

Azure 開發實作特快車

紙鈔魚

自我介紹

- 于子超 (紙鈔)
- Microsoft MVP 2017
 - Visual Studio and Development Technologies
- <https://www.linkedin.com/in/abc12207/>
- @lettucebo (Facebook)

本身經驗

- 2012年開始使用Azure
- 從 Websites 開始使用（後來改名為 Azure Web Apps）
- 公司目前除了開發機以外，都使用Azure服務
- 大型活動網站
 - 2013 ~ 2017台灣燈會(2015開始都架在Azure上)
 - 大大小小政府網站

Azure 開發實作特快車

VM / Storage / App Services 快速入門班



CLOUD 簡介

雲端 - 美國國家標準局 NIST 定義

自我服務

- 透過自我服務入口網站 (self-service portal) 自由獲取運算資源

網路存取

- 任何裝置可從任何地點存取運算資源

資源共享

- 雲端業者採用多租戶架構將運算資源提供給眾多用戶

彈性延展

- 用戶可以依據實際需求自由延展擴增運算資源或縮減運算資源

以量計價

- 用戶依照實際用量支付費用或分攤成本

Why Cloud

- 站在 Startup, ISV 角度上看
 - 自建機房與營運的成本
 - 設備購買、汰舊
 - 冷氣設備與電費
 - 資料安全怎麼半
 - 專職IT所需要的知識



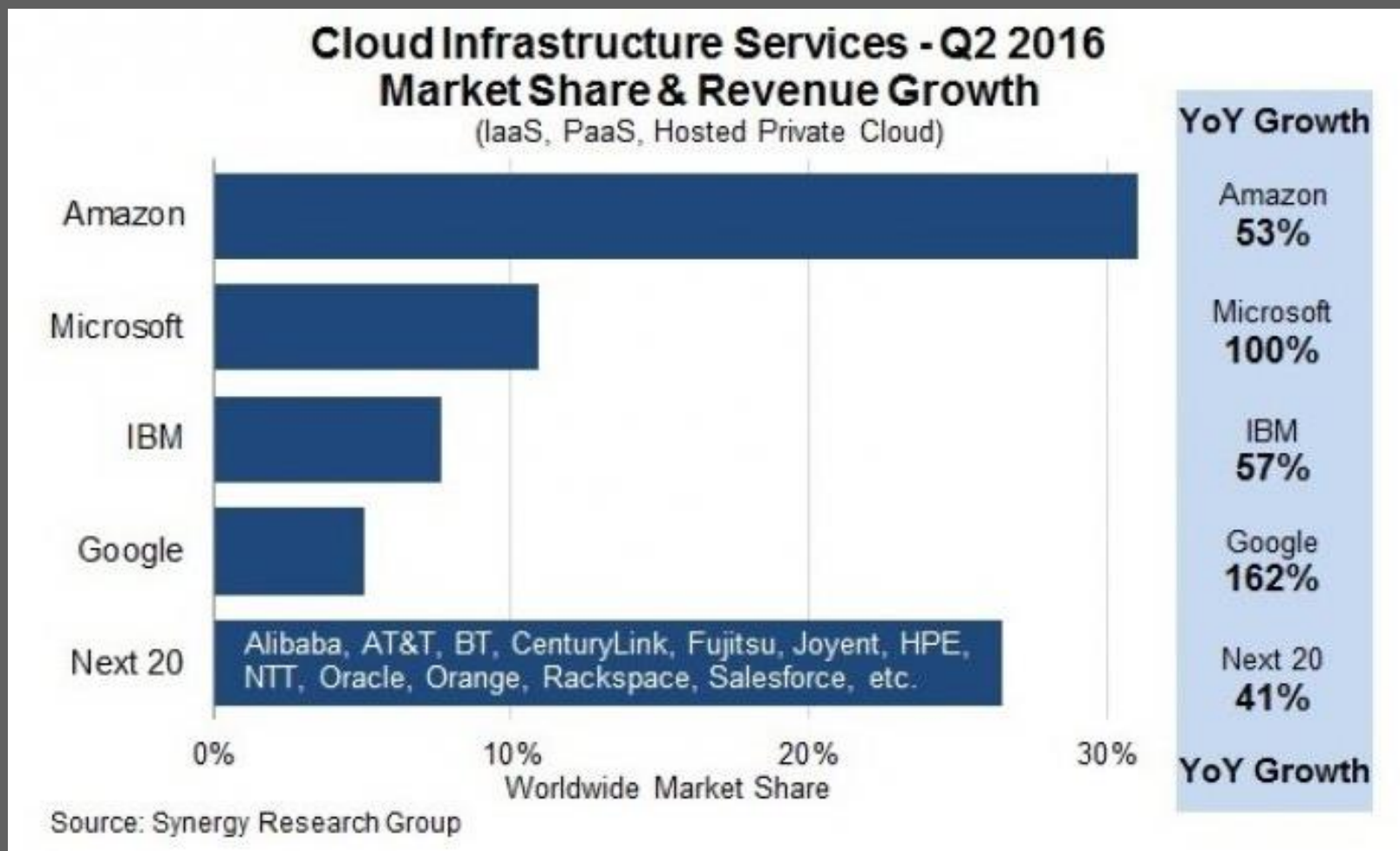
Google Cloud Platform



amazon
web services™

三大雲端服務提供商

三大雲端服務提供商



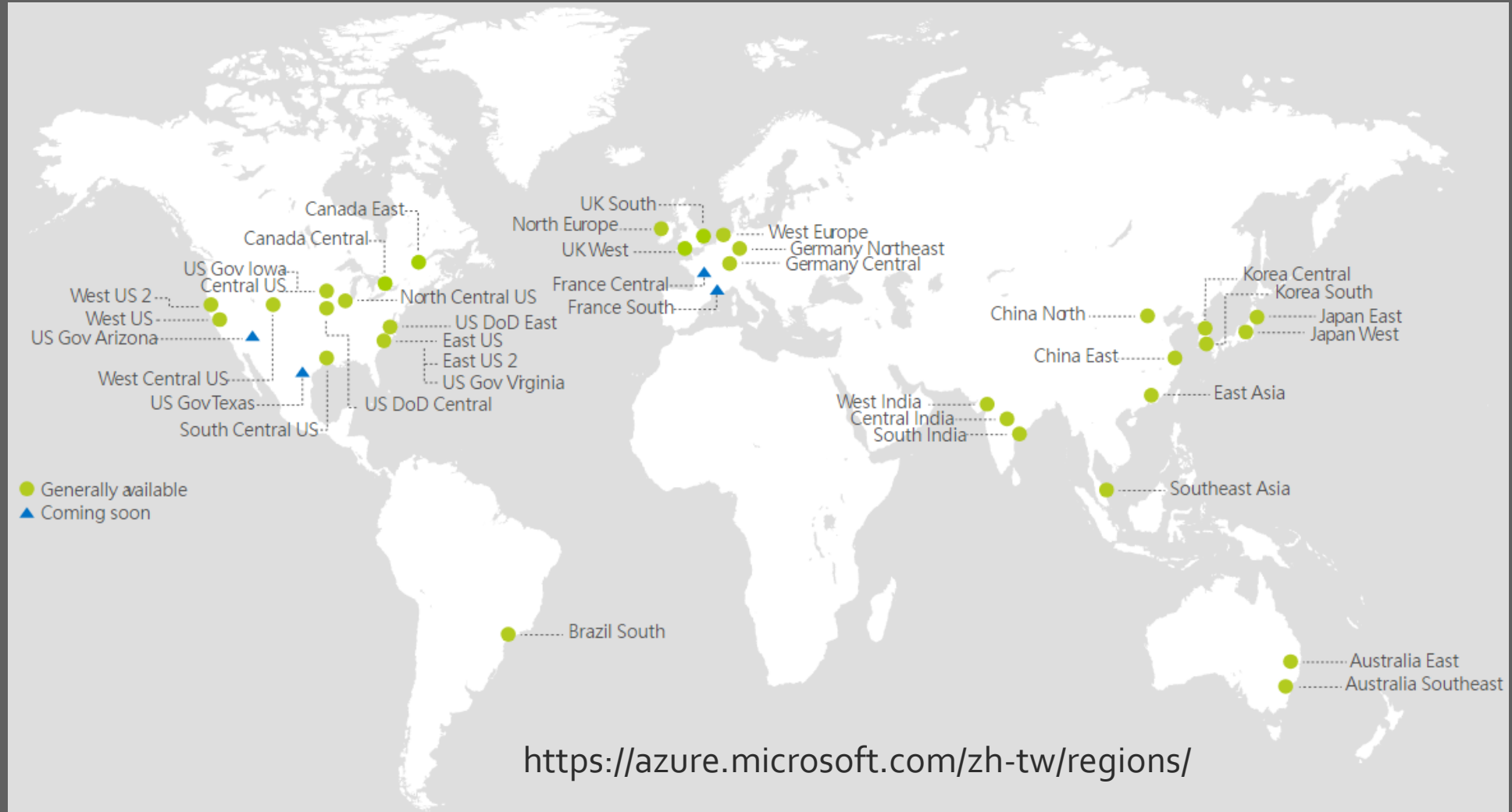
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VM / Storage / App Services 快速入門班



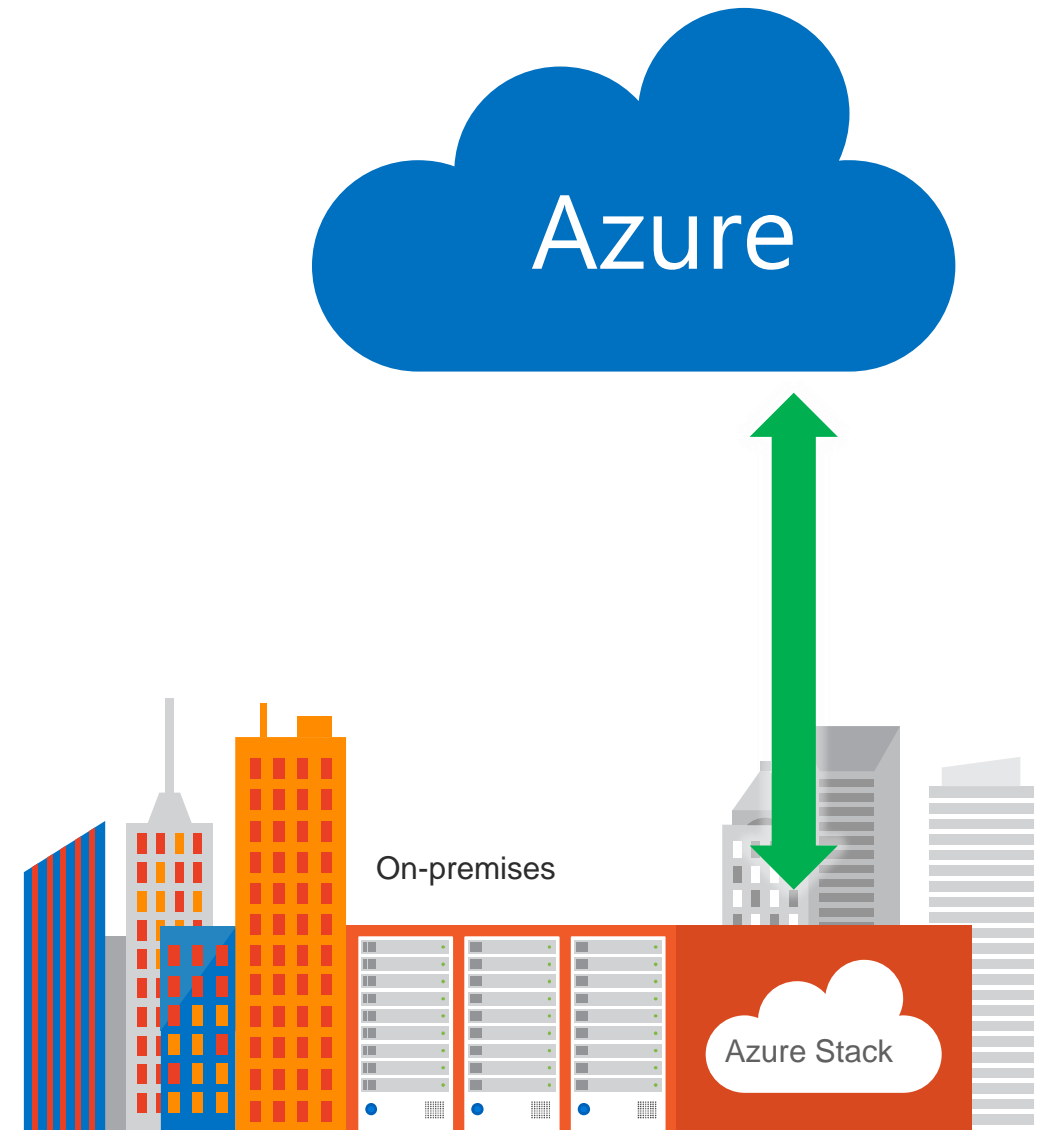
AZURE 簡介

Azure Data Center





Hybrid



Hyper-scale

Open &
flexible

Enterprise
proven

Hybrid

Open + Flexible

Management



Applications



App Frameworks



Databases & Middleware



Infrastructure



Developer & IT
productivity

Hyper-scale

Open &
flexible

Enterprise
proven

Hybrid

Dev + IT productivity



Visual Studio



GitHub



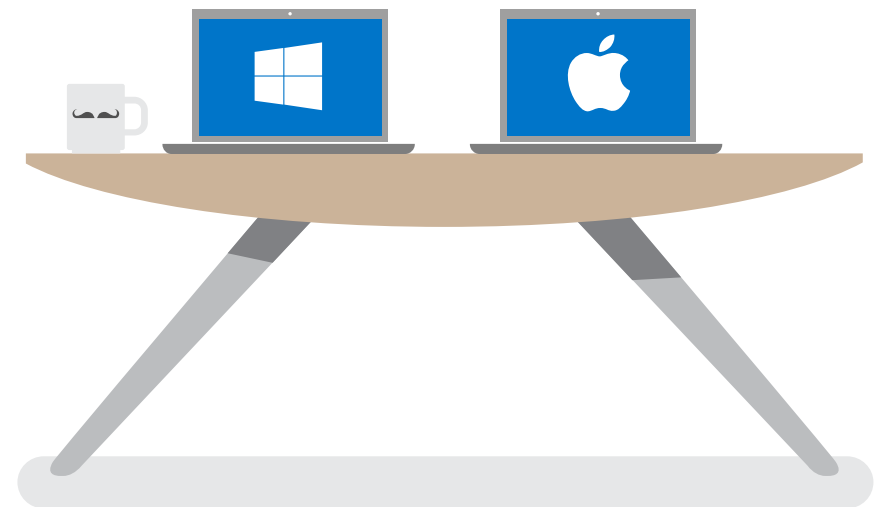
Eclipse

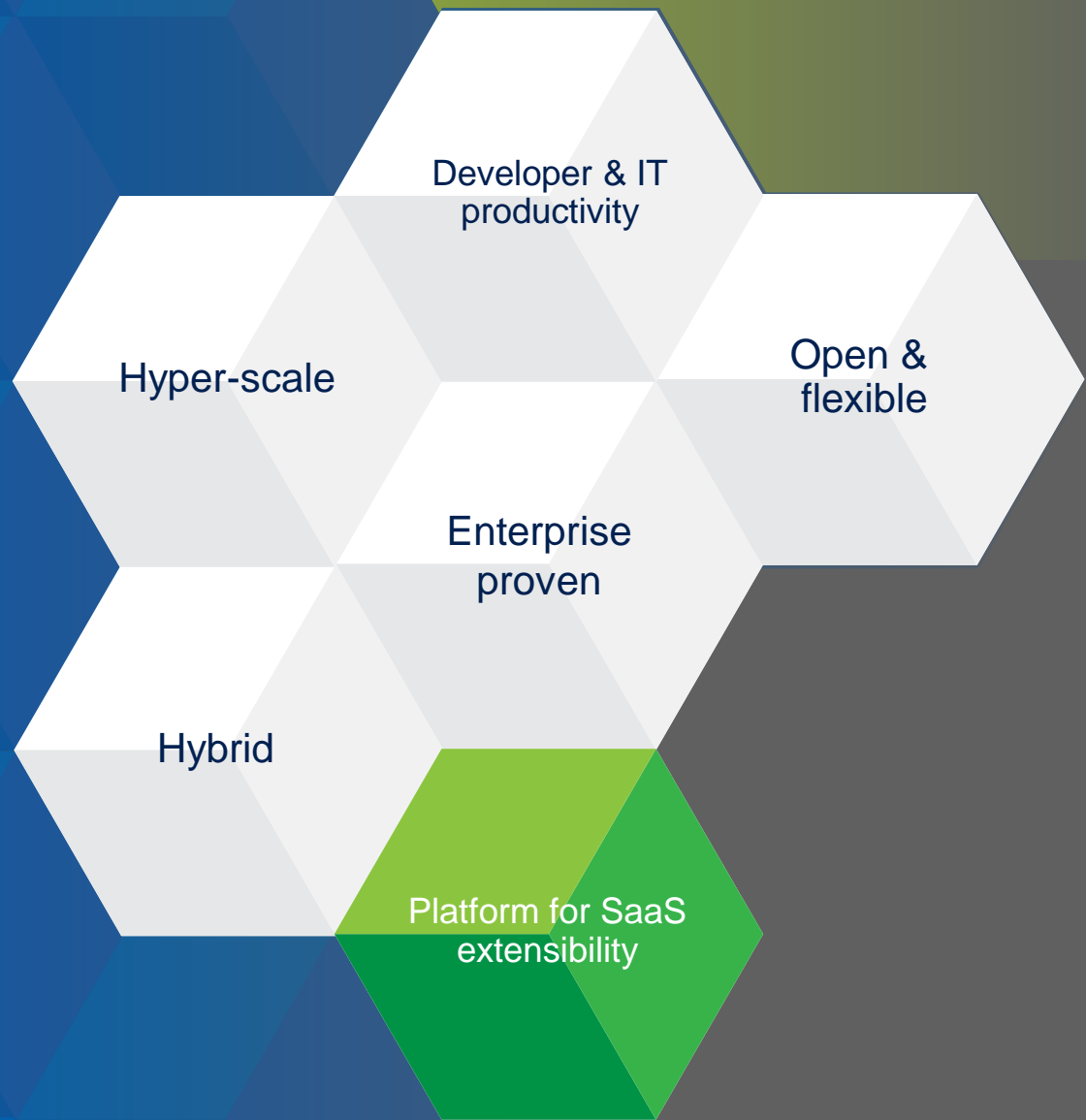


Chef + Puppet

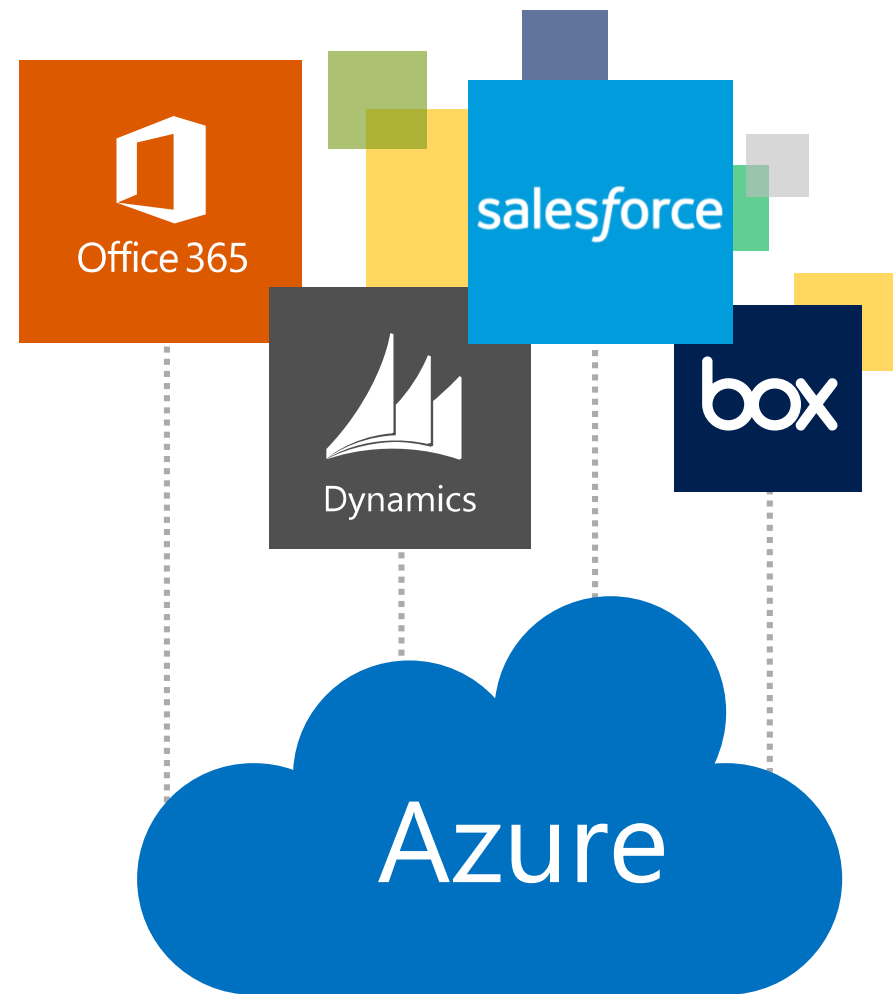


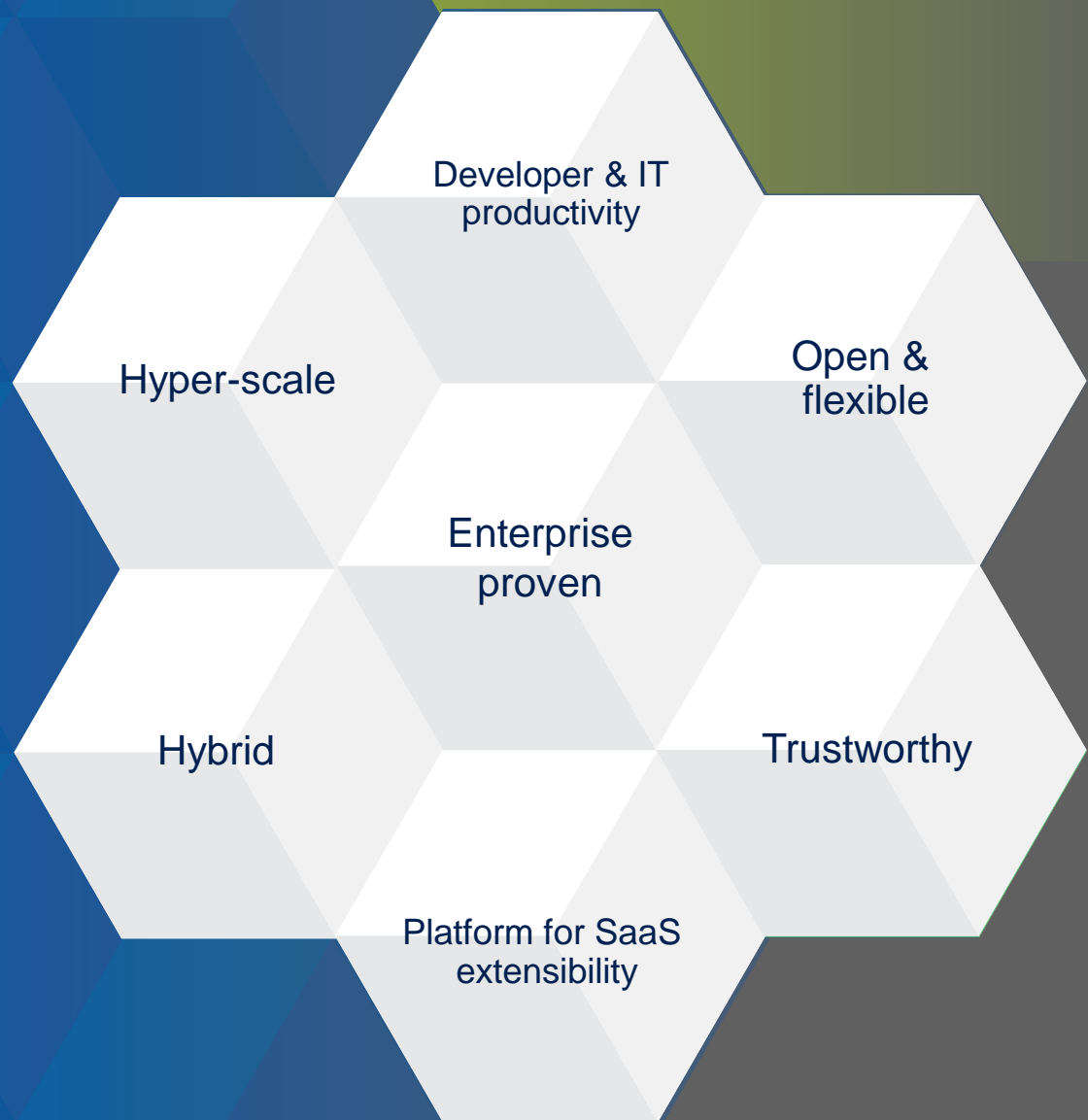
Powershell





SaaS extensibility





Trustworthy

More compliance certifications than any other cloud



MICROSOFT AZURE 通過各項資安標準

<http://azure.microsoft.com/zh-tw/support/trust-center/compliance/>

國際標準	描述	認證狀態
EU Standard Contractual Clauses	歐洲聯盟指令符合歐盟對資料隱私規範 Article 29 Working Party	完成
ISO/IEC 27001/27002:2013	ISO 國際資安標準	完成
PCI DSS Level 1	支付卡產業資料安全標準	完成
SSAE 16 (SOC 1 Type 2)	美國會計與稽核規範，取代 SAS 70 Type 2	完成
FISMA / FedRAMP	美國聯邦資訊安全管理法案 Federal Information Security Management Act (FISMA)	完成
ISO/IEC 27018	全球第一個通過之雲端業者，在未經客戶同意的情況下，禁止將客戶資料用於廣告和行銷用途	完成
HIPAA BAA	美國醫療資訊隱私保護規範	完成

Leading the journey to the Cloud

SAAS SOLUTIONS



Office 365

Microsoft Dynamics



Power BI

ENTERPRISE MOBILITY

Microsoft Enterprise Mobility Suite

Microsoft Azure

DEVELOPER + APP PLATFORM

Visual Studio Family + Azure App Service

DATA + ANALYTICS

Cortana Analytics Suite

INTERNET OF THINGS

Azure IoT Suite

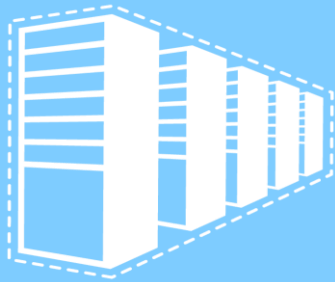
CLOUD INFRASTRUCTURE

Azure + Azure Stack + Operations Management Suite

Times Change



Physical



Virtual



IaaS

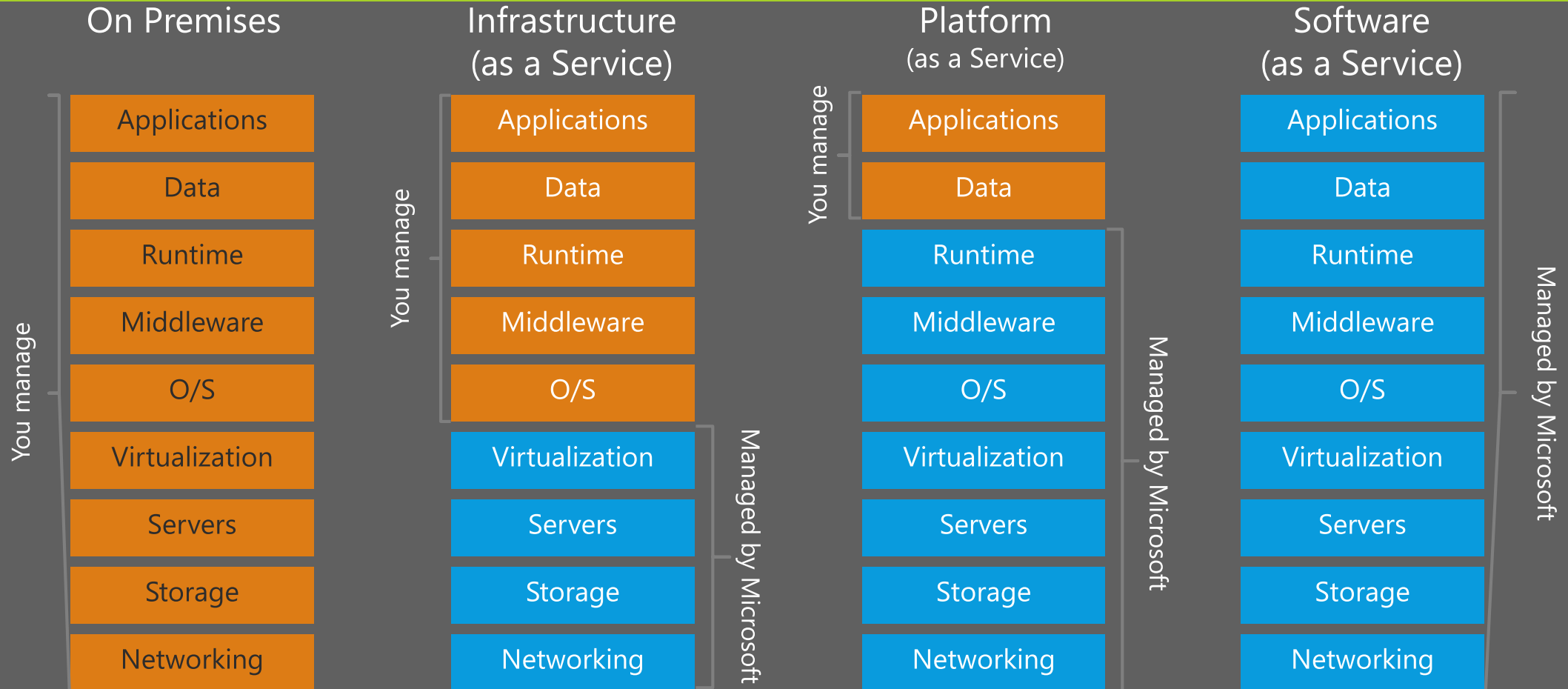


PaaS



SaaS

Cloud Models



專注於應用系統

Platform Services

Security & Management

-  Portal
-  Active Directory
-  Multi-Factor Authentication
-  Automation
-  Key Vault
-  Store / Marketplace
-  VM Image Gallery & VM Depot

Compute

-  Cloud Services
-  Service Fabric
-  Batch
-  Remote App








Web and Mobile

-  Web Apps
-  API Apps
-  API Management
-  Mobile Apps
-  Logic Apps
-  Notification Hubs

Developer Services

-  Visual Studio
-  Azure SDK
-  Team Project
-  Application Insights

Hybrid Operations

-  Azure AD Connect Health
-  AD Privileged Identity Management
-  Backup
-  Operational Insights
-  Import/Export
-  Site Recovery
-  StorSimple






Integration

-  Storage Queues
-  Biztalk Services
-  Hybrid Connections
-  Service Bus

Analytics & IoT

-  HDInsight
-  Machine Learning
-  Data Factory
-  Event Hubs
-  Stream Analytics
-  Mobile Engagement

Data

-  SQL Database
-  SQL Data Warehouse
-  Redis Cache
-  Search
-  DocumentDB
-  Tables

Media & CDN

-  Media Services
-  Content Delivery Network (CDN)

Infrastructure Services

Compute

-  Virtual Machines
-  Containers

Storage

-  BLOB Storage
-  Azure Files
-  Premium Storage

Networking

-  Virtual Network
-  Load Balancer
-  DNS
-  Express Route
-  Traffic Manager
-  VPN Gateway
-  Application Gateway

Datacenter Infrastructure (38 Regions)



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介面、訂閱與帳務

Azure 管理後台 (Portal)

The screenshot displays the Microsoft Azure Portal interface. On the left is a dark sidebar with a list of services: New, Dashboard, Resource groups, All resources, Recent, App Services, Virtual machines (classic), Virtual machines, SQL databases, Cloud services (classic), Subscriptions, Azure Active Directory, Monitor, Security Center, Billing, Advisor, and More services. A red box highlights this sidebar, with a red arrow pointing to it from the label "建立或是管理現有資源" (Create or manage existing resources). The main area shows a personalized dashboard titled "儀表板" (Dashboard) with a red box around it and the label "個人化儀表板" (Personalized dashboard). The dashboard includes tiles for "All resources", "Service health", "ubike APPLICATION INSIGHTS", "short-url WEB APP", "Marketplace", "Help + support", and "ubikebot APPLICATION INSIGHTS". At the top right, a red box highlights the user profile area showing "lettucebo@hotmail.co..." and "預設目錄 (LETTUCEBOHOTM...)". A red arrow points to this area from the label "選擇目錄與管理設定" (Select directory and manage settings).

Microsoft Azure

Search resources

儀表板

+ New dashboard Edit dashboard Share Fullscreen Clone Delete

All resources
VISUAL STUDIO ENTERPRISE

Application Insights

使用外部網域

Service health
MY RESOURCES

ubike
APPLICATION INSIGHTS

short-url
WEB APP

AdminDisabled

Marketplace

Help + support

ubikebot
APPLICATION INSIGHTS

lettucebo@hotmail.co...
預設目錄 (LETTUCEBOHOTM...)

選擇目錄與管理設定

個人化儀表板

建立或是管理現有資源

Azure Portal

- 篩選訂閱
- 主題設定
- 語言與區域

lettucebo@hotmail.c...
預設目錄 (LETTUCEBOHOT...

入口網站設定 

依訂閱篩選
選取了 2 中的 1 – 看不到任何訂閱嗎? [切換目錄](#)

Visual Studio Enterprise 

選擇主題



動畫

啟用 停用

命令標籤

顯示 隱藏

快顯通知

啟用 停用

低電源裝置的實驗性效能功能 (需要重新整理)

啟用 停用

語言 (需要重新整理)

中文 (繁體) 

地區格式 (需要重新整理)

中文 (台灣) 

自訂介面

The screenshot displays the MSDN portal interface. On the left is a navigation sidebar with the following items: 概觀 (Overview), 存取控制 (IAM), 診斷並解決問題 (Diagnose and solve problems), 帳單 (Billing), 帳單與使用量 (Billing and usage), 資源成本 (Resource costs), 外部服務 (External services), 付款方式 (Payment methods), and 合作夥伴資訊 (Partner information). The main content area is titled 'MSDN 訂閱帳戶' (MSDN Subscription Account) and includes links for 管理 (Manage), 傳輸 (Transfer), and 取消訂閱帳戶 (Cancel subscription account). Below these links is a '程式集' (Program Set) section with account details:

訂閱帳戶 ID	訂閱帳戶名稱
caea8006-01ac-4076-a345-876bcc319c...	MSDN

My Role	目前計費期間
帳戶管理員	2016/11/17-2016/12/16

優惠	貨幣
MSDN	TWD

優惠 ID	狀態
MS-AZR-0063P	使用中

Below the account details is a dashboard widget titled '依資源區分的成本 MSDN' (Cost by resource MSDN). The widget shows a donut chart and two cost values: 891.48 TWD (DEFAULT1) and 348.75 TWD (SERVICEPLAN3DD3D0C0-8...). A red circle highlights a '釘選到儀表板' (Pin to dashboard) button with a star icon in the top right corner of the widget. A secondary window on the right shows a '從儀表板取消釘選' (Unpin from dashboard) dialog with a list of dashboard sizes: 2x2, 2x4, 4x4, 6x4, and 4x6, along with a '自訂完成' (Customize) button.

訂用帳戶

Microsoft Azure 訂用帳戶

訂用帳戶

預設目錄 (lettucebohotmail.onmicrosoft.com)

+

新增

角色 ⓘ





狀態 ⓘ

全部

全部

套用

搜尋篩選項目...

訂用帳戶	訂用帳戶 ID	我的角色	目前的花費	狀態	
 Visual Studio Enterprise	b10b13fe-f8e8-4aa1-a5b4-043cafa...	帳戶管理員	NT\$0.00	 使用中	...
 Developer Program Ben...	407eef50-ea87-4547-a0cc-d85593...	帳戶管理員	NT\$396.65	 已停用	...

訂用帳戶種類

- 隨付即用 (Pay-as-you-Go) 的免費試用或正式帳戶
- 各種微軟計畫 (如：MSDN 訂閱用戶、Imagine Access 等) 的 Azure 優惠訂閱
- 用於活動或教學的 Azure Pass 訂閱
- Azure In Open 訂閱
- Enterprise Agreement (EA) 訂閱
- Dev Essential (每月免費 NT\$775.69)
- ...

設定別人可以管理此訂閱

Visual Studio Enterprise - 存取控制 (IAM)
訂閱帳戶

Search (Ctrl+ /)

概觀

存取控制 (IAM)

診斷並解決問題

帳單

發票

成本分析

外部服務

付款方式

合作夥伴資訊

設定

以程式設計方式部署

資源群組

資源

+ 新增

刪除

角色

重新整理

說明

名稱 ⓘ

依姓名或電子郵件搜尋

類型 ⓘ

全部

角色 ⓘ

擁有者

1 個項目 (1 群組)

<input type="checkbox"/>	NAME	TYPE	ROLE
	訂閱帳戶管理員	群組	擁有者 ⓘ

加入權限

角色 ⓘ

選取角色

選取 ⓘ

依姓名或電子郵件地址搜尋

紙魚

紙鈔魚
lettucebo@hotmail.com

選取的成員:

未選取任何成員。您可以為此資源搜尋及新增您要指派到該角色的一或多個成員。

若您對 RBAC 感到陌生，可前往我們的文件網站深入了解。

練習

- 設定管理後台的佈景主題
- 釘選自訂自己關注的資訊面板
- 建立一個以上的儀表板
- 設定共同管理員

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VIRTUAL MACHINE

建立VM流程

選擇要使用什麼方式部署



管理入口網站



指令化

(Windows, Linux and Mac)



REST API

選擇作業系統範本與虛擬機器大小



Windows
Server



Linux



Extra Small



Small



Medium



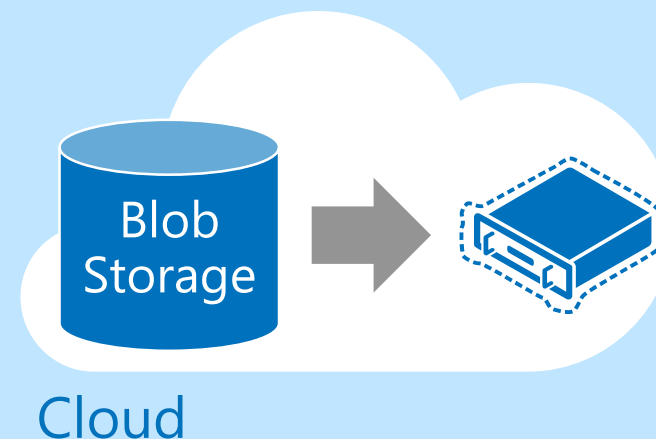
Large



X-Large

將作業系統範本寫入儲存區中

由新磁碟啟動 VM



VM Gallery



Windows Server 2012 R2



Ubuntu Server 14.04 LTS



CentOS 6.5



SUSE Linux
Enterprise Server



openSUSE 13.1



Oracle Linux 6.4.0.0.0



SQL Server 2014 Standard



Oracle Database 11g R2



BizTalk Server 2013



SharePoint Server Farm



Microsoft Dynamics
GP 2013



Zulu 8



SAP HANA
Developer Edition



Puppet Enterprise 3.2.3



Barracuda Web Application



Oracle WebLogic
Server 12.1.2



Visual Studio Ultimate 2013



Windows 8.1 Enterprise

VM 等級

General
Purpose

A0 – A5 Basic

A0 – A7 Standard

D1 – D4

D1v2 – D5v2

Compute
Optimized

F1, F2, F4, F8, F16

Memory
Optimized

D11 – D14

D11v2 – D15v2

G1 – G5

GPU

NV6, NV12, NV24

NC6, NC12, NC24,
NC24r

High
Performance
Compute

A8 – A11

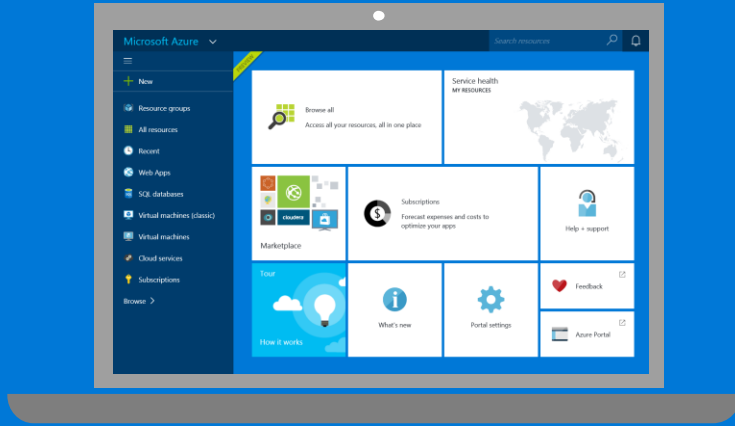
H8, H8m, H16, H16m,
H16r, H16mr

VM 等級

<https://docs.microsoft.com/zh-tw/azure/virtual-machines/virtual-machines-windows-sizes>

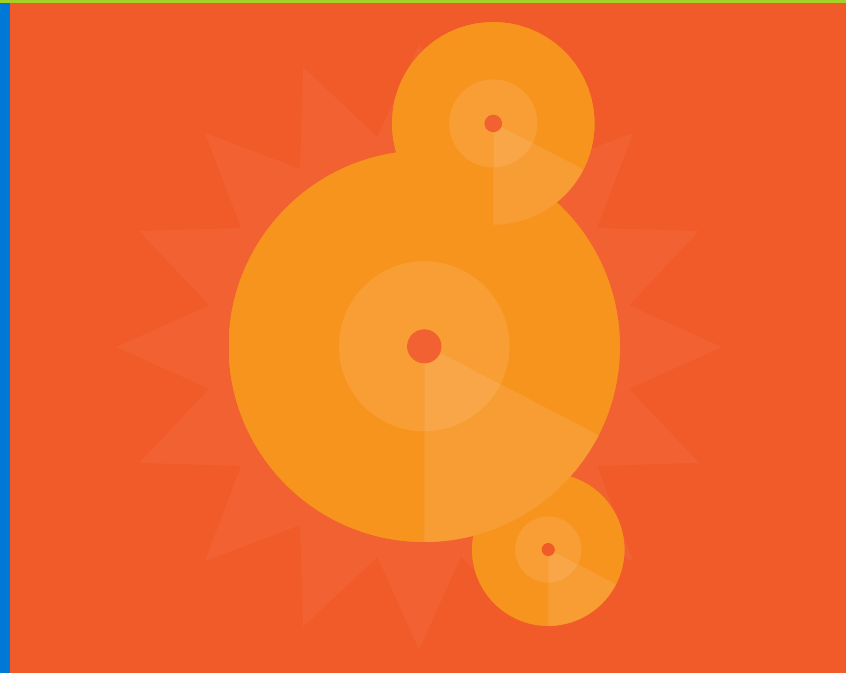
類型	大小	說明
一般用途	DSv2、Dv2、DS、D、Av2、A0-7	CPU 與記憶體的比例平均。適用於測試和開發、小型至中型資料庫，以及低至中流量 Web 伺服器。
計算最佳化	Fs、F	CPU 與記憶體的比例高。適用於中流量 Web 伺服器、網路設備、批次處理，以及應用程式伺服器。
記憶體最佳化	GS、G、DSv2、DS	記憶體與核心的比例高。適用於關聯式資料庫伺服器、中型至大型快取，以及記憶體內部分析。
儲存體最佳化	Ls	高磁碟輸送量及 IO 。適用於巨量資料、 SQL 及 NoSQL 資料庫。
GPU	NV、NC	以大量圖形轉譯和視訊編輯為目標的特製化虛擬機器。有單一或多個 GPU 可供使用。
高效能計算	H、A8-11	速度最快、功能最強的 CPU 虛擬機器，搭載選配的高輸送量網路介面 (RDMA)。

Great Infrastructure Enhancements



End to End Management

Integrated management portal
Application Templates
Lifecycle Management
Role Based Access Control
Billing API



Premium Storage

Up to 64 TB of storage per VM
>80,000 IOPS per VM
Less than 1ms read latency



Largest VMs in Public Cloud

Optimized for data workloads
Up to 32 CPU cores, 450 GB RAM,
6.5 TB local SSD
Latest generation Intel processor



New N family of virtual machines

Latest NVIDIA GPU

Superfast RDMA network

High-end remote visualization

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DEMO

建立 VM

Microsoft Azure 服務水準合約

雲端服務、虛擬機器及虛擬網路

- 對於雲端服務 (Cloud Services)，我們保證當您在不同錯誤網域和升級網域部署兩個以上的角色 (Role) 執行個體時，您的網際網路對向角色將在至少 99.95% 的時間內具有外部連線能力。
- 對於有兩個以上執行個體部署至相同可用性設定組的所有網際網路對向虛擬機器 (Virtual Machines)，我們保證將在至少 99.95% 的時間內具有外部連線能力。
- 對於虛擬網路 (Virtual Network)，我們保證虛擬網路閘道有 99.9% 的可用性。

99.95% 高可用度代表什麼意思？

Availability %	每年允許停機時間	每月允許停機時間	每週允許停機時間
90% (一個 9)	36.5 days	72 hours	16.8 hours
99% (兩個 9)	3.65 days	7.20 hours	1.68 hours
99.9% (三個 9)	8.76 hours	43.2 minutes	10 minutes
99.95%	4.38 hours	22 minutes	5 minutes
99.99% (四個 9)	53 minutes	4.3 minutes	1 minutes
99.999% (五個 9)	5 minutes	26 seconds	6 seconds

價格 – 估價須知

- 虛擬機器大小是影響價格的主因 (ex: SQL Server 2016 Enterprise in Extra Large VM)
- 由 Microsoft Azure Management Portal 關閉虛擬機器即停止計價
- 了解各項服務計價單位 (ex: 虛擬機器以分鐘計價)


Microsoft Azure Virtual Machines 成本估算

- 我們公司要把應用系統放到 Microsoft Azure Virtual Machine
- 請問一個月要花多少錢？

Microsoft Azure Virtual Machines 成本估算

- 需要知道目前伺服器規格
 - CPU 核心數與記憶體
- 需要決定選用微軟哪一個資料中心
 - Azure Speed Test
- 需要知道目前使用的作業系統
- 需要知道目前存放資料磁碟實際用量
- 需要知道目前對於儲存設備的規格 (IOPS, Throughput)
- 需要知道目前每月資料傳出量

Microsoft Azure Virtual Machines 成本估算

 虛擬機器

地區:

東亞

類型:

Windows

☐ 新增受控磁碟

價格層次:

標準

注意：使用您現有的授權搭配軟體保證，最多可在 Windows Server 虛擬機器省下 40%。[深入了解](#)

執行個體大小:

A2 v2: 2 核心, 4 GB RAM, 20 GB 磁碟, 每小時 \$4.933

2

×

744

虛擬機器

小時

= 每月 \$7,340.86

兩台 VM 透過單一 Availability Set 互為備援微軟才方提供 99.95% 不停機服務水準SLA

Microsoft Azure Virtual Machines 成本估算

- Azure Storage 等級會影響成本
- Azure Storage (基本 Basic)
 - 500 IOPS for Azure VM Standard , 300 IOPS for Azure VM Basic
 - 60 MiB / Sec Throughput
- Azure Storage (進階 Premium)

	P10	P20	P30
磁碟大小	128 GB	512 GB	1,024 GB
每月價格	NT\$611.56	NT\$2,271.84	NT\$4,193.99
每一磁碟的 IOPs	500	2,300	5,000
每一磁碟的輸送量	100 MB / 秒	150 MB / 秒	200 MB / 秒

Microsoft Azure Virtual Machines 成本估算

<https://docs.microsoft.com/zh-tw/azure/storage/storage-about-disks-and-vhds-windows>

	Azure 進階磁碟	Azure 標準磁碟
磁碟類型	固態硬碟 (SSD)	硬碟 (HDD)
概觀	以 SSD 為基礎，針對執行時需要大量 I/O 之工作負載的 VM 或裝載任務關鍵性生產環境的 VM，提供高效能、低延遲的磁碟支援	以 HDD 為基礎、符合成本效益的磁碟支援，適用於開發 / 測試 VM 案例
案例	生產環境和重視效能的工作負載	開發 / 測試、非關鍵性不常存取
磁碟大小	P10：128 GB P20：512 GB P30：1024 GB	非受控磁碟：1 GB – 1 TB 受控磁碟： S4：32 GB S6：64 GB S10：128 GB S20：512 GB S30：1024 GB
每一磁碟的輸 送量上限	200 MB / 秒	60 MB / 秒
每一磁碟的 IOPS 上限	5000 IOPS	500 IOPS

Microsoft Azure Virtual Machines 成本估算

- 估算硬碟租賃一個月費用

 儲存體

地區:

美國西部 ▼

類型:

頁面 Blob 和磁碟 ▼

價格層次:

基本 ▼

資料備援:

LRS ▼

容量

1024

GB ▼

= 每月 \$1,588.61

儲存體交易

1

交易單位 (100,000 筆交易)

× \$0.1117

每單位

= 每月 \$0.11

小計 每月 \$1,588.72

Microsoft Azure Virtual Machines 成本估算

- 估算頻寬一個月費用

 頻寬 

地區:

東亞 ▼

注意：

在每個區域中，前 5GB / 月的資料傳輸皆為免費。

區域 2: 亞太地區, 日本, 澳洲

250

GB ▼

= 每月 \$1,049.04

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動手做

建立 VM

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VM設定與硬碟管理

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建立服務與開通

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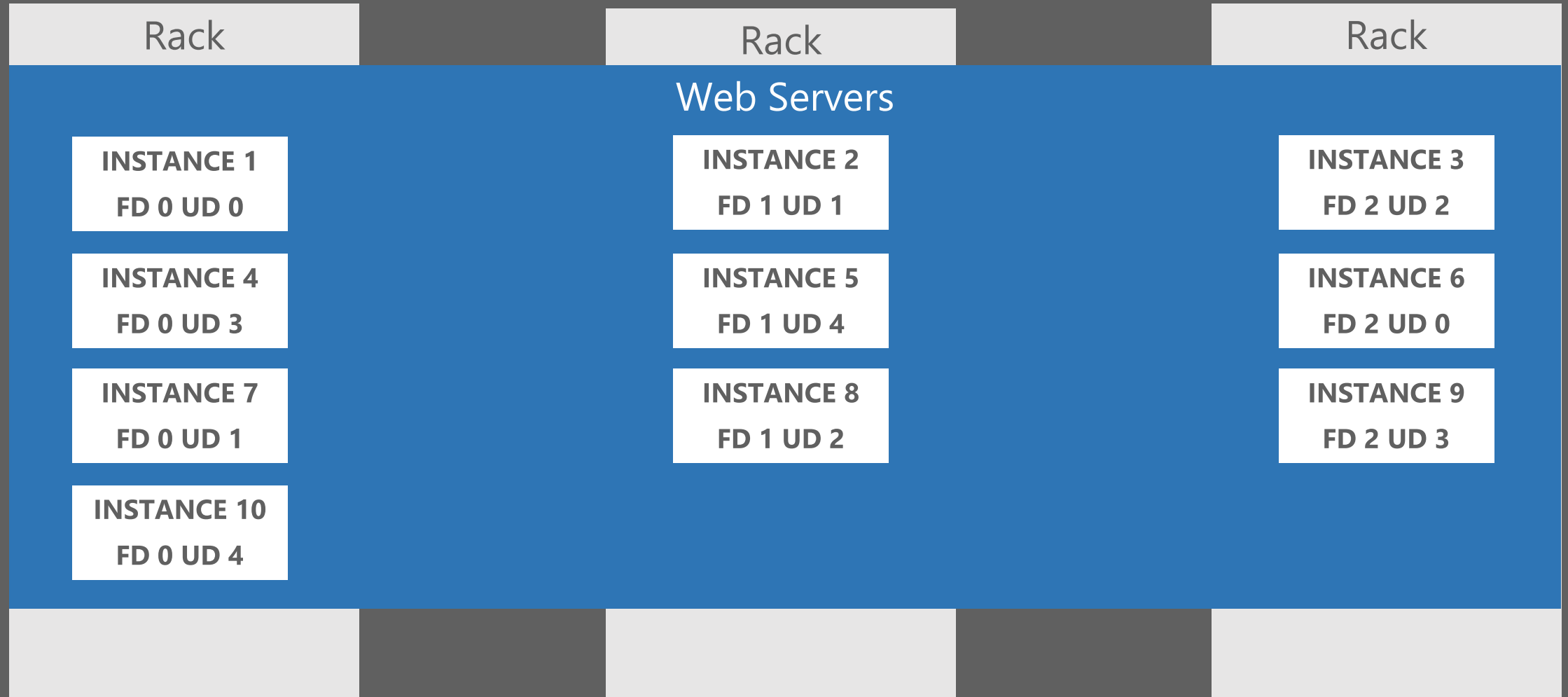
動手做

建立服務與開通

VM 小撇步

- 如何省錢
 - 用不到時自動關機
 - 時間到自動開機
- 正確關機
 - Azure 省錢大作戰 - 排程讓 Azure 把虛擬機關機及調教 VM 大小
 - <https://dotblogs.com.tw/swater111/2014/04/09/144671>

Availability Sets



Availability Sets – Rack Failure



Availability Sets - Maintenance



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HA架構

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STORAGE

儲存體類型

Blob

- Blob 儲存體

Files

- 檔案儲存體

Queues

- 佇列儲存體

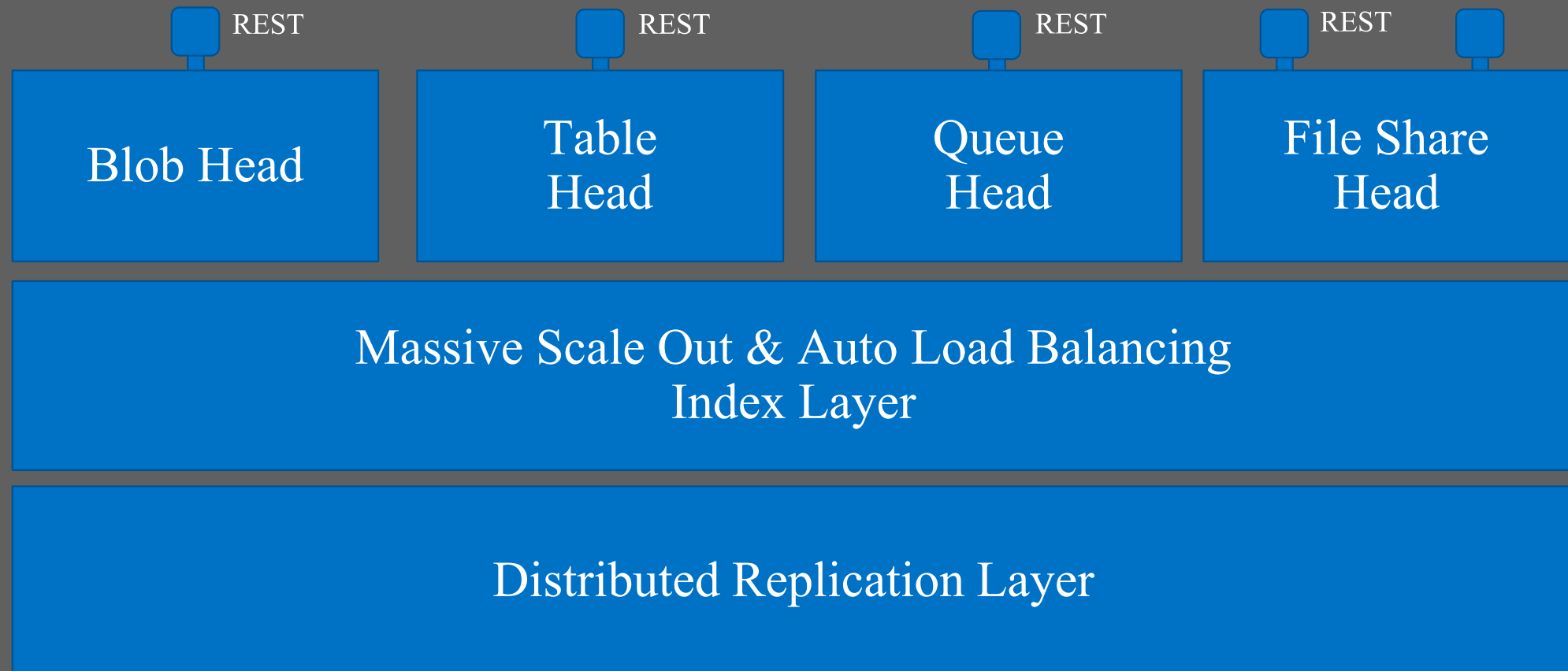
Table

- 表格儲存體

StorSimple

- 混合式雲端儲存體

Azure Storage Architecture



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BLOB

Two Types of Blobs Under the Hood

▪ Block Blob

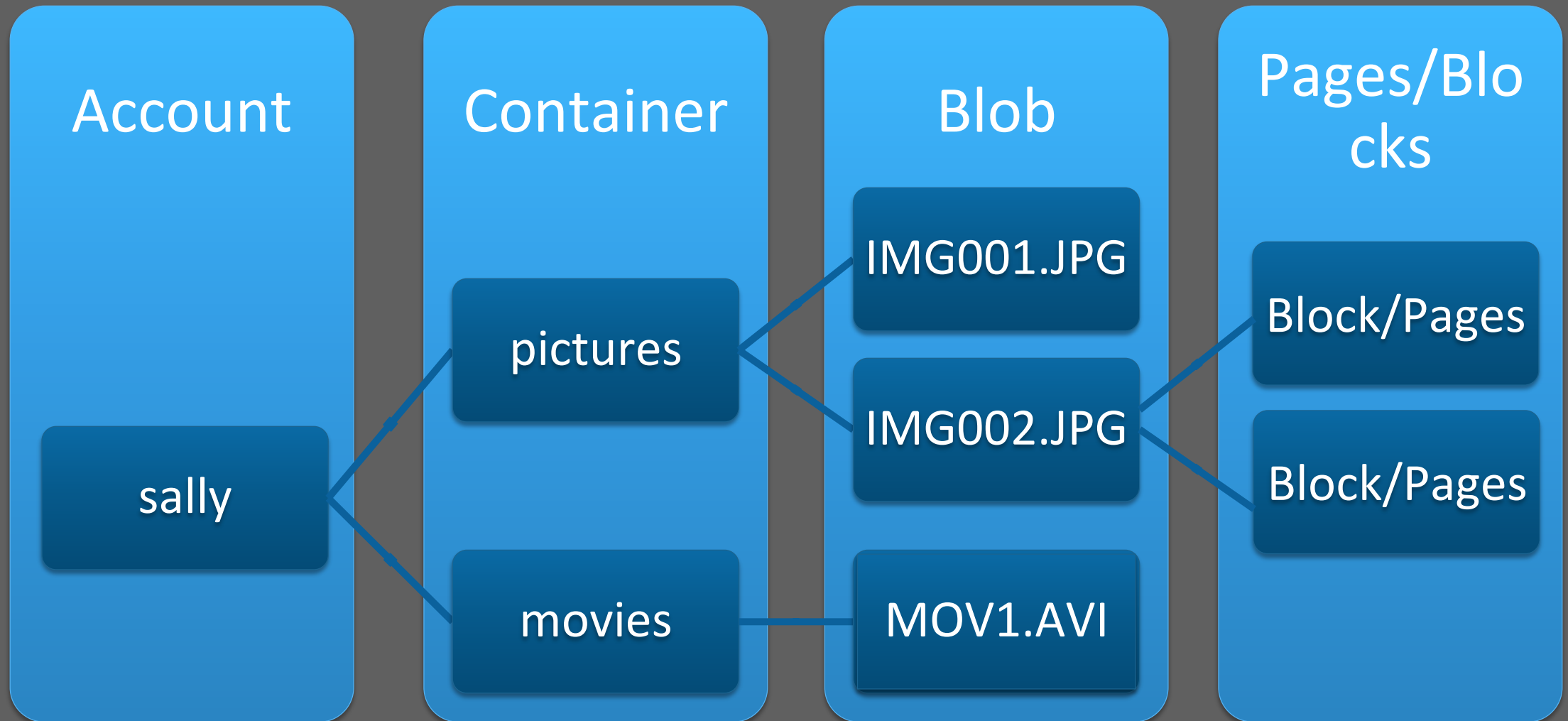
- Targeted at streaming workloads
- Each blob consists of a sequence of blocks
- Each block is identified by a Block ID
- Size limit 4.77TB per blob
- Optimistic Concurrency via Etags

▪ Page Blob

- Targeted at random read/write workloads
- Each blob consists of an array of pages
- Each page is identified by its offset from the start of the blob
- Size limit 1TB per blob
- Optimistic or Pessimistic (locking) concurrency via leases

Blob Storage

<https://{account}.blob.core.windows.net/{container}/{blobName}>



Blob儲存體價格

 儲存體

地區:

美國西部

類型:

區塊 blob

價格層次:

標準 - 一般用途型儲存體帳戶

資料備援:

LRS

容量

1024

GB

= 每月 \$762.53

儲存體交易

1

交易單位 (100,000 筆交易)

×

\$0.1117

每單位

= 每月 \$0.11

小計 每月 \$762.64

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建立Blob儲存體

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用程式處理Blob Storage

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用程式處理Blob Storage

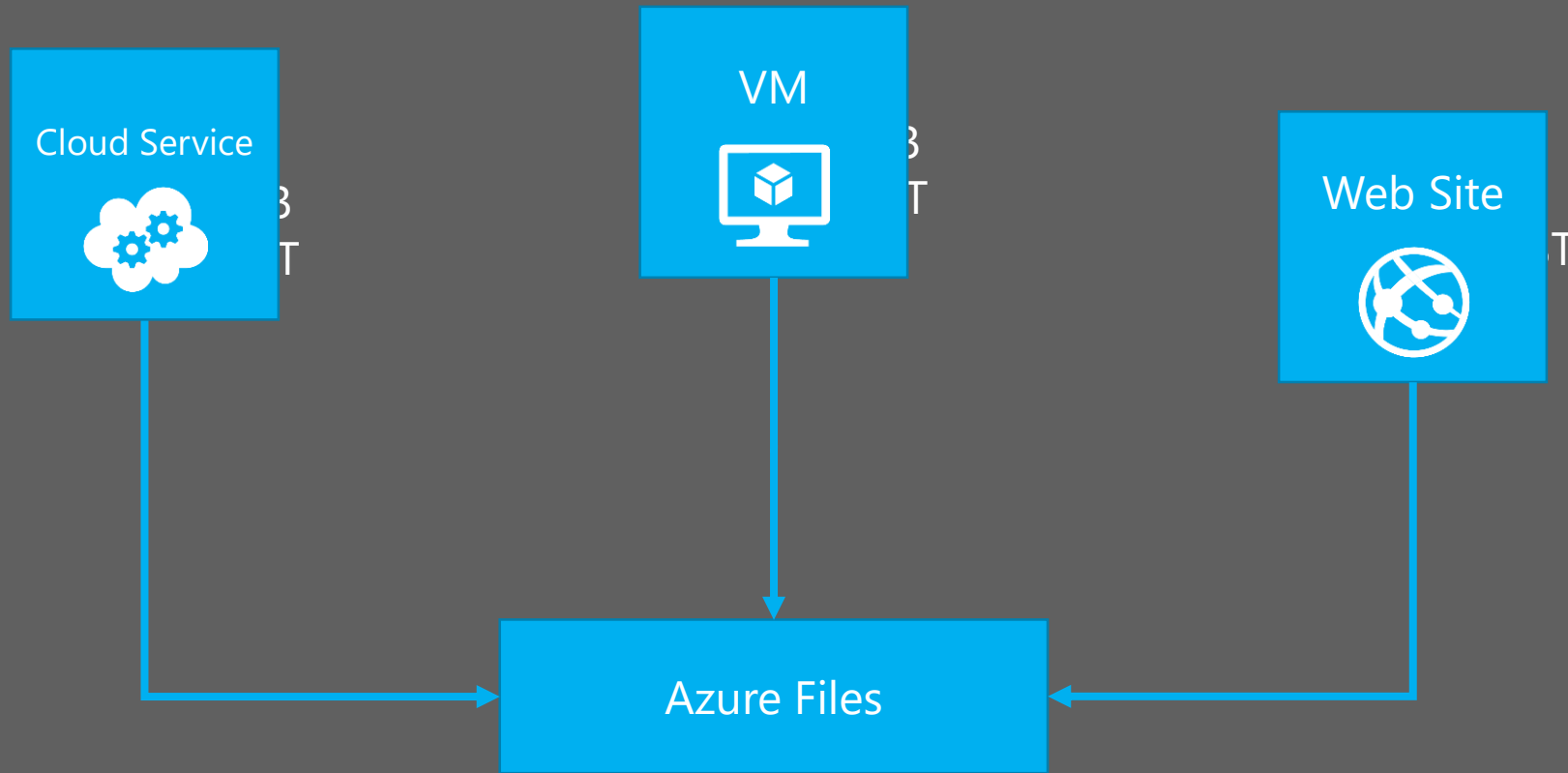
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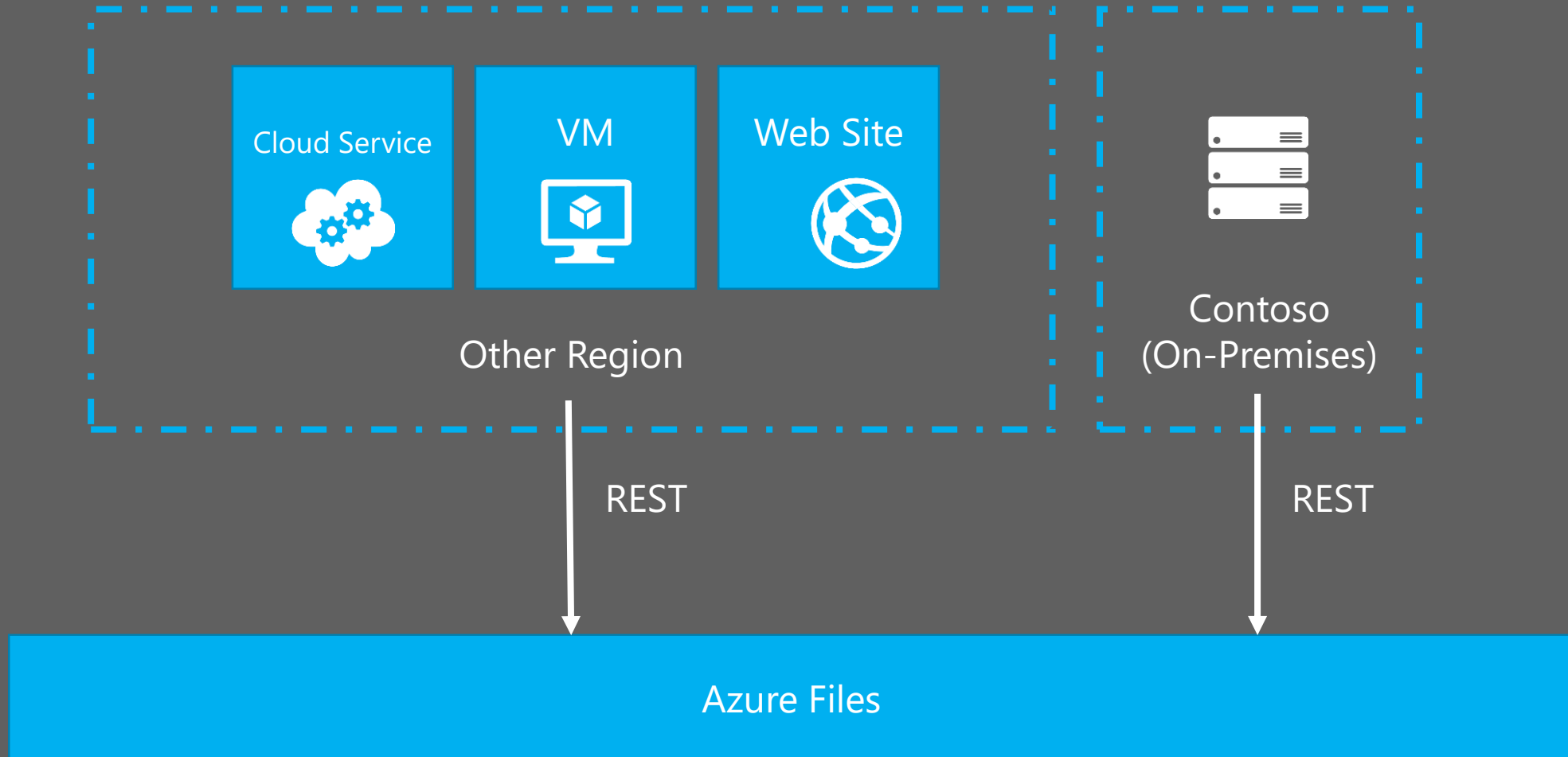


FILES

Azure files



Azure files



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QUEUE

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用程式處理 Queue

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用程式處理 Queue

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TABLE

Table Storage

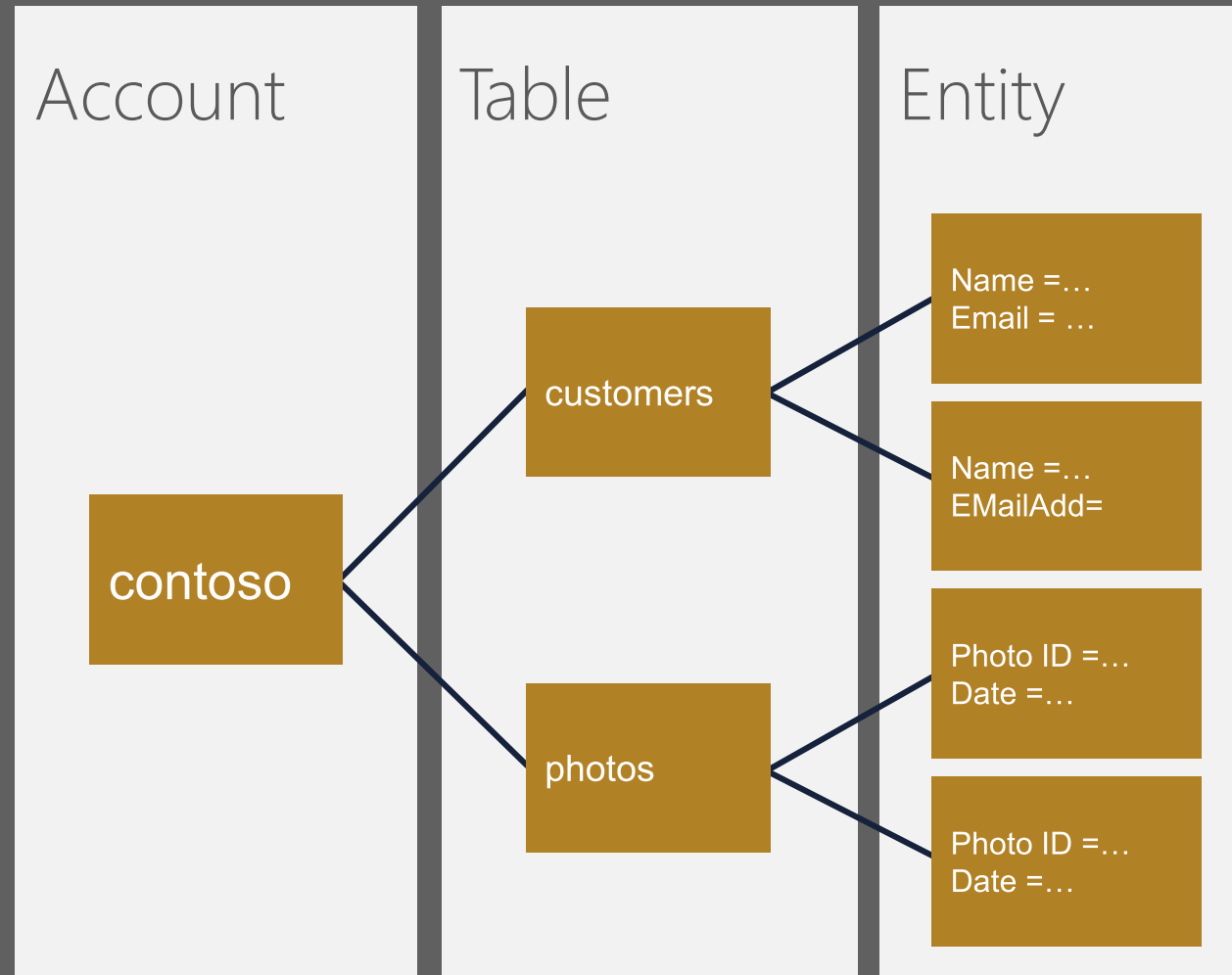


Table Storage

- **Mandatory Properties for every entity**
 - PartitionKey & RowKey (only indexed properties)
 - Uniquely identifies an entity
 - Defines the sort order
 - Timestamp
 - Optimistic Concurrency
 - Exposed as an HTTP Etag
- **No fixed schema for other properties**
 - Each property is stored as a <name, typed value> pair
 - No schema stored for a table
 - Properties can be the standard .NET types
 - String, binary, bool, DateTime, GUID, int, int64, and double
- **Entity can have up to 255 properties**
 - Up to 1MB per entity

Table Storage

PARTITIONKEY (CATEGORY)	ROWKEY (TITLE)	TIMESTAMP	MODELYEAR
Bikes	Super Duper Cycle	...	2009
Bikes	Quick Cycle 200 Deluxe	...	2007
...
Canoes	Whitewater	...	2009
Canoes	Flatwater	...	2006
Rafts	14ft Super Tourer	...	1999
...
Skis	Fabrikam Back Trackers	...	2009
...
Tents	Super Palace	...	2008

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AZURE WEB APP

Azure Web App



Web Apps
Web apps that scale with
your business



Mobile Apps
Build mobile apps for any
device



Logic Apps
Automate business
processes across SaaS and
on-premises



API Apps
Build and consume APIs in
the cloud

Azure Web Apps

- Support a variety of languages and platforms
 - .NET, Java, Node.js, PHP, Python, and more
- Support scaling (manual or auto) and load balancing
- Support slots for staged deployments and A/B testing
- Support continuous integration

Familiar and Fast

Leverage existing skills, plus languages, frameworks, and tools you're familiar with

Enterprise Grade

ISO-, SOC2-, and PCO-compliant with enterprise-level SLAs

Global Scale

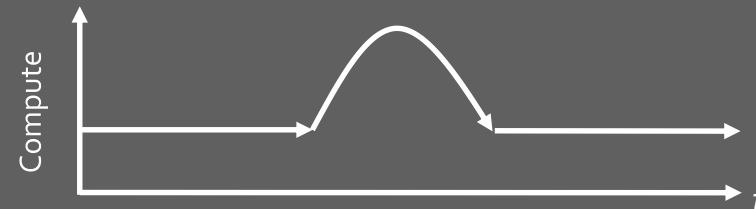
Scale up and down as needed, manually or automatically

Scaling - Cloud Computing Patterns



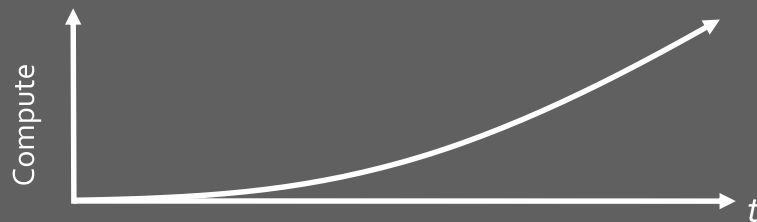
On and Off

On & off workloads (e.g. batch job)
Over provisioned capacity is wasted
Time to market can be cumbersome



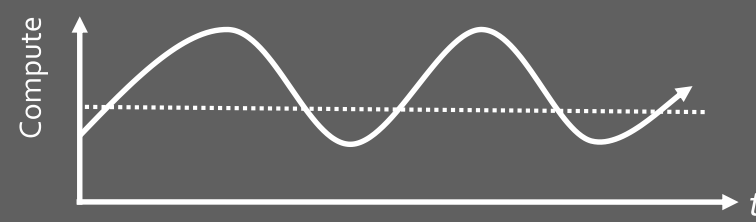
Unpredictable Bursts

Unexpected/unplanned peak in demand
Sudden spike impacts performance
Can't over provision for extreme cases



Growing Fast

Successful services needs to grow/scale
Keeping up w/ growth is big IT challenge
Cannot provision hardware fast enough



Predictable Bursts

Services with micro seasonality trends
Peaks due to periodic increased demand
IT complexity and wasted capacity

Scaling Up vs. Scaling Out

Scale Up



Vary the VM size

*1 Core w/ 1.75 GB RAM
2 Cores w/ 3.5 GB RAM
4 Cores w/ 7 GB RAM*

Scale Out



Vary the VM count

Max 3 instances
Max 10 instances
Max 20/50** instances*

Manual Scaling vs. Auto-Scaling


Manual – Scale via portal
or scripts

Auto – CPU Percentage

Auto – Schedule &
Performance Rules


* Scale by


Description Manual setup means that the number of instances you choose won't change, even if there are changes in load.

Instances 

* Scale by

Description Automatically scale up or down based on CPU Percentage. Choose an average value you want to target.

Instances


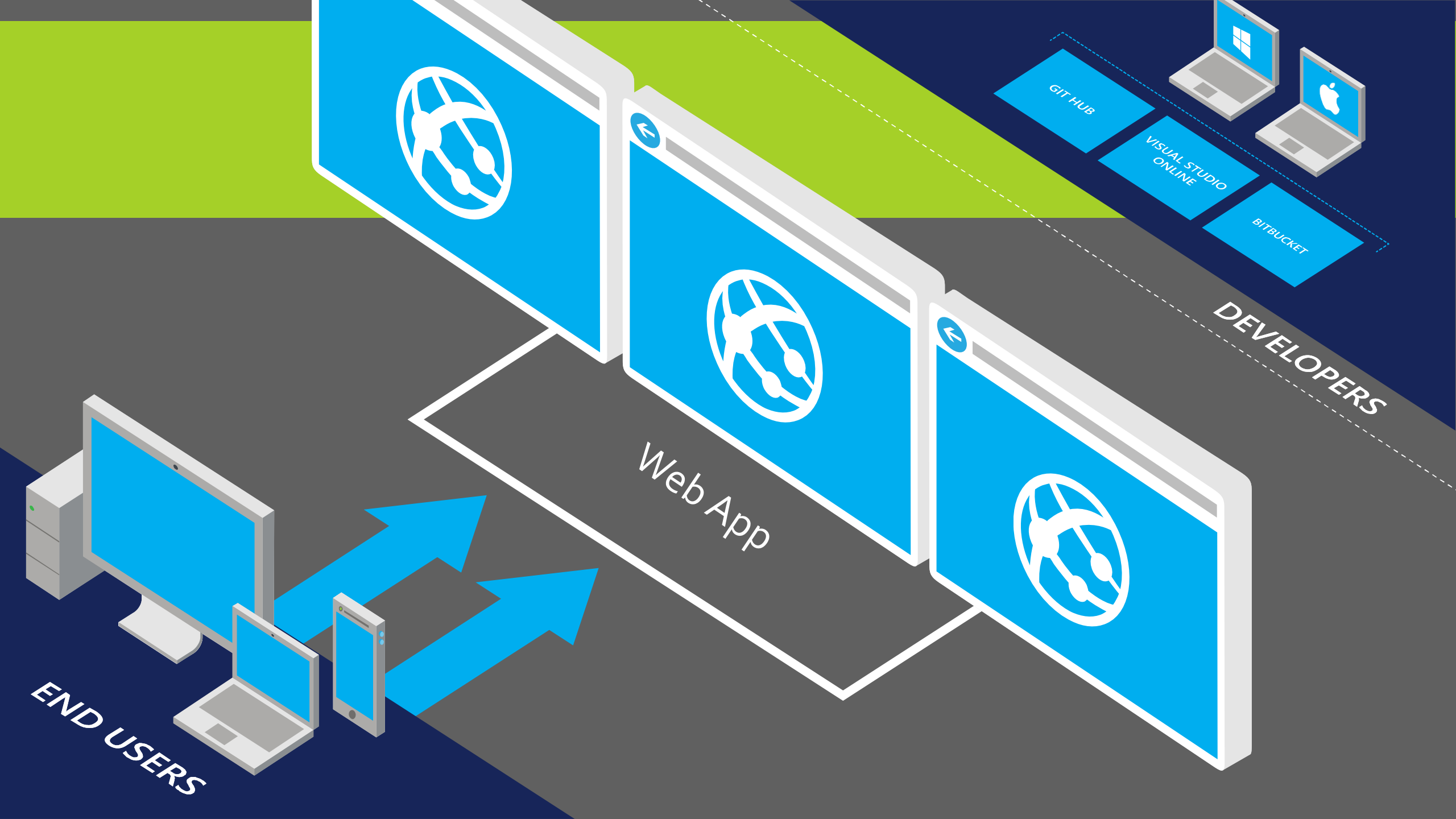
Target range


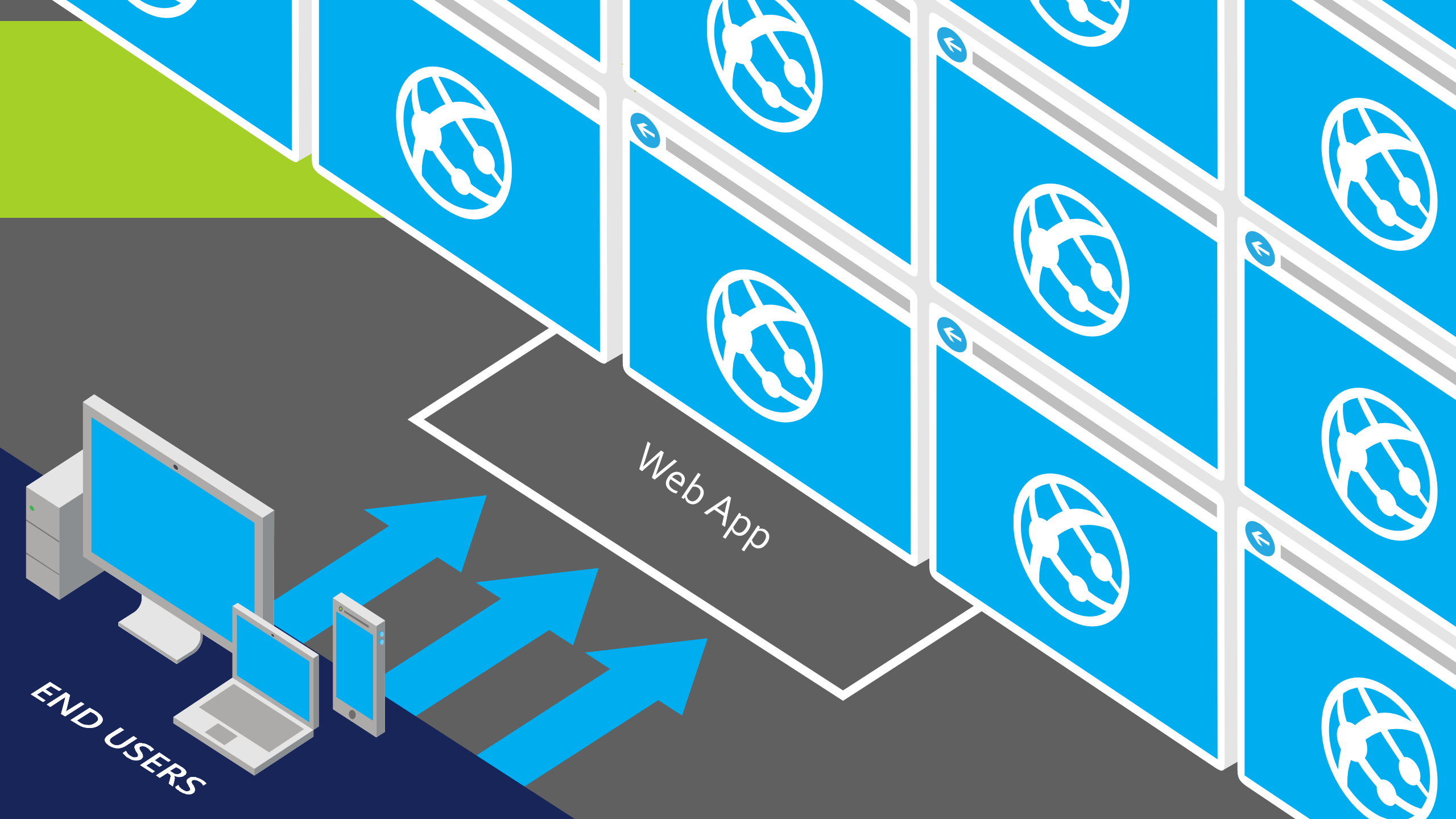
* Scale by

Description Create your own set of rules. Create a schedule that adjusts your instance counts based on time and performance metrics.
Monday-Friday Profile, scale 3 - 9

Settings CPU Percentage > 80 (increase count by 1)





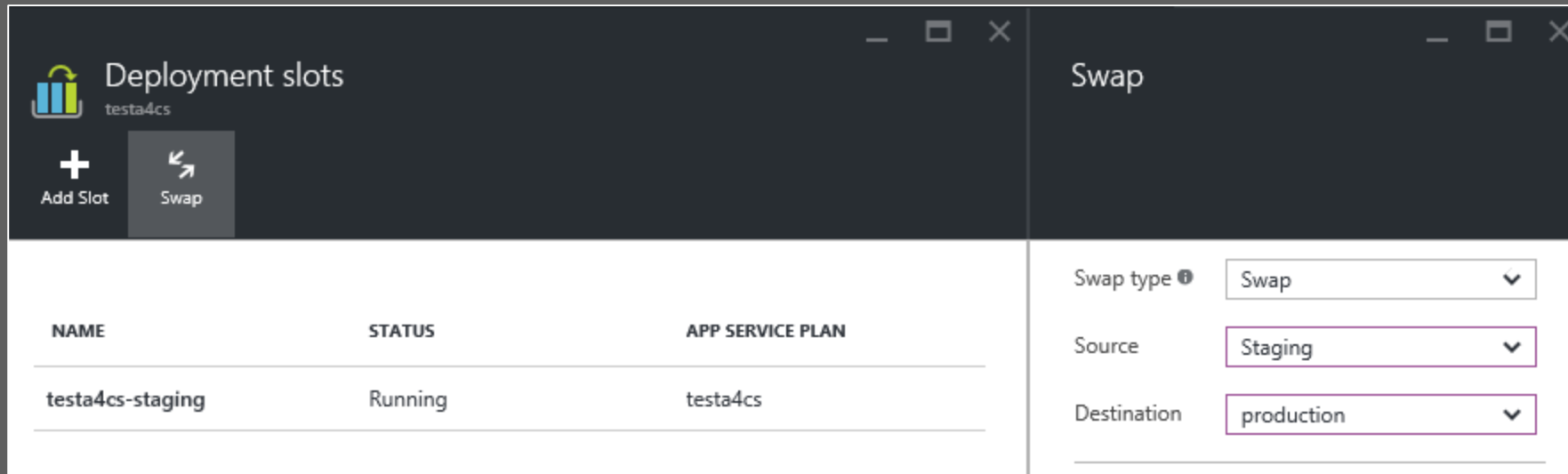


END USERS

Web App

Deployment Slots

- Use a Deploy-Confirm-Promote workflow
 - Promote via “swap” through Azure portal
- <http://sitename-slotname.azurewebsites.net>



The screenshot displays the Azure Portal interface for managing deployment slots. The left pane, titled 'Deployment slots' for the application 'testa4cs', shows two buttons: 'Add Slot' and 'Swap'. The 'Swap' button is highlighted. Below the buttons is a table with the following data:

NAME	STATUS	APP SERVICE PLAN
testa4cs-staging	Running	testa4cs

The right pane, titled 'Swap', contains three dropdown menus for configuring the swap operation:

- Swap type: Swap
- Source: Staging
- Destination: production

Continuous Integration

- Web apps can be deployed manually via FTP or WebDeploy
- Automate deployment using 3rd party source-control providers
- Can also use a local Git repository from Azure Portal



Git



Visual Studio
Team Services



CodePlex



GitHub

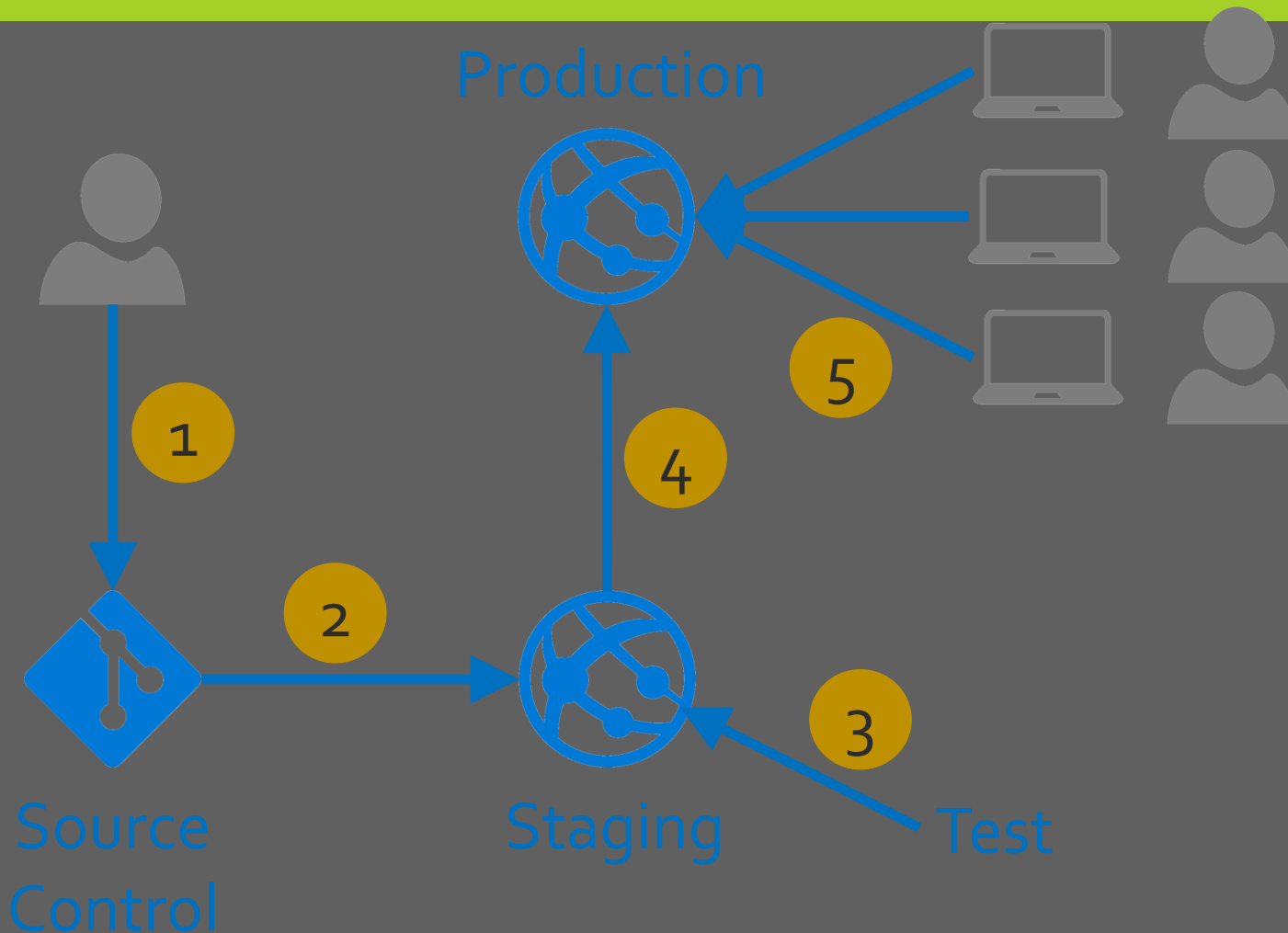


BitBucket



DropBox

Continuous Integration + Deployment Slots



1. Developer commits code
2. Automated process builds/compiles and deploys to staging slot
3. Automated and other tests validate content in staging slot
4. Staging content promoted to production
5. Users see updated site

App Service Plans

- Billing and provisioning for App Service resources

	Free	Shared	Basic	Standard	Premium
# of Apps	10	100	Unlimited	Unlimited	Unlimited
Shared Disk Space	1 GB	1 GB	10 GB	50 GB	500 GB
Maximum Instances	1	1	3	10	50
Autoscale	No	No	No	Yes	Yes
Staging Environments				5	20
Custom Domains	No	Yes	Yes	Yes	Yes
SLA			99.95%		

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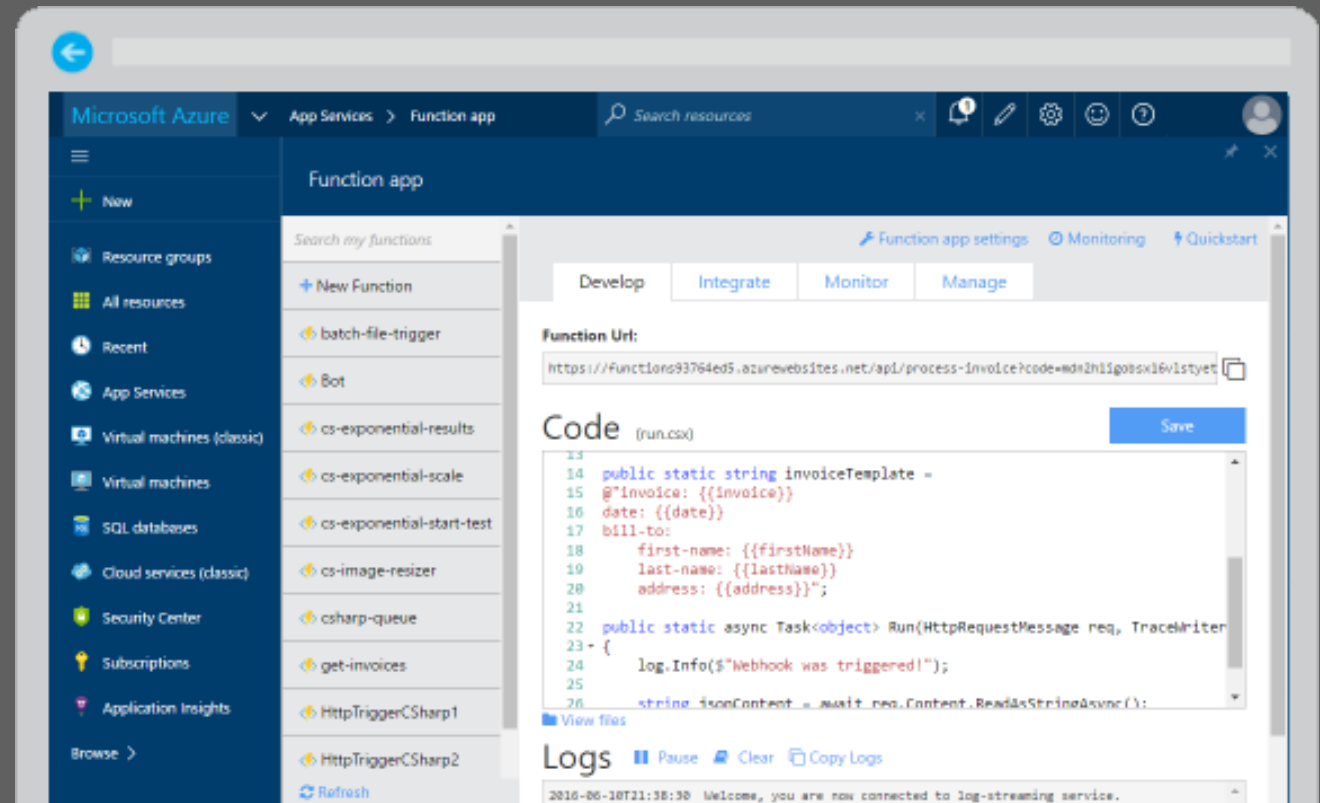
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AZURE FUNCTION

Azure Functions

Create a “serverless” event-driven experience that extends the existing Azure App Service platform by building “nanoservices” that can scale based on demand



Supported Languages and Tools

Create functions in JavaScript, C#, Python, and PHP, as well as scripting options such as Bash, Batch, and PowerShell, that can be triggered by virtually any event in Azure, 3rd party services, or on premise systems

Runtime version: Latest (~0.4)

Memory Size

Features

Continuous Integration
Deploy your function code from Git


Authentication/Authorization
For functions that use the HTTP trigger, you can require calls to be authenticated.

CORS
Allow your HTTP-triggered functions to be called from within a web browser.

API definition
Allow clients to more easily consume your HTTP-triggered functions.


The faster way to functions

Write any function in minutes - whether to run a simple job that cleans up a database or to build a more complex architecture. Creating functions is easier than ever before, whatever your chosen OS, platform, or development method. No install required.




Get started quickly with a premade function


1) Choose a scenario:



Timer



Data processing



Webhook + API

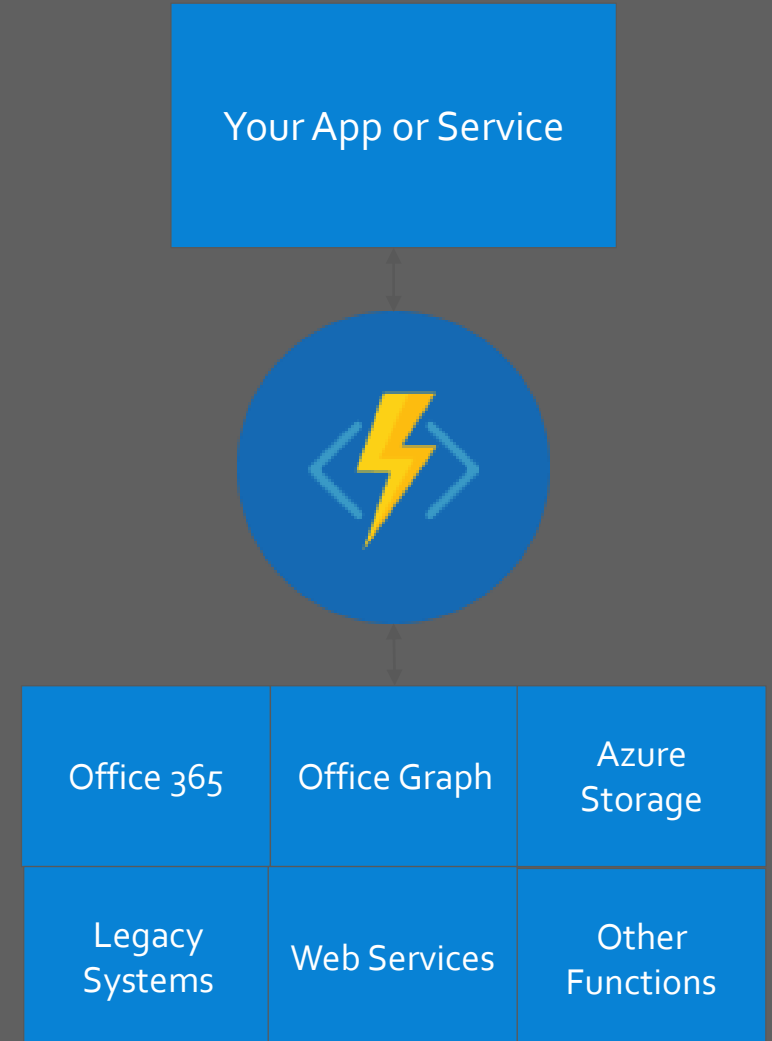
Authentication

Configure CORS

Configure API metadata

Common Scenarios

- Timer-based processing
- Azure service event processing
- SaaS event processing
- Serverless web application architectures
- Serverless mobile backends
- Real-time stream processing
- Real-time bot messaging



Function App Templates

Function App templates are categorized into general areas of Timer, Data Processing, and Webhook & API

Choose a template

Language: Scenario:

BlobTrigger - C# A C# function that will be run whenever a blob is added to a specified container	BlobTrigger - Node A Node.js function that will be run whenever a blob is added to a specified container	Empty - C# An empty C# function without triggers, inputs, or outputs	Empty - Node An empty Node.js function without triggers, inputs, or outputs
EventHubTrigger - Node A Node.js function that will be run whenever an event hub receives a new event	Generic Webhook - C# A C# function that will be run whenever it receives a webhook request	Generic Webhook - Node A Node.js function that will be run whenever it receives a webhook request	GitHub WebHook - C# A C# function that will be run whenever it receives a GitHub webhook request

- BlobTrigger
- EventHubTrigger
- Generic webhook
- GitHub webhook
- HTTPTrigger
- QueueTrigger
- ServiceBusQueueTrigger
- ServiceBusTopicTrigger
- TimerTrigger
- Blank & Experimental

Timer Function Apps

- Run at explicitly specified intervals, like every day at 2:00 am using CRON expressions, like “0 */5 * * * *” (every 5 minutes)
- Can send information to other systems, but typically don’t “return” information, only write to logs
- Great for redundant cleanup and data management
- Great for checking state of services
- Can be combined with other functions

Data Processing Function Apps

- Run when triggered by a data event, such as an item being added to a queue or container
- Typically have in and out parameters
- Great for responding to CRUD events
- Great for performing CRUD events
- Great for moving content
- Access data across services



Webhook & API Function Apps

- Triggered by events in other services, like GitHub, Team Foundation Services, Office 365, OneDrive, Microsoft PowerApps
- Takes in a request and sends back a response
- Often mimic Web API and legacy web services flows
- Typically need CORS settings managed
- Best for exposing functionality to other apps and services
- Great for building Logic Apps

Anatomy of a Function

- A “Run” file that containing the function code
- A “Function” file containing all service and trigger bindings and parameters
- A “Project” file containing project assembly and NuGet package references
- App Service settings, such as connection strings and API keys



Executable code

Function configuration

.NET Core and Project
references

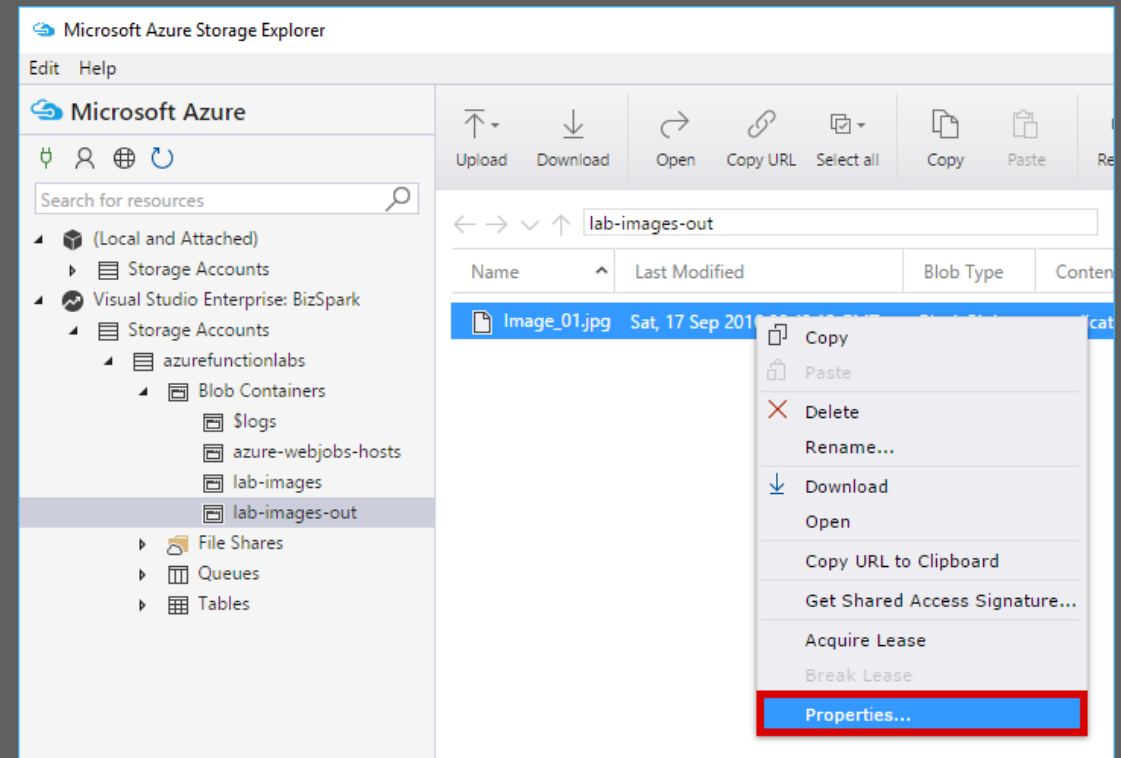
Function Bindings

Bindings serve as the basis for all connections to and from a function. Many bindings can be “bi-directional” as well.

Type	Service	Trigger	Input	Output
Schedule	Azure Functions	✓		
HTTP (REST or webhook)	Azure Functions	✓		✓*
Blob Storage	Azure Storage	✓	✓	✓
Events	Azure Event Hubs	✓		✓
Queues	Azure Storage	✓		✓
Tables	Azure Storage		✓	✓
Tables	Azure Mobile Apps		✓	✓
No-SQL DB	Azure DocumentDB		✓	✓
Push Notifications	Azure Notification Hubs			✓

Testing Functions

- Command-line tools
- 3rd party products such as Postman and Swagger
- Direct web calls via cURL
- Nested functions
- Microsoft Azure Storage Explorer
- Visual Studio Cloud Explorer



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Q & A

Reference

- Azure 架構範例 - <https://azure.microsoft.com/en-us/solutions/architecture/>
- Microsoft Azure 信任中心 - <https://azure.microsoft.com/zh-tw/support/trust-center/>
- Azure Taiwan User Group 臉書社團 - <https://www.facebook.com/groups/AzureTWUG/>
- Azure 小學堂 - <https://github.com/Microsoft-DXTW/AzureFundamentals>
- Microsoft-DXTW/microsoft-azure-virtual-machine-recipes
 - <https://github.com/Microsoft-DXTW/microsoft-azure-virtual-machine-recipes>
- ericsk/microsoft-azure-recipes
 - <https://github.com/eric-sk/microsoft-azure-recipes>