
- 最多 6 層



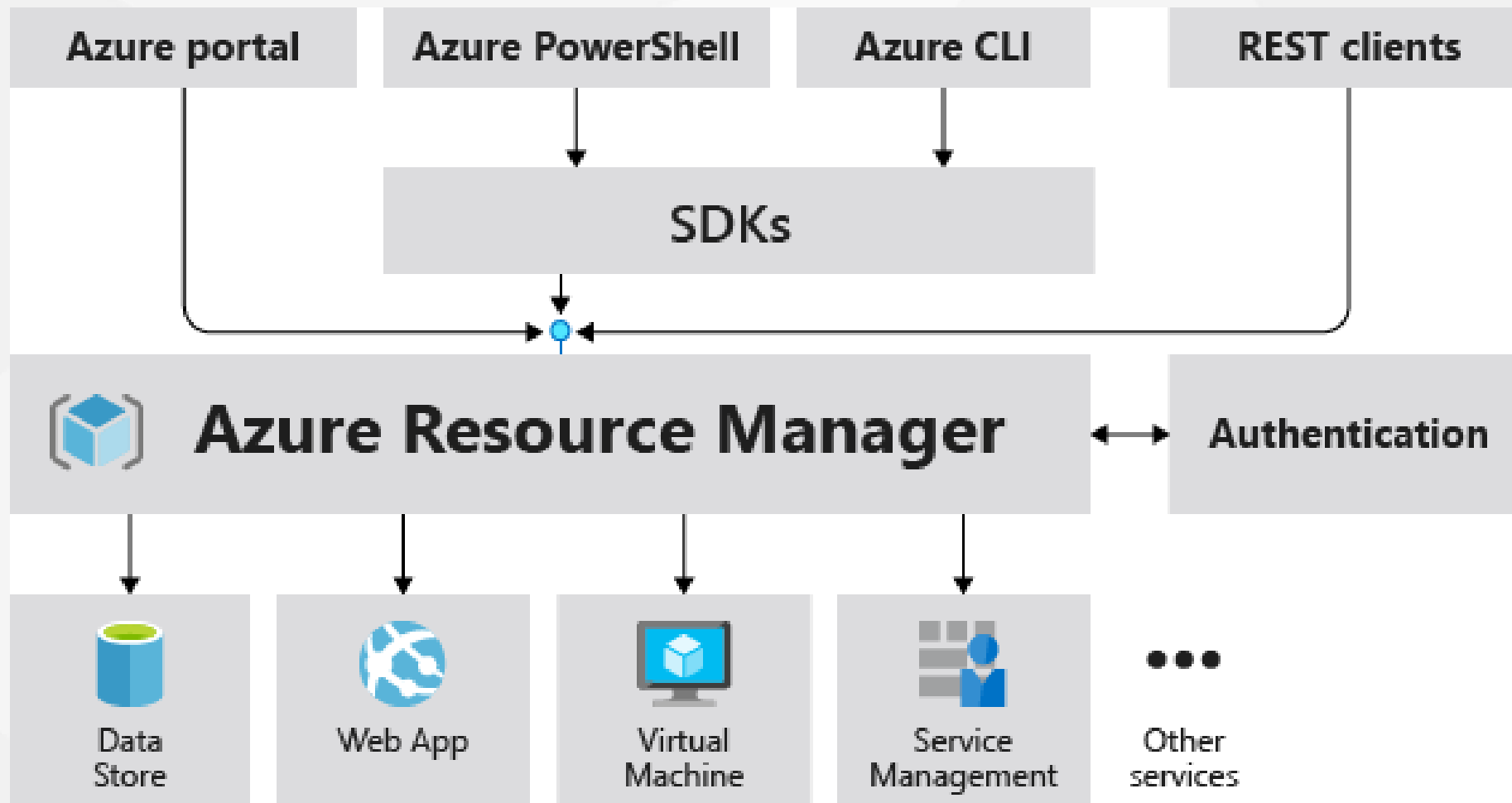


# Azure 管理工具





# Azure Resource Management



[What is Azure Resource Manager?](#)



# Azure Portal



- <https://portal.azure.com/>

The screenshot displays the Microsoft Azure Portal interface. At the top, a blue header bar contains the 'Microsoft Azure' logo, a search bar with the placeholder text 'Search resources, services, and docs (G+)', and a series of icons for navigation and user profile. The user profile section shows the email 'demo@AlanTsai.onmicr...' and the name 'ALAN TSAI'.

Below the header, the main content area is divided into three sections:

- All services:** A sidebar on the left lists various service categories including Overview, Categories, All, General, Compute, Networking, Storage, Web, Mobile, Containers, Databases, Analytics, Blockchain, AI + machine learning, Internet of things, Mixed reality, Integration, Identity, Security, and DevOps.
- Featured:** A grid of service tiles with icons and labels: Virtual machines, App Services, Storage accounts, SQL databases, Static Web Apps, Azure Cosmos DB, Kubernetes services, Function App, Virtual networks, Azure Active Directory, Resource groups, Monitor, Advisor, Security Center, Cost Management, and a link to 'All services'.
- Free training from Microsoft:** A section with three training cards, each featuring a 'Start' button and a link icon. The cards are:
  - Core Cloud Services - Azure architecture and service guarantees:** 9 units • 45 min. Description: 'Azure provides a global network of secure datacenters you can deploy your services into. Learn about the physical architecture of Azure, how redundancy is provided, and what sort of service guarantees Microsoft provides.'
  - Core Cloud Services - Manage services with the Azure portal:** 9 units • 1 hr 13 min. Description: 'Tour the Azure portal features and services, and customize the portal.'
  - Cloud Concepts - Principles of cloud computing:** 10 units • 1 hr 2 min. Description: 'Explore the core concepts of cloud computing and how it can help your business.'



# Azure CLI/Powershell



- Azure CLI - 跨平台的工具
  - [Install the Azure CLI](#)
  - 指令都是 az 開頭：az group create
- Azure Powershell – Powershell 版本，也支援跨平台
  - [Install Azure PowerShell](#)
  - 舊指令 AzureRM 開頭：New-AzureRmVM
  - 新指令 Az 開頭：New-AzVM

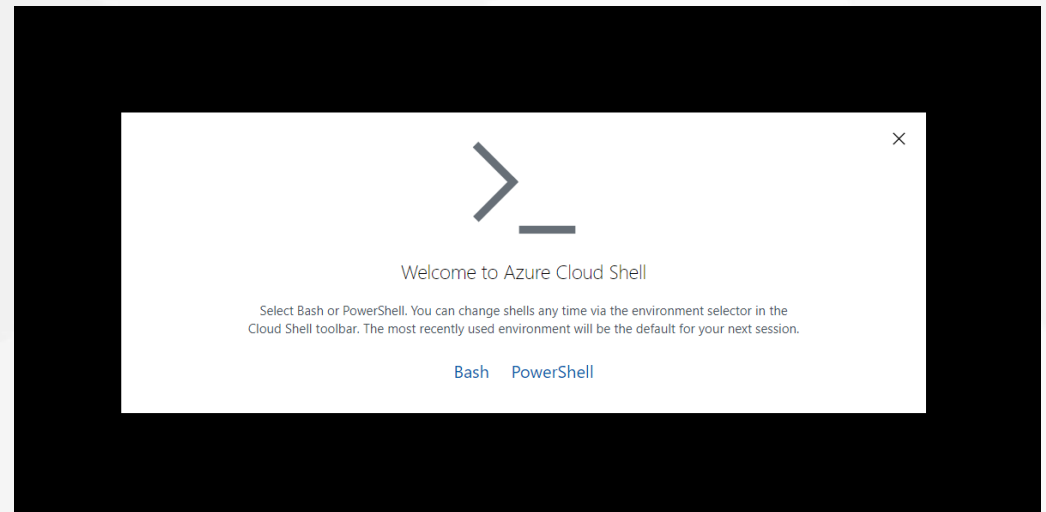




# Azure Cloud Shell



- <http://shell.azure.com/>
- 提供 Powershell 和 Azure CLI 的工具
- 運算免費，但是收取存儲 (Azure Storage) 的費用
- 機器 20 分鐘會回收掉

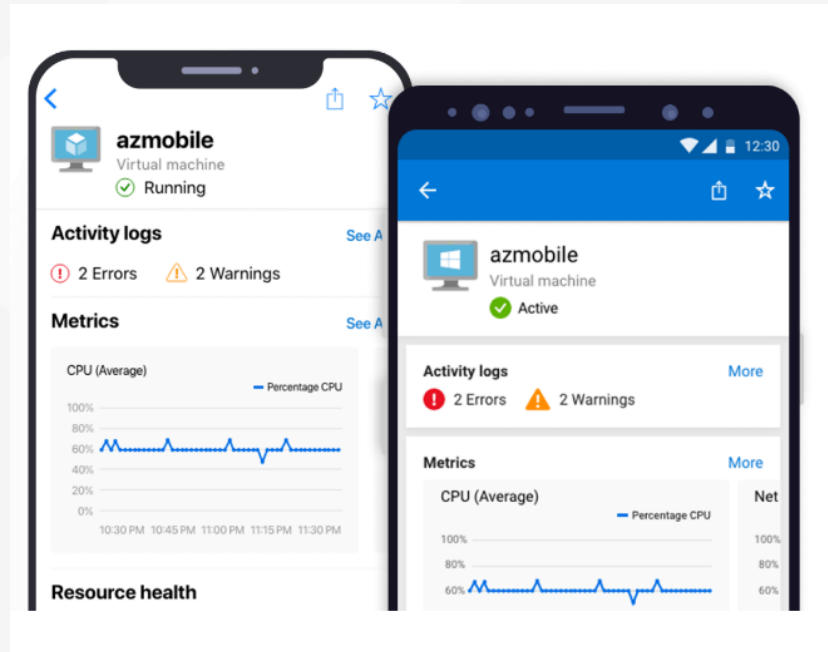




# Azure Mobile App



- 看有沒有什麼問題
- 指令解決問題



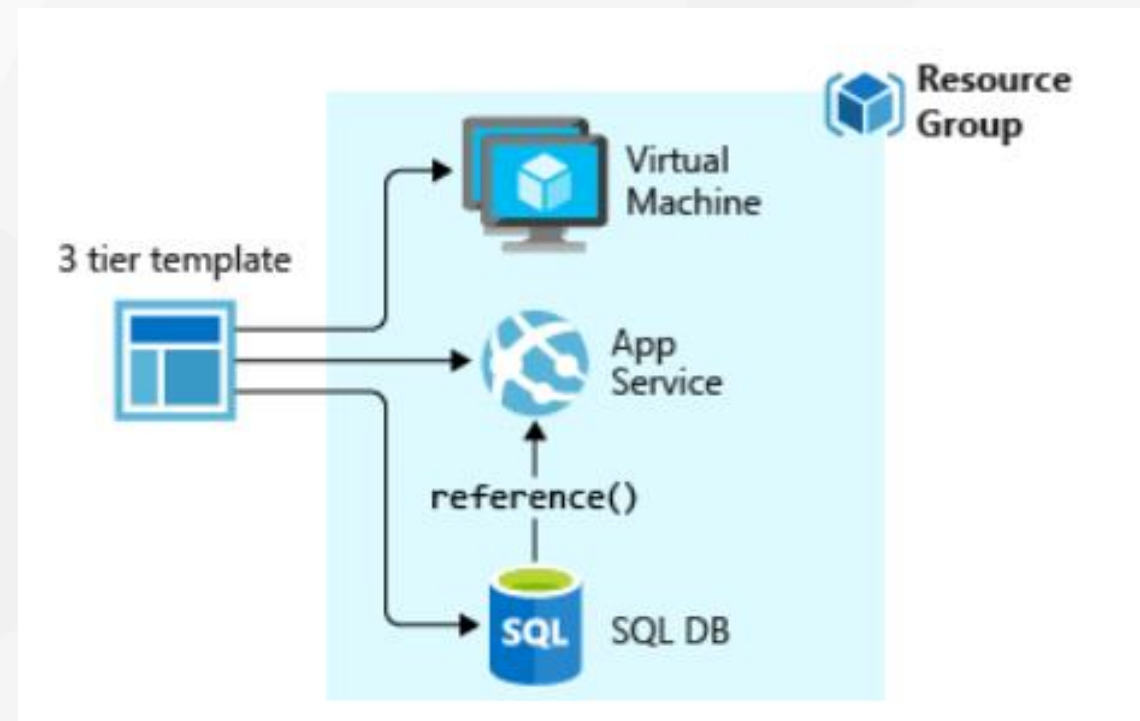
[Get the Azure mobile app](#)



# Azure ARM Template



- 建立很多 Resource 並且確保都有執行成功
- JSON 檔案
- 宣告式的語法來操作
- Infrastructure as Code (IaC)



# 結語





# 結語



- 知道了什麼是雲
  - 雲的特性
  - 雲的好處
- 知道了雲的模式
- 知道了共用責任



# 作業



- Discuss Azure fundamental concepts
  - [06] 應用第一個 Module 學習到的內容 - Discuss Azure fundamental concepts





# 下一篇



- 了解 Azure 有什麼 Service
- 了解 Azure 的 Compute 類型的 Service