



運用教育雲雙活中心 拓展新思維藍圖

VMware Cloud Foundation

Rick Chen 陳重瑞
零壹科技
技術顧問

Agenda

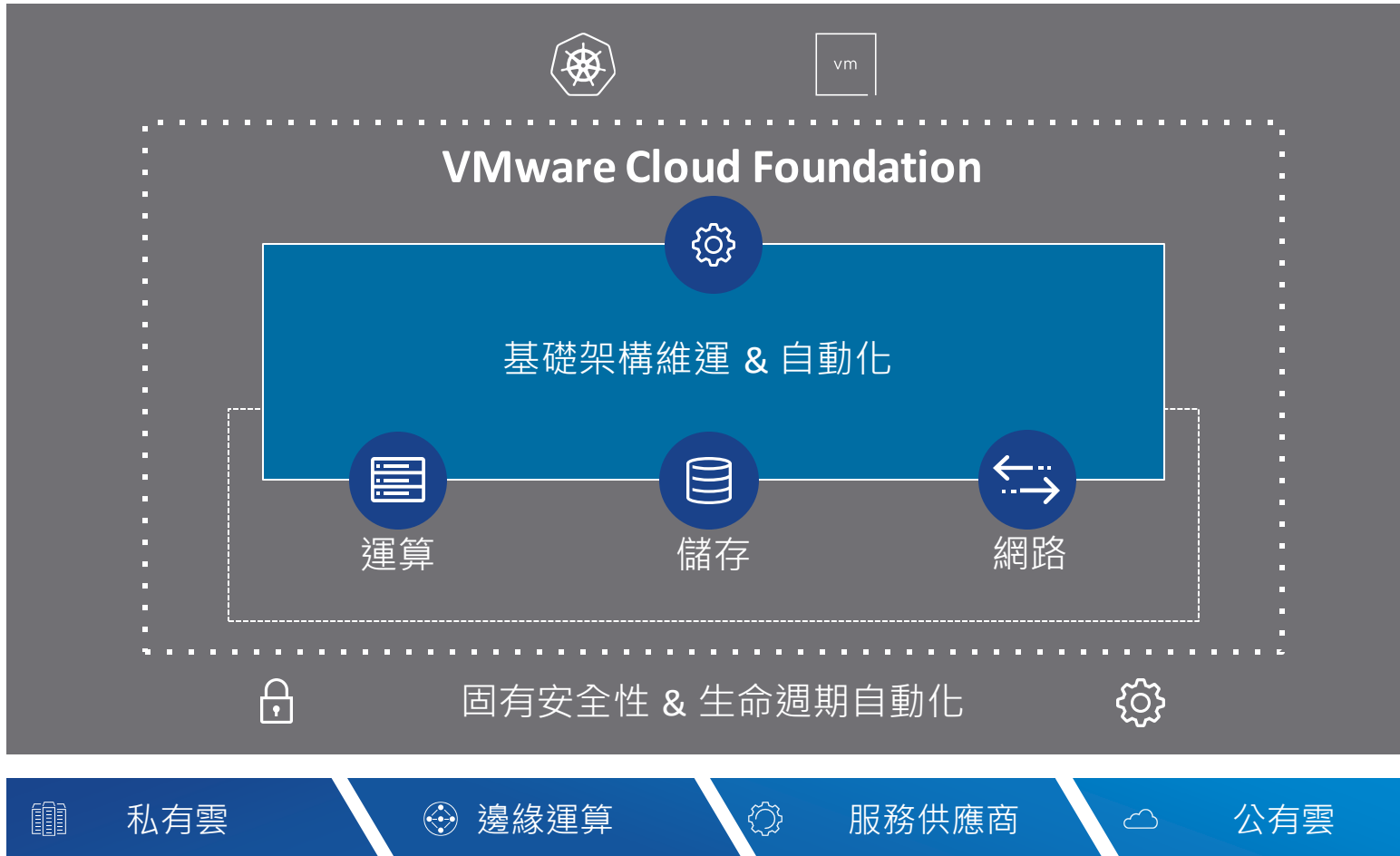
VMware Cloud Foundation 4.0

- VMware Cloud Foundation 架構概觀
- 開始使用 VMware Cloud Foundation
- VMware vRealize Suite 雲管理平台
- 案例說明與情境展示

Cloud Foundation 架構概觀

VMware Cloud Foundation 4

實現混合雲最簡單的途徑



最純正的軟體定義基礎架構

- 不受限硬體平台 & 有彈性的規劃

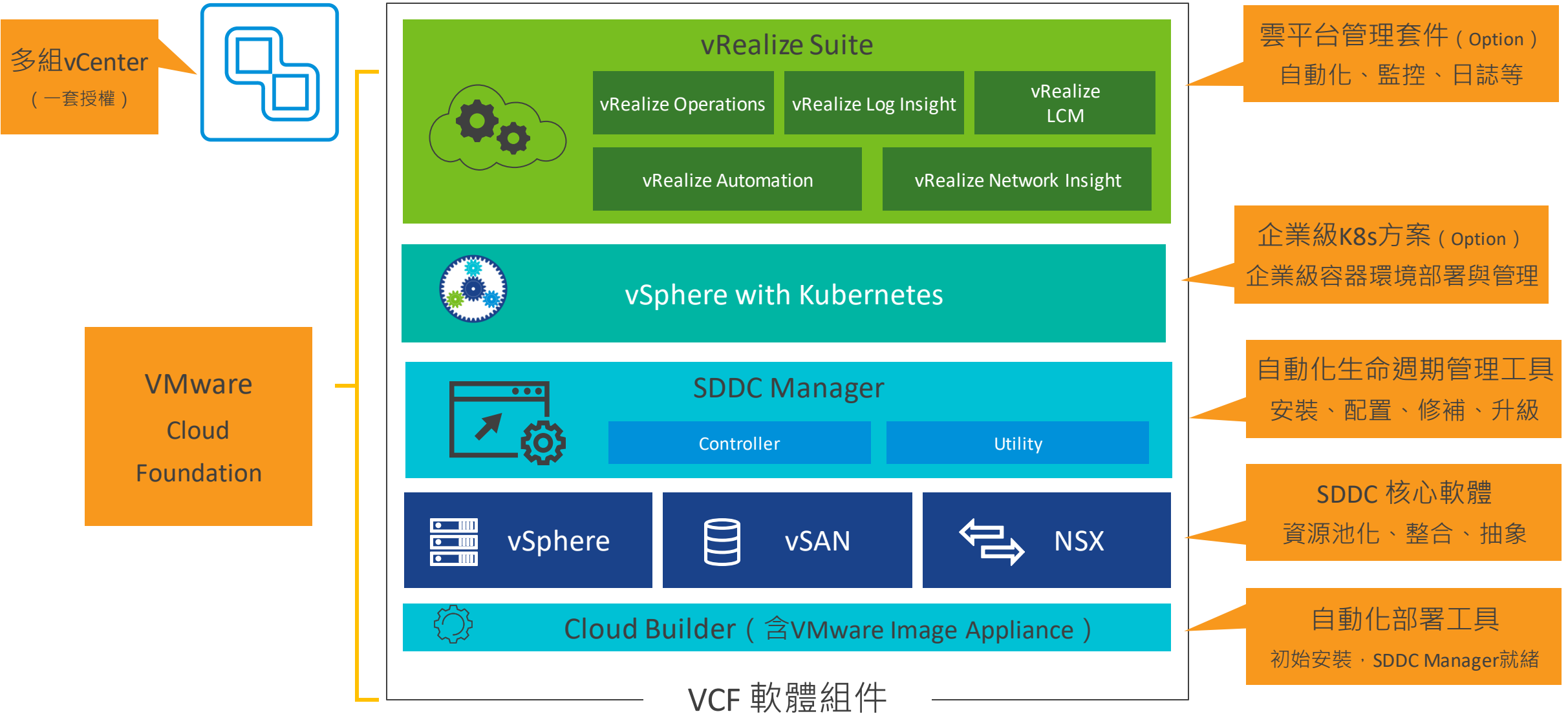
整合式混合雲平台

- 自助式、自動化和基礎架構營運

通往混合雲的途徑

- 內部部署
- 在公有雲上使用

VMware Cloud Foundation 4 中的核心軟體組件



VMware Cloud Foundation 的領導地位

vSphere

#1

Market Share

400K+

Customers

80+%

Market Share

vSAN

#1

HCI Vendor

20K+

Customers

60%

Global 2,000

500+

Cloud Partners

NSX

#1

SDN Vendor

13K+

Customers

88%

Fortune 100

8 of 10

Top Telcos

vRealize

#1

CMP Market Share

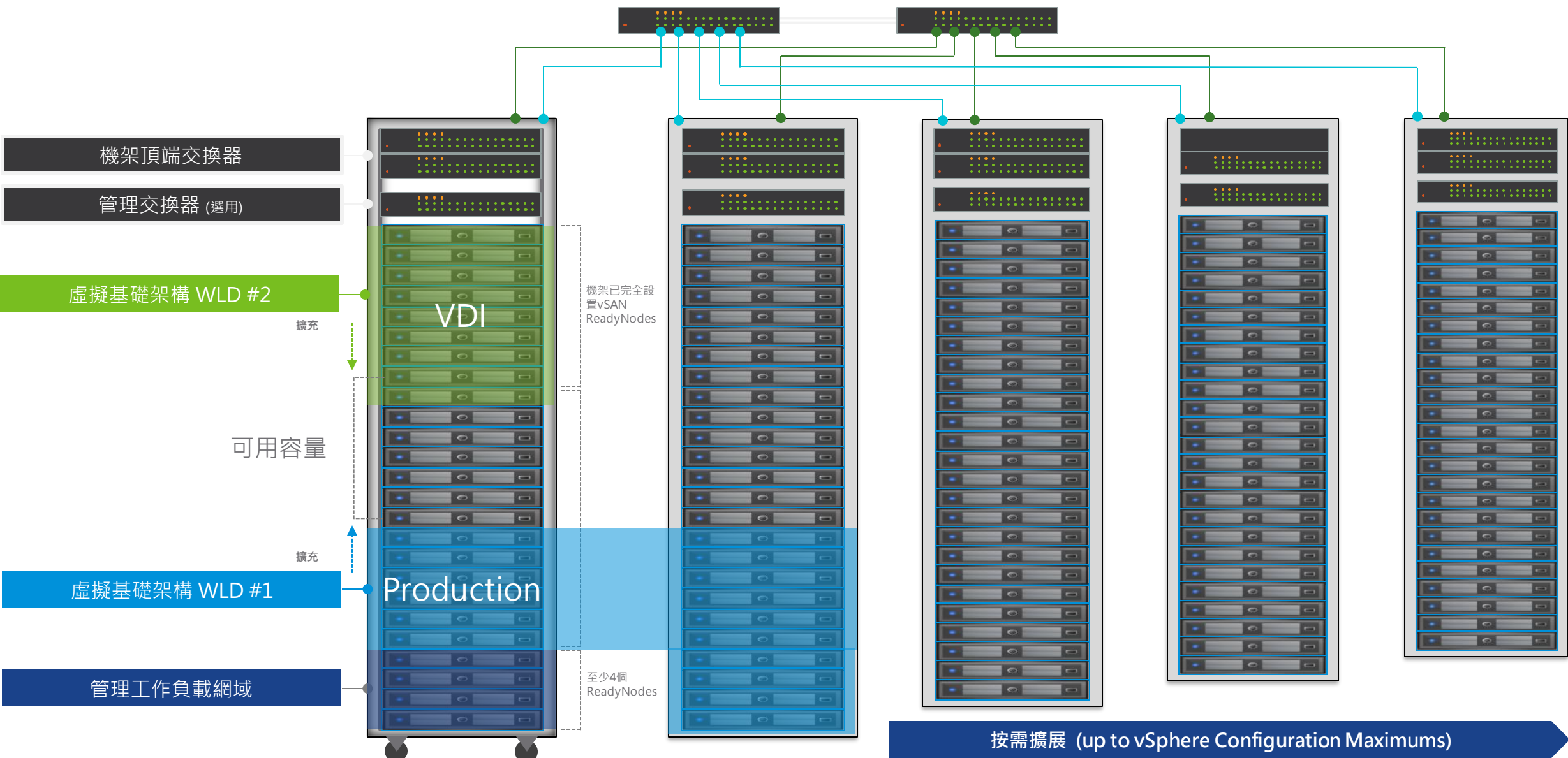
40K+

Customers

99%

Fortune 100

實體硬體概觀



實體硬體詳情

靈活的硬體選項

異質伺服器

- 在相同機架中允許不同的品牌與型號
- 各個vSphere 叢集內的硬體應相同

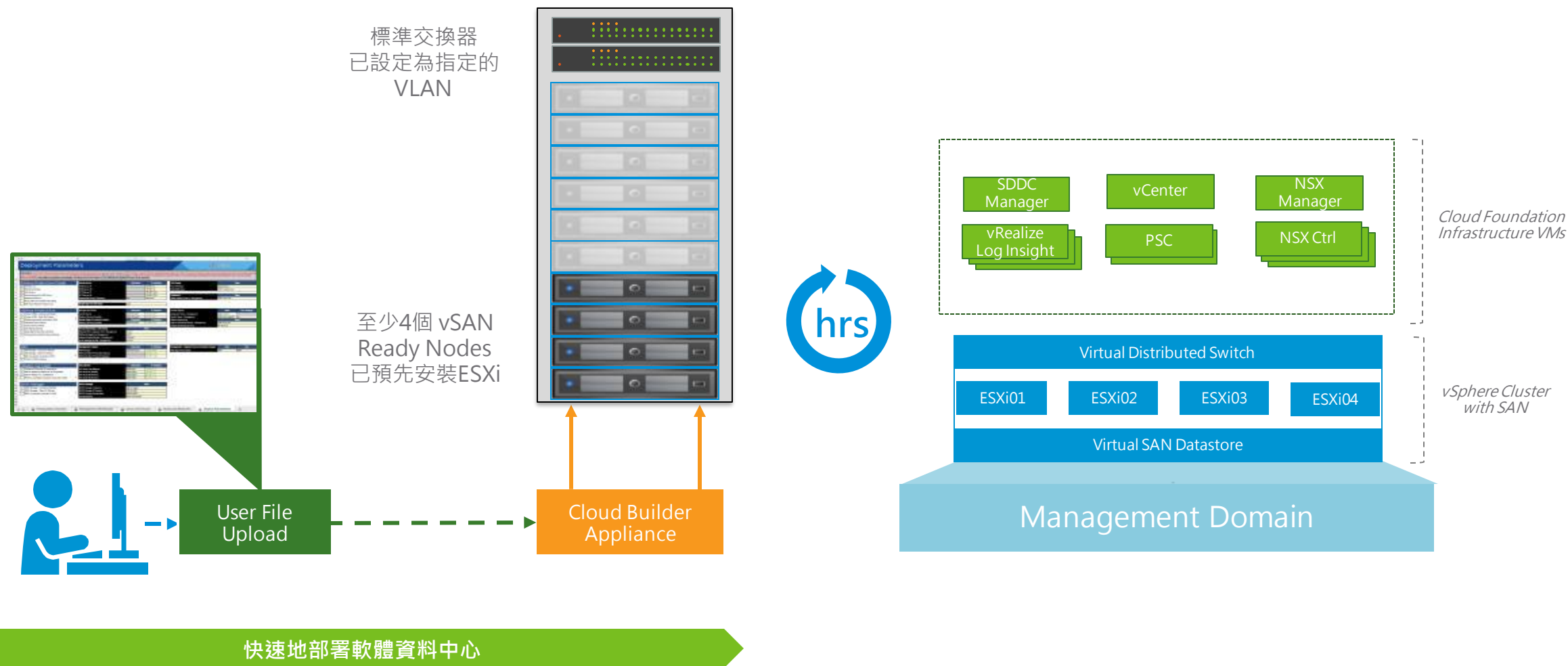
vSAN硬體相容清單

- 使用VMware vSAN 硬體相容性清單打造VMware Cloud Foundation 相容的ReadyNode
- 選擇混合式或All-Flash 節點
- 許多ReadyNode 型號提供可預先安裝ESXi 的購買選項

開始使用 VMware Cloud Foundation

全自動化的軟體定義資料中心

Cloud Foundation 啟動流程



VMware Cloud Builder 參數檔

預先配置參數文件

Deployment Parameters

vmware

Instructions: Use this tab to capture the configuration parameters required in order to deploy an SDDC platform. Supply information against each yellow box during the planning phase of the engagement in order for the platform to be built. If a value is not required enter 'n/a'. (Existing values are just examples). If a cell turns red then the property is a required value or the data entered has failed some basic Excel validation and it should be fixed before proceeding. Grey cells are populated automatically, the values can be over-ridden but you will lose the original formula in such scenarios.

Existing Infrastructure Details

☒ DNS Servers

☒ DNS Zone Defined

☒ NTP Servers

☐ Default password for ESXi Hosts

☒ Datastores Defined

☐ Physical Servers Backed with Cabling

☐ ESXi Hosts Ready for Deployment

Infrastructure

Hostname

IP Address

DNS Server #1

172.16.11.4

DNS Server #2

n/a

NTP Server #1

172.16.11.253

NTP Server #2

n/a

Single-Sign-On Site Name

sfo01

vSphere Infrastructure

☒ vCenter & PSC - Hostnames Defined

☒ vCenter & PSC - Static IPs Defined

☐ vSphere components resolvable in DNS

☒ Datacenter Name Defined

☒ Cluster Name Defined

☒ Single-Sign-On Site Name Defined

☒ Distributed Virtual Switch Name Defined

Management Cluster

Hostname

IP Address

vCenter Server

172.16.11.82

Platform Service Controller #1

172.16.11.81

Platform Service Controller #2

172.16.11.83

vCenter Server Appliance Size (Default Small)

small

Virtual Networking - ESXi Hosts

Value

Physical NIC to Assign to vDS - Management

vmnic1

VMKernel Adaptor for Management

vmk0

vSphere Standard Switch - Management

vSwitch0

vmnic Allocated to vSS - Management

vmnic0

NSX

☒ NSX Manager - Hostnames Defined

☒ NSX Manager - Static IPs Defined

☐ NSX components resolvable in DNS

☒ IP Pool for NSX Controllers

Management Cluster

Hostname

IP Address

NSX Manager

172.16.11.85

NSX Controller IP Pool Start Address

172.16.11.118

NSX Controller IP Pool End Address

172.16.11.120

vRealize Log Insight

☒ Hostnames Defined for all components

☒ Static IP Addresses Defined for all components

☒ Static IP Address for Load Balancer

☐ vRealize Log Insight components resolvable in DNS

vRealize Log Insight Servers

Hostname

IP Address

vRealize Log Insight Node Load Balancer

172.16.11.10

vRealize Log Insight Node #1 (Master)

172.16.11.11

vRealize Log Insight Node #2 (Worker)

172.16.11.12

vRealize Log Insight Node #3 (Worker)

172.16.11.13

vRealize Log Insight Node Size (Default Medium)

medium

SDDC Manager

☒ SDDC Manager - Hostnames Defined

☒ SDDC Manager - Static IPs Defined

☐ SDDC components resolvable in DNS

SDDC Manager

Value

SDDC Manager Hostname

sddc-manager

SDDC Manager IP Address

172.16.11.80

SDDC Manager Subnet Mask

255.255.255.0

Host Pool Name

sfo01-networkpool

DNS Zones

Value

DNS Zone Name

sfo01.rainpole.local

Datastores

Value

vSAN Datastore Name - Management

sfo01-m01-vsan

vCenter Objects

Value

EVC Settings

Datacenter Name - Management

sfo01-m01-dc

n/a

Cluster Name - Management

sfo01-m01-mgmt01

n/a

vSphere Networking

Value

vSphere Distributed Switch Name

sfo01-m01-vds

vSphere Distributed Switch MTU Size

9000

Default vSS Portgroup Name

VM Network

vSphere Resource Pools

Value

Resource Pool SDDC Mgmt

sfo01-w01-sddc-mgmt

Resource Pool SDDC Edge

sfo01-w01-sddc-edge

Resource Pool User Edge

sfo01-w01-user-edge

Resource Pool User VM

sfo01-w01-user-vm

Management Domain - Segment IDs

Start

End

NSX Segment ID Range

5000

5200

Prerequisite Checklist

Management Workloads

Users and Groups

Hosts and Networks

Deploy Parameters

Stretched Cluster Host Routes

+

XLSX Parameters File

- SDDC 相關配置參數
 - ESXi and VM Names
 - License Keys
 - Users and Groups
 - Passwords
 - Hosts and Networks
 - vRealize Suite Parameters
 - Deployment Parameters
- 導入到Cloud Builder中用於自動部署SDDC

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Upload completed planning excel sheet

CloudBuilder

← → ↻ ⚠ Not secure

Apps R31

Configuration File Based Bring-up



Upload Configuration File

Upload the configuration file after entering the appropriate information.

[DOWNLOAD DEPLOYMENT PARAMETER SHEET](#)

[UPLOAD](#)

包含內容豐富的儀表板和精簡工作流的 UI

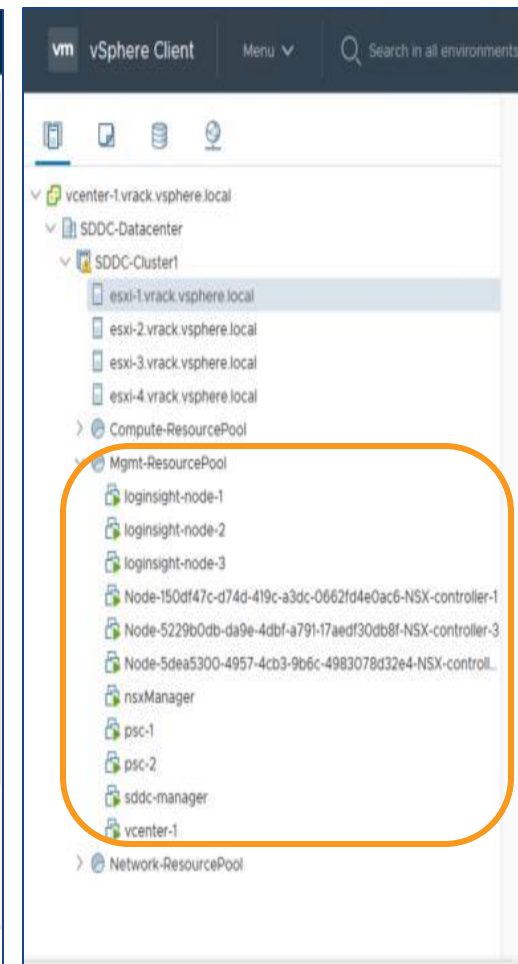
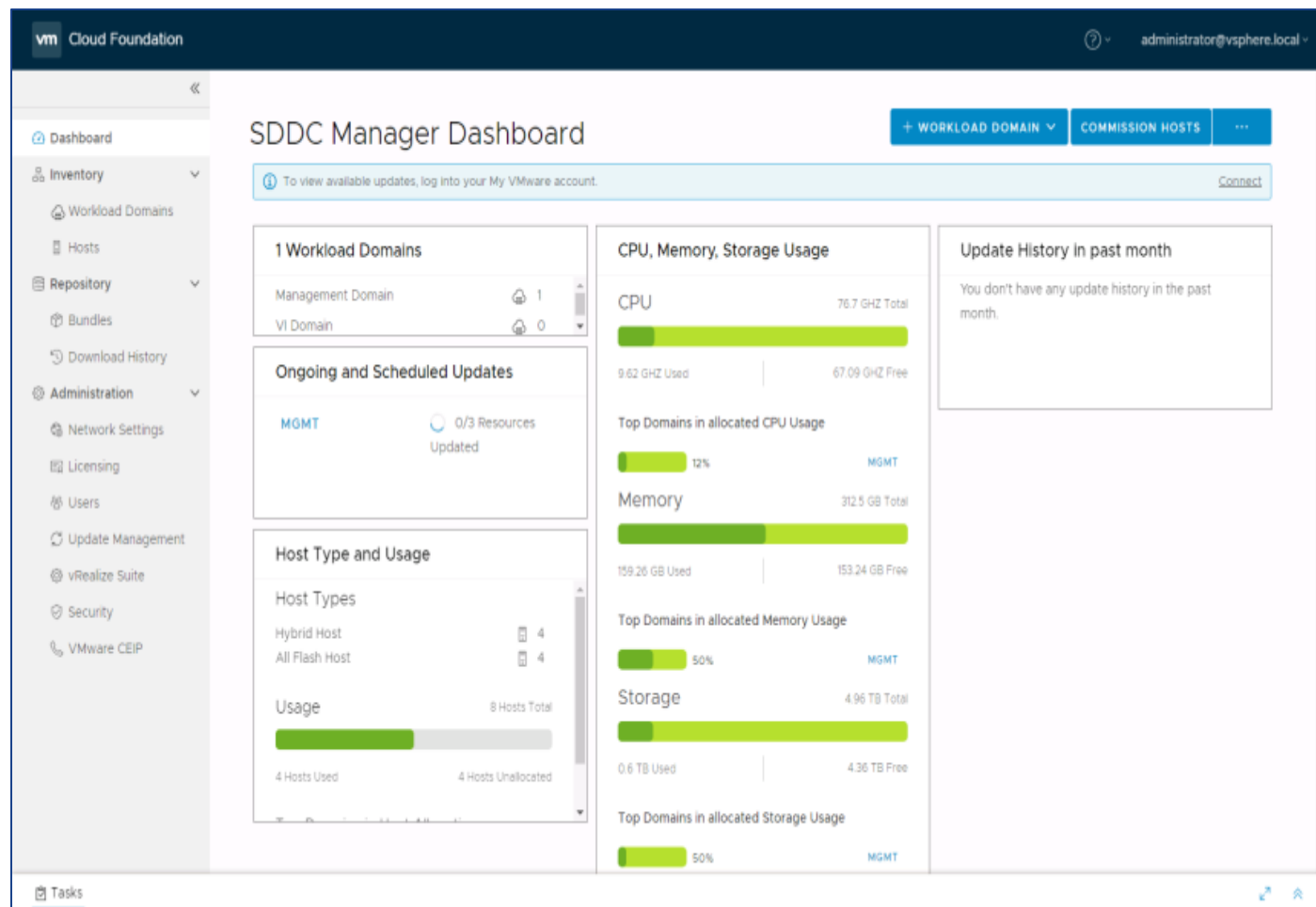
跨所有 VMware 解決方案提供一致的 UI 體驗

清晰使用者介面

能夠根據個人需求而調整

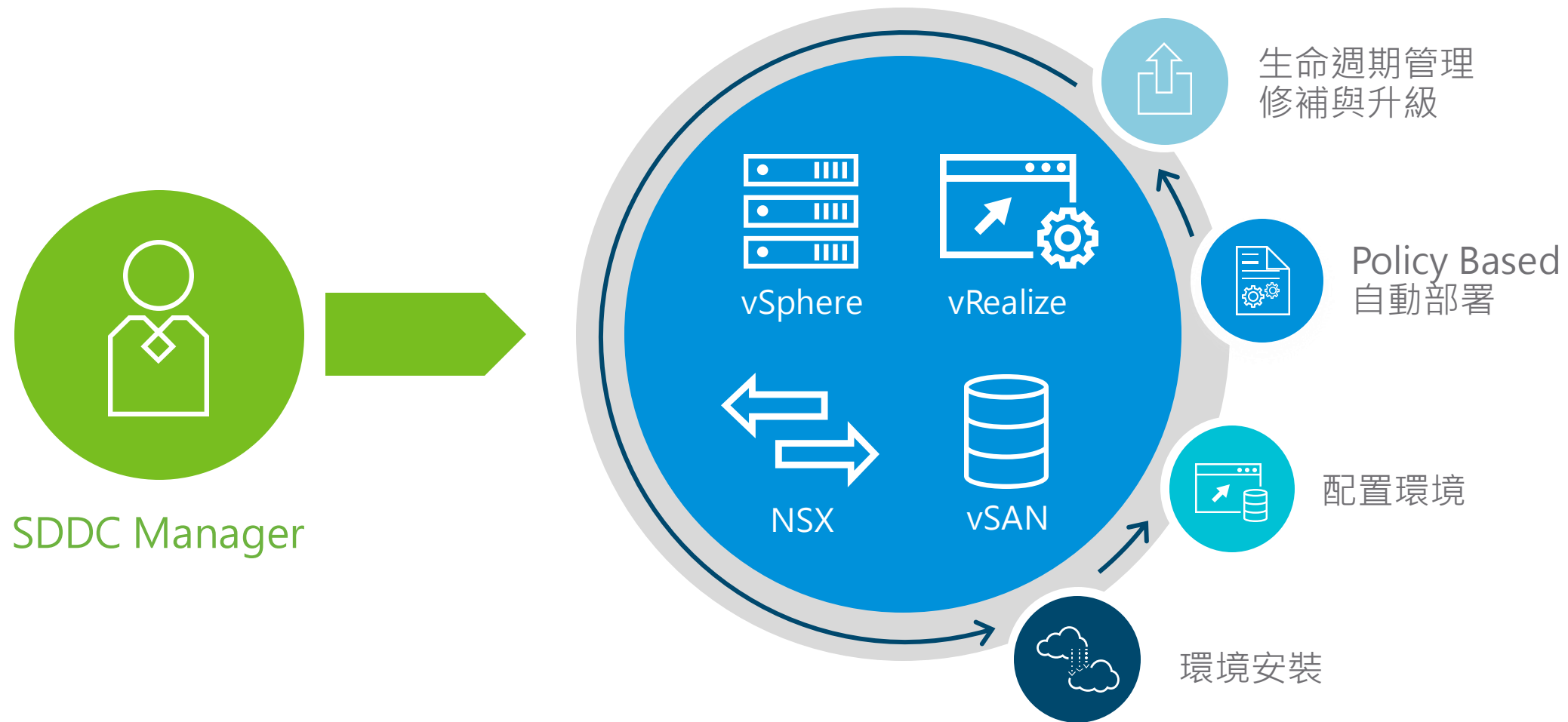
跨所有 VMware 解決方案提供一致的外觀

控制工作流程



由SDDC Manager控制平面彙集管理

整個雲基礎架構的Day 0 到 Day 2的自動化操作



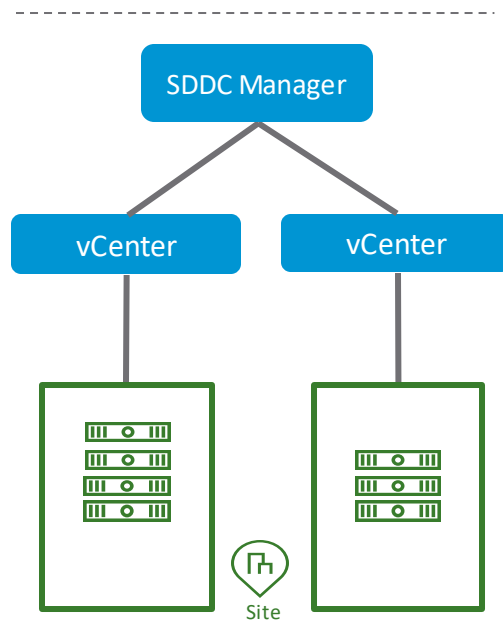
透過 VCF 實現資料中心自動化



Cloud Foundation 部署架構

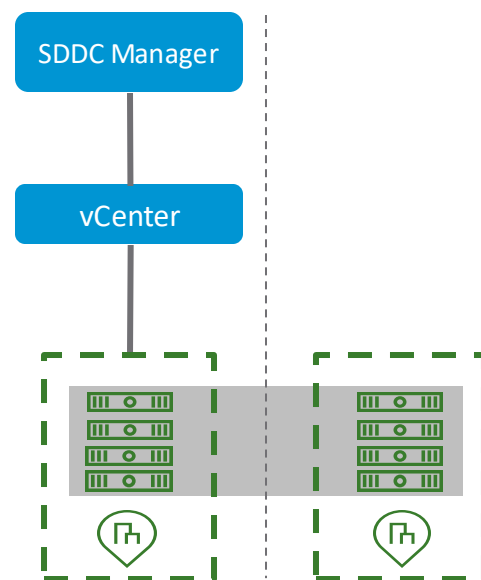
Single site, Stretched and Multi-site Deployments

1 VCF Single Site Deployment



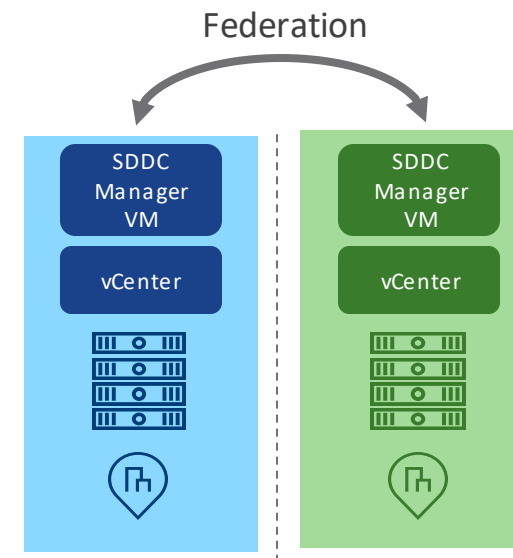
一個或多個工作負載域的單站點部署。每個工作負載域可以是多集群的

2 VCF Stretched Deployment



2個站點間的 vSAN延伸叢集工作負載域。每個群集都有具備延伸叢集能力

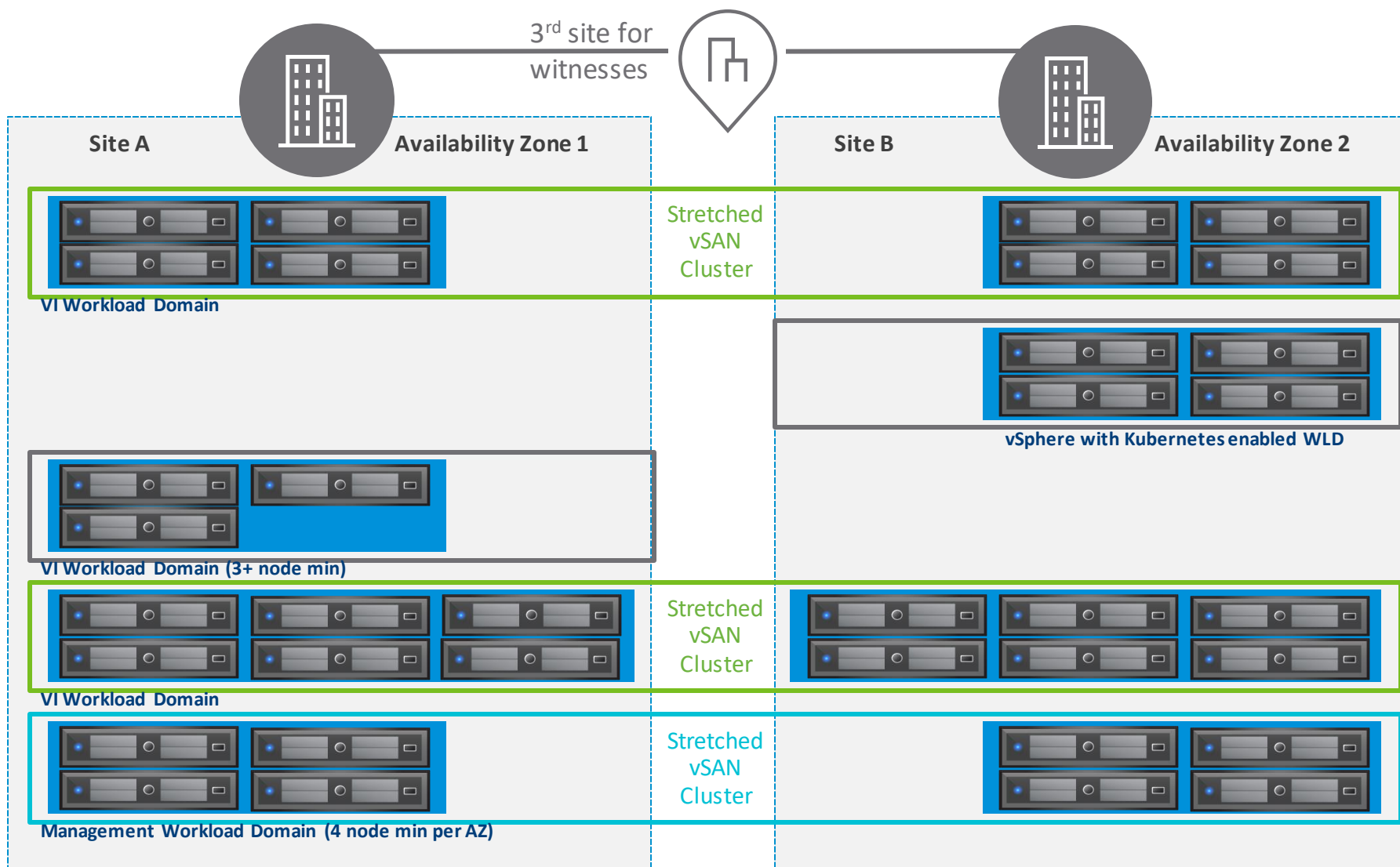
3 VCF Multi-instance Management



通過 Federation 驗證多個VCF實例，以增加可視性並簡化管理

----- Site Boundary

Cloud Foundation Stretched Cluster 效益



提高可用性，減少停機時間和資料遺失

站點間的負載平衡

延伸叢集支援 Management Domain 與 VI workload domain

兩個可用區域 (AZ) 均處於運行狀態

能夠擴展，刪除和升級集群

利用 L2 延伸網絡

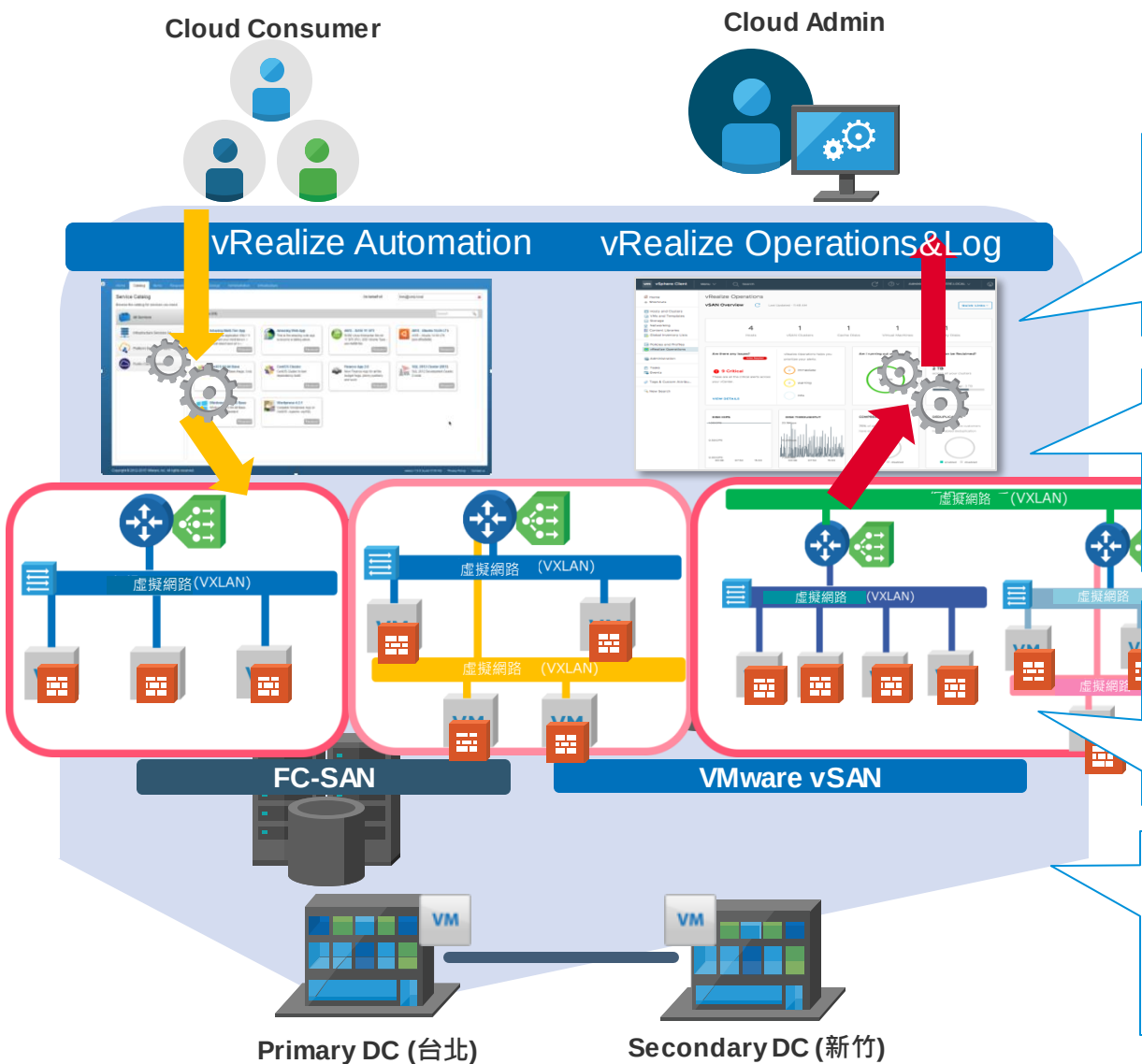
每個延伸叢集中的 workload domain 利用第 3 個站點作為 vSAN 見證

VMware 雲管理平台

vRealize Suite

vRealize Suite 多雲管理平台

vRealize Suite



主要管理項目

服務入口網 & 自動化佈建

效能 & 容量管理

組態與日誌管理

資源的回收與再利用

預期管理的效果

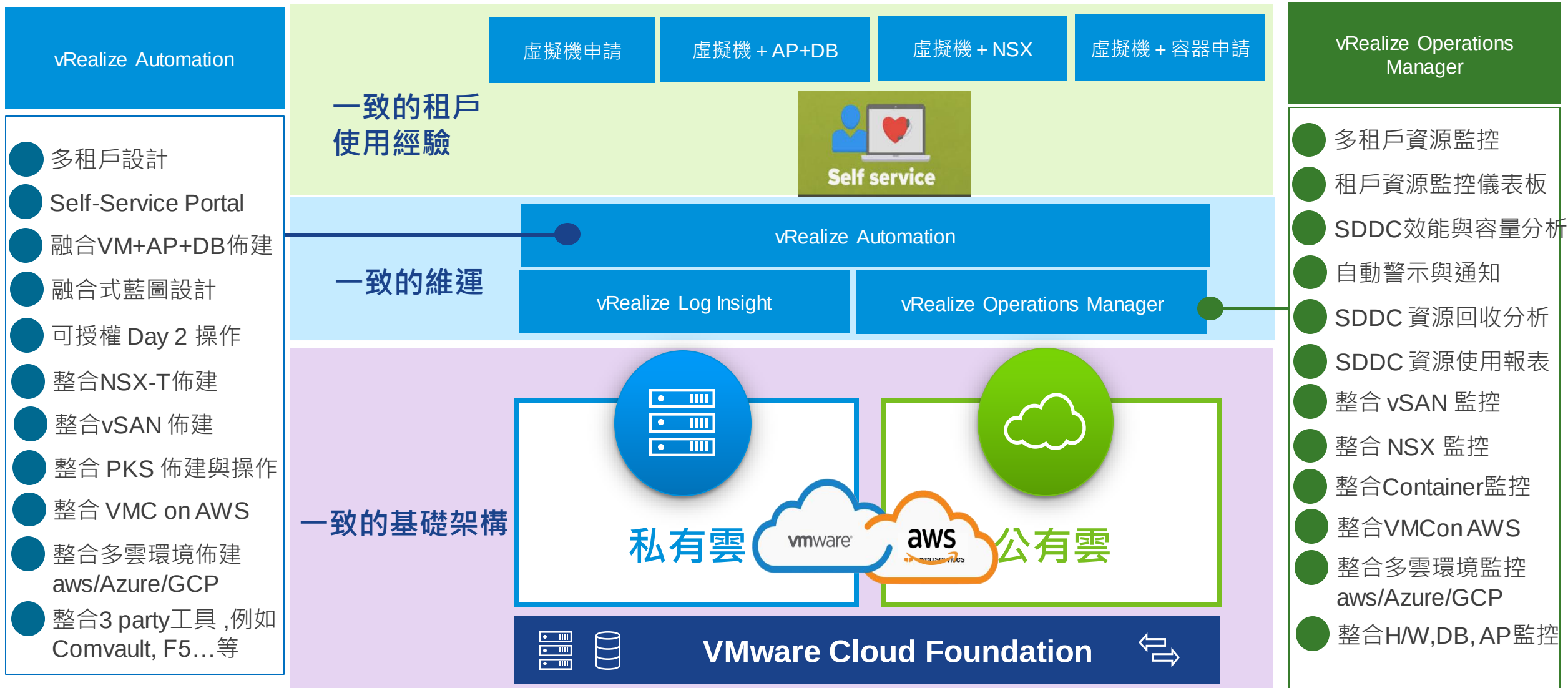
降低 OPEX

提升服務品質

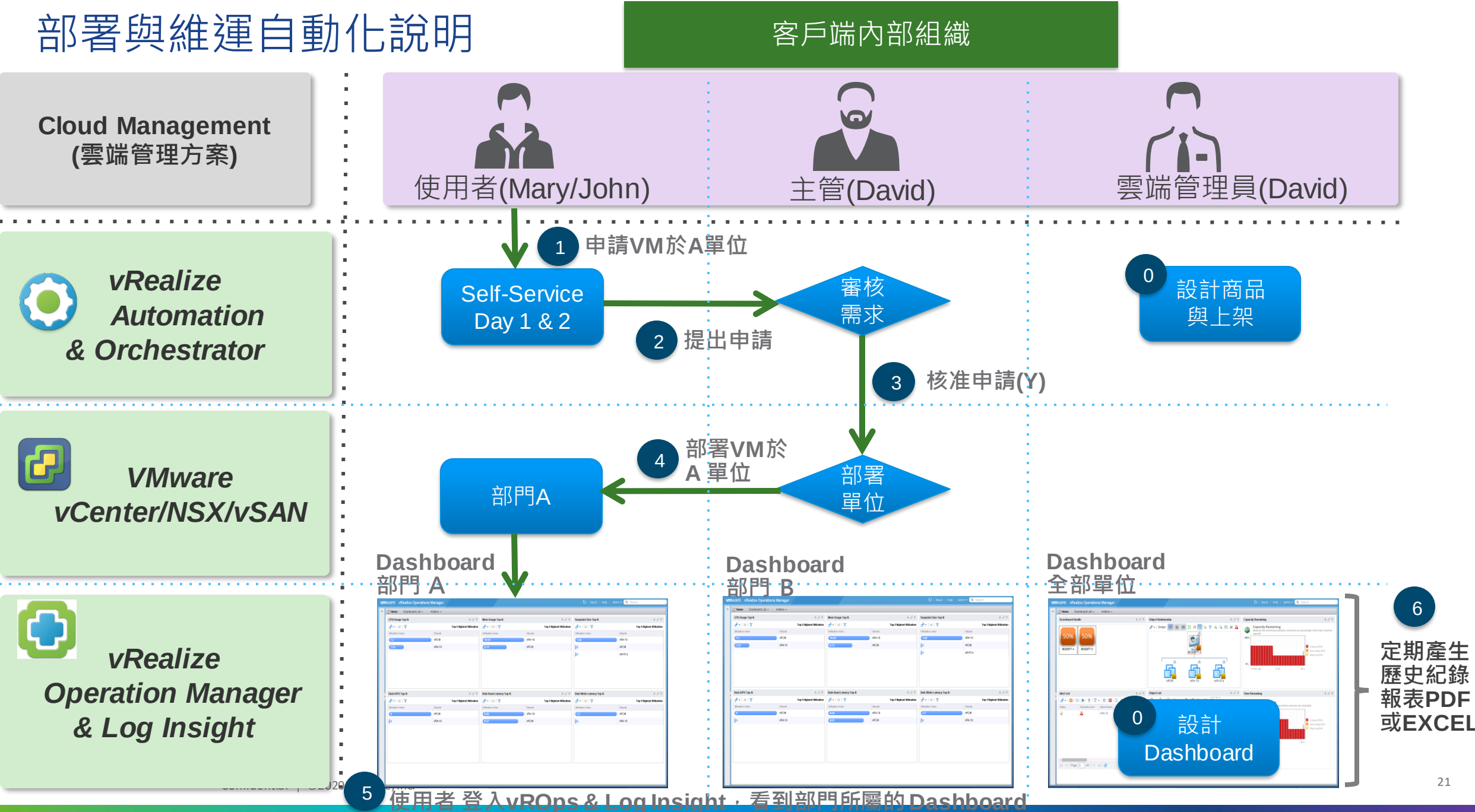
強化安全與符規

降低成本

vRealize Suite 一致的維運管理與自動化



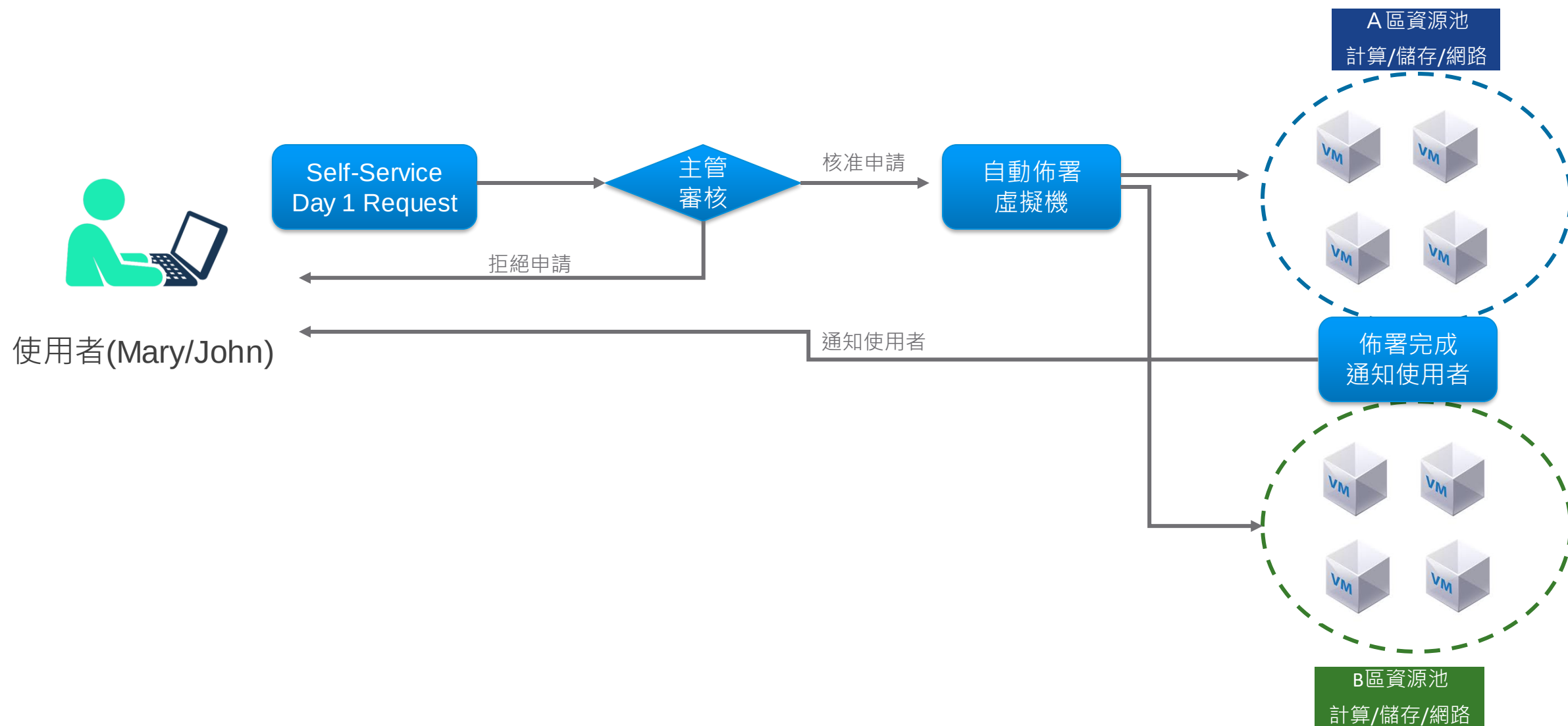
部署與維運自動化說明



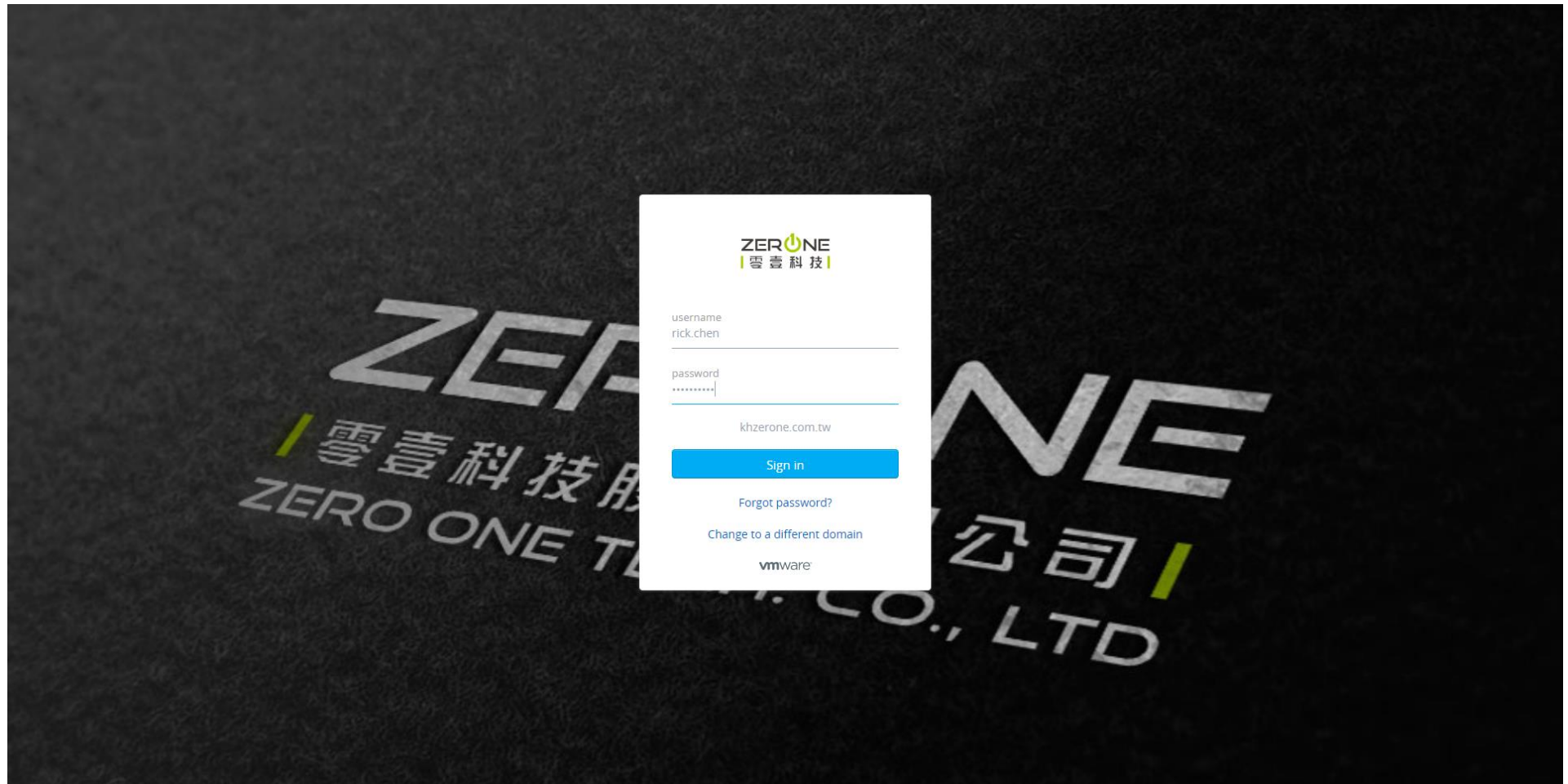
案例說明與情境展示

vRealize Suite

使用者申請虛擬機 (Day 1 Request)



使用者登入vRealize Automation 介面



使用者登入後可看到虛擬機的申請目錄

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Catalog

Deployments

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Infrastructure

Containers

Q

?

Administrator

Catalog

6 items

On behalf of:

Q Search users

Q Search for catalog items by name or description

Sort: Name (ascending)



CentOS 7

No description

Business group

TNedu-vRA

Service

CentOS 7

REQUEST



CentOS 7 with Apache

No description

Business group

TNedu-vRA

Service

CentOS 7 with Apache

REQUEST



Ubuntu 18.04 LTS Pure

No description

Business group

TNedu-vRA

Service

Ubuntu_18.04_LTS

REQUEST



Windows 10 Pure

No description

Business group

TNedu-vRA

Service

Windows 10 Pure

REQUEST



Windows Server 2012 R2

No description

Business group

TNedu-vRA

Service

Windows Server 2012 R2

REQUEST



Windows Server 2016

No description

Business group

TNedu-vRA

Service

Windows Server 2016

REQUEST

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使用者申請虛擬機過程

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?

Administrator ▾

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Containers

Windows 10 Pure | Business group TNedu-vRA ▾

Windows 10 Pure

Window

vSphere (vCenter) Machine: Window

General

Storage

Properties

Instances:

1

CPUs:

2

* Memory (MB):

2048 ▴ ▾

(Select 2048-4096)

Storage (GB):

40

Description:

SUBMIT

CANCEL

申請虛擬機後須等管理員審核通過

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rick.chen ▾

?

Q

Catalog

Deployments

Administration

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Containers

Deployments

2 items

▼

Q

Search for deployments by name, description, IP address, resource name or machine status

Sort: Created Date (descending) ▾

↻



Windows 10 Pure

No description

Owner Rick Chen
Business group TNedu-vRA

#15 - Provision Windows 10 Pure - Pending Approval

10%

CANCEL

0 minutes since submitted



CentOS 7-24087786

No description

Owner Rick Chen
Business group TNedu-vRA

2 Resources

Created 7 ...

Never expires

ACTIONS ▾

IP21

TNedu-vR...

▶ On

172.27.21.180

管理員審核過程

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Q

?

Administrator

CatalogDeploymentsDesignInboxAdministrationInfrastructureContainers

Inbox

Approvals1Manual User ActionReclamation Requests

Q Search | Filter By: Active | Owned By: Me

Approval	Request	Requested Item	Requested For	Status	Lease	Lease Cost	Estimated price	Assigned To	Last Updated
5	15	Window	rick.chen@khzerone.com.tw	Active	Unlimited	N/A	N/A	Administrators@khzerone.com.tw	03/10/2020

1 - 1 of 1 items

核准或拒絕

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Q

?

Administrator

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Approval # 5

Status	Active	Request #	15	Cost	N/A
Requested item	Window	Requestor	Rick Chen	Assigned to	Administrators@khzerone.com.tw
Description	Provisions a VMware vSphere (vCenter) machine.	Requested on	March 10, 2020 4:17 PM	Assigned on	March 10, 2020 4:17 PM
		Lease	Unlimited	Policy name	verification Required Virtual Machine
Requested for	Rick Chen	Estimated price	N/A		

Enter Details

Request Information

* Justification:

OK

APPROVE

REJECT

CANCEL

管理員核准後，使用者能看到申請虛擬機繼續佈署

ZERO ONE

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Search icon

Help icon

rick.chen

Catalog

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CANCEL | Refresh

Windows 10 Pure-16953787

In Progress

No description

OwnerRick Chen

Provisioned onMarch 10, 2020 4:17 PM

Business groupTNedu-vRA

Catalog itemWindows 10 Pure

Lease durationIndefinite

ExpiresNever

Destroy dateNever

HIDE DETAILS

Components

History

Monitor

Requests 1

3/10/20 4:17 PM

PROVISION ... Rick Chen

Events

Request Inputs

#15 - Provision Windows 10 Pure

In Progress

Requested by: Rick Chen

Requested on: March 10, 2020 4:17 PM

Pre-approval	Deployment	Approved	March 10, 2020 4:17 PM	March 10, 2020 4:22 PM
Required VM	Window	Approved	March 10, 2020 4:17 PM	March 10, 2020 4:21 PM
Require VM Ram >=	Window	Approved	March 10, 2020 4:21 PM	March 10, 2020 4:22 PM
Provisioning	Deployment	In Progress	March 10, 2020 4:22 PM	
Post-approval	Deployment			
Completed	Deployment			

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使用者可看虛擬機的佈署過程

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Back

CANCEL

Windows 10 Pure-16953787

In Progress

No description

Owner

Provisioned on

Business group

Catalog item

Rick Chen

March 10, 2020 4:17 PM

TNedu-vRA

Windows 10 Pure

Lease duration

Expires

Destroy date

Indefinite

Never

Never

HIDE DETAILS

Components

History

Monitor

Requests

3/10/20 4:17 PM

PROVISION ...

Rick Chen

Events

Request Inputs

#15 - Provision Windows 10 Pure

In Progress

Requested by: Rick Chen

Requested on: March 10, 2020 4:17 PM

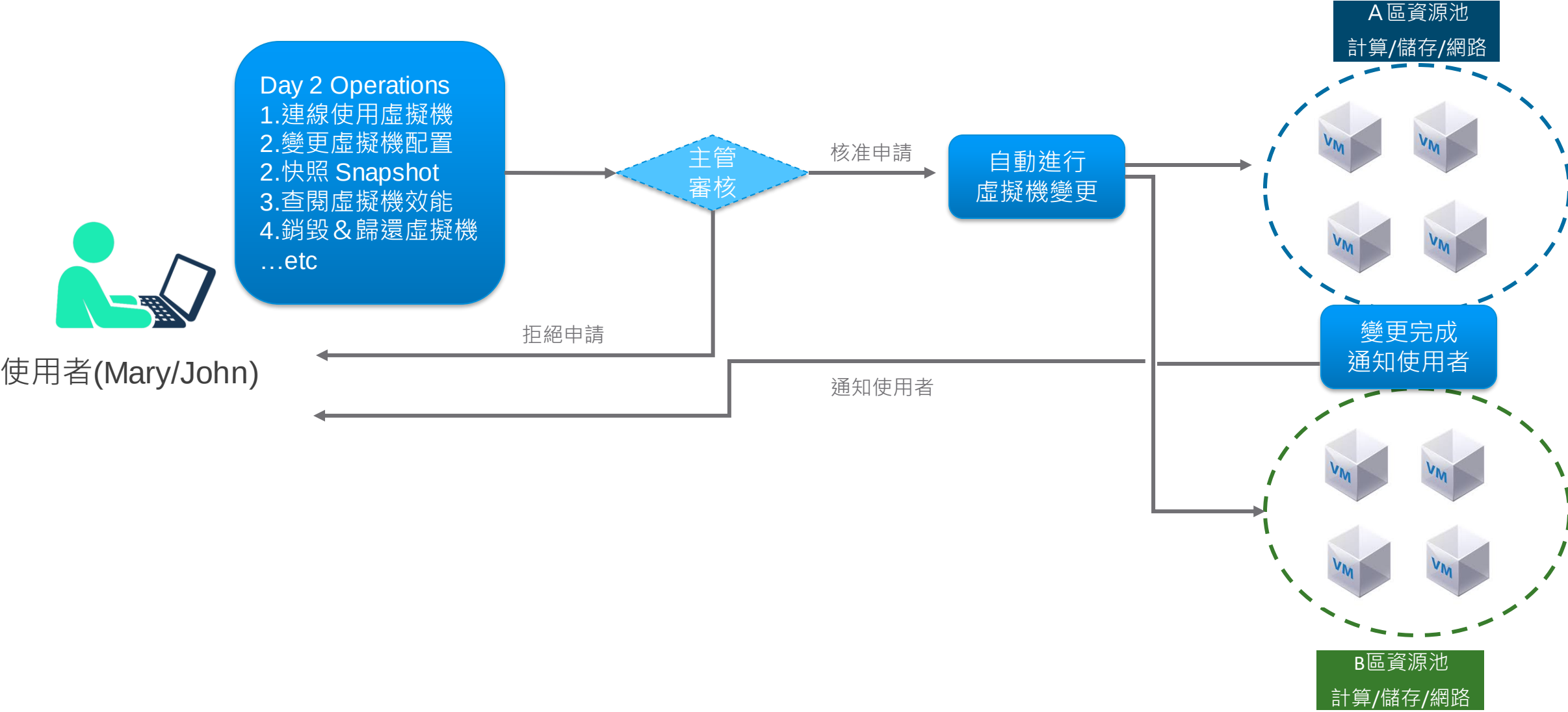
Pre-approval	Deployment	Approved	March 10, 2020 4:17 PM	March 10, 2020 4:22 PM
Required VM	Window	Approved	March 10, 2020 4:17 PM	March 10, 2020 4:21 PM
Require VM Ram >=	Window	Approved	March 10, 2020 4:21 PM	March 10, 2020 4:22 PM
Provisioning	Deployment	In Progress	March 10, 2020 4:22 PM	
Post-approval	Deployment			
Completed	Deployment			

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使用者變更虛擬機配置 (Day 2 Operations)



使用者RDP連線至申請的虛擬機(Windows)

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Catalog Deployments Administration Inbox Infrastructure Containers

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Windows 10 Pure-16953787

SHOW DETAILS

Components History Monitor

Windows 10 Pure-16953787

- IP21
- TNedu-vRA08

Connect to Remote Console

Connect using RDP

Connect using VMRC

Create Snapshot

Destroy

Install Tools

Power Cycle

Power Off

Reboot

General Storage Network Security Properties Snapshots

Name: TNedu-vRA08

Component: Window

Status: On

CPU: 2

Memory (MB): 4096

Storage (GB): 40

Description:

Owner: rick.chen@khzerone.com.tw

Blueprint: Windows 10 Pure

Compute resource: KHdemo

Business group: TNedu-vRA

使用者VMRC連線至申請的虛擬機(Linux)

The screenshot displays the ZERONE (零壹科技) cloud platform interface. The top navigation bar includes links for Catalog, Deployments, Administration, Inbox, Infrastructure, and Containers. The main content area shows details for a CentOS 7-24087786 virtual machine, including its owner (Rick Chen), provisioning date (March 10, 2021), business group (TNedu-vRA07), and catalog item (CentOS 7).

Below the VM details, the 'Components' tab is active, showing a list of components for the VM. The component 'TNedu-vRA07' is selected, and a context menu is open with the option 'Connect using VMRC' highlighted. The 'General' tab of the component details shows the name 'TNedu-vRA07', component type 'vSphere__vCenter__Machine_1', status 'On', and resource allocation (2 CPUs, 2048 MB Memory, 30 GB Storage).

On the right, a 'VMware Remote Console' window is open, showing the CentOS 7 boot process. The console output includes the kernel version (3.10.0-957.21.3.el7.x86_64) and the login prompt (KH-Demo login:). The window title is 'TNedu-vRA07.vmx - VMware Remote Console'.

使用者可申請變更虛擬機資源

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 CentOS 7-24087786

No description

OwnerRick Chen

Provisioned onMarch 10, 2020 4:10 PM

Business groupTNedu-vRA

Catalog itemCentOS 7

Lease durationIndefinite

ExpiresNever

Destroy dateNever

HIDE DETAILS

ComponentsHistoryMonitor

Connect using vMRC

Create Snapshot

Destroy

Install Tools

Power Cycle

Power Off

Reboot

Reconfigure

Reprovision

Shutdown

Suspend

Unregister

GeneralStorageNetworkSecurityPropertiesSnapshots

Name: TNedu-vRA07

Component: vSphere__vCenter__Machine_1

Status: On

CPU: 2

Memory (MB): 2048

Storage (GB): 30

Description:

Owner: rick.chen@khzerone.com.tw

變更虛擬機 CPU、RAM

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CatalogDeploymentsAdministrationInboxInfrastructureContainers

Reconfigure - TNedu-vRA07

Reconfigure a machine.

GeneralStorageNetworkPropertiesExecution

Name: TNedu-vRA07

Component: vSphere__vCenter__Machine_1

Status: On

CPU: 2 (Select 2-4)

Memory (MB): 2048 (Select 2048-4096)

Storage (GB): 30

Description:

Owner: rick.chen@khzerone.com.tw

Blueprint: CentOS 7

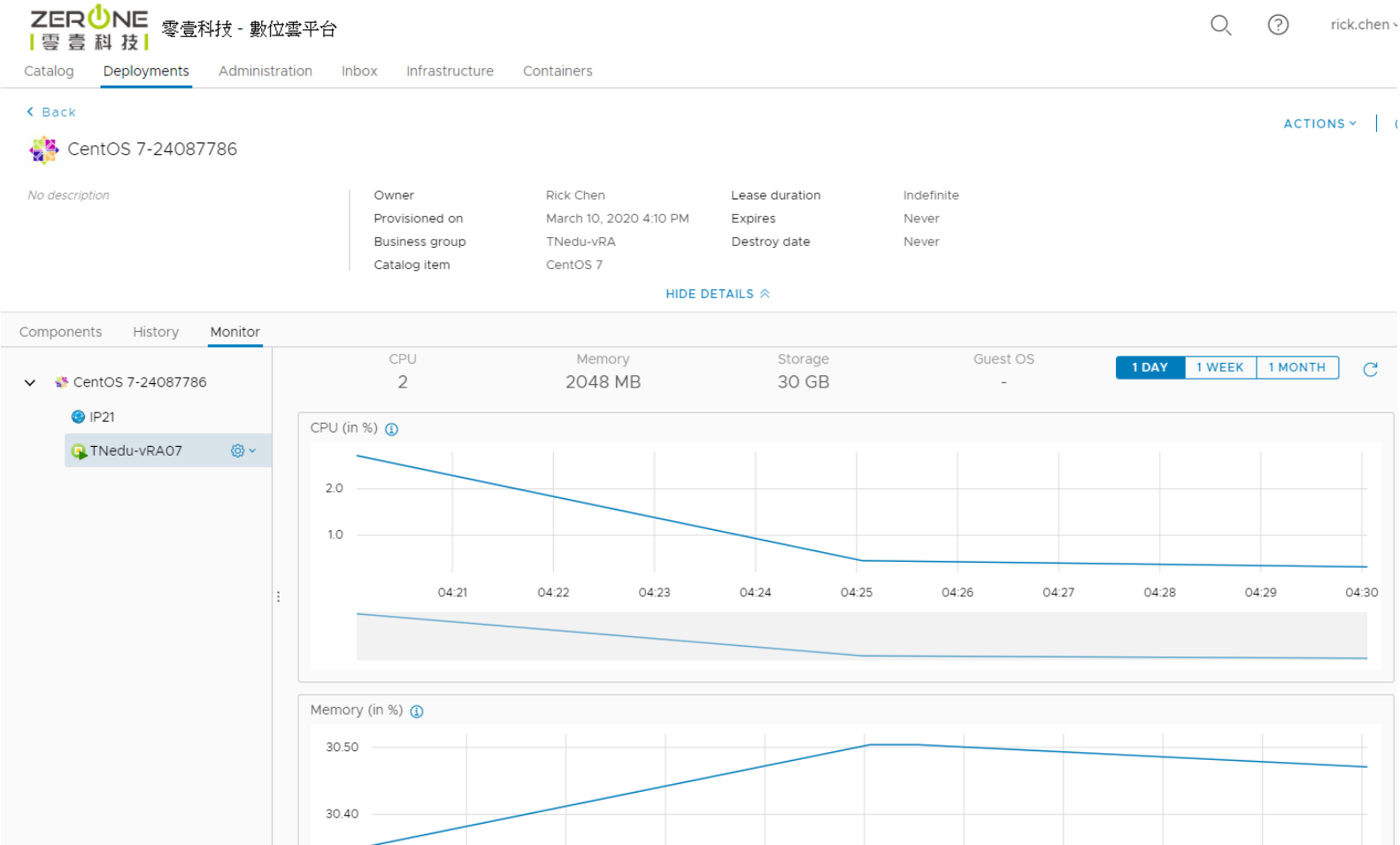
Compute resource: KHdemo

Business group: TNedu-vRA

SUBMITCANCEL

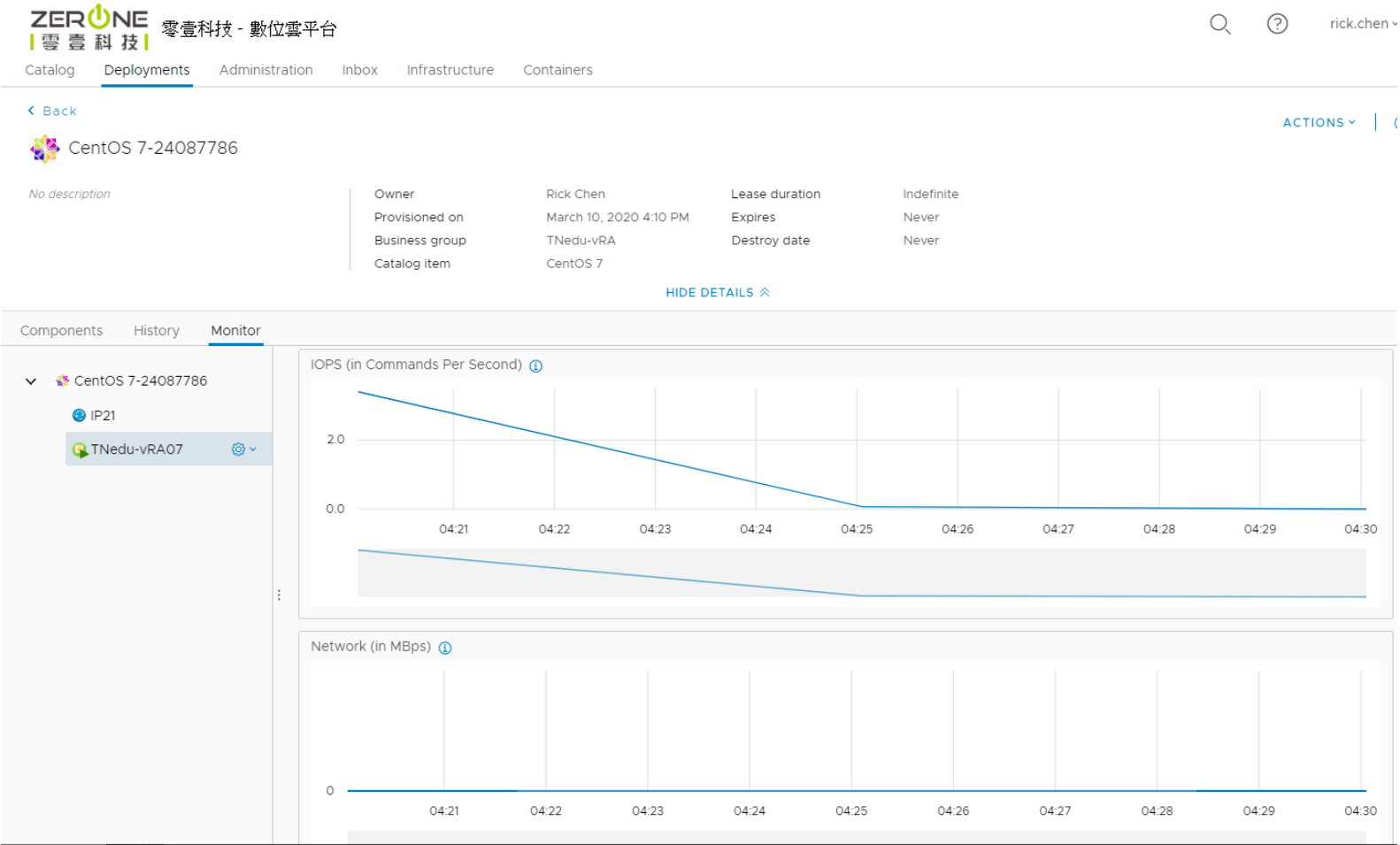
使用者可查閱虛擬機的效能

CPU、RAM



使用者可查閱虛擬機的效能

IOPS、網路



使用者可自行建立與刪除快照

預設只能保留一份快照

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| 零壹科技 |

Catalog Deployments Administration Inbox Infrastructure Containers

[Back](#)

 CentOS 7-24087786 [SHOW DETAILS](#)

Components History Monitor

CentOS 7-24087786

- IP21
- TNedu-vRA07** 

- Connect to Remote Console
- Connect using RDP
- Connect using VMRC
- Create Snapshot**
- Destroy
- Install Tools
- Power Cycle
- Power Off
- Reboot

General Storage Network Security Properties Snapshots

Name: TNedu-vRA07

Component: vSphere__vCenter__Machine_1

Status: On

CPU:

Memory (MB):

Storage (GB):

Description:

Owner: rick.chen@khzerone.com.tw

Blueprint: CentOS 7

Compute resource: KHdemo

Business group: TNedu-vRA

使用者可查看虛擬機申請/變更歷程

部署進度追蹤

ZERONE

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Catalog

Deployments

Administration

Inbox

Infrastructure

Containers

enter.wu

CentOS 7-24087786

SHOW DETAILS

ComponentsHistoryMonitor

Requests 2

3/10/20 4:35 PM

CHANGE O... Rick Chen

3/10/20 4:10 PM

PROVISION ... Rick Chen

EventsRequest Inputs

#16 - Change Owner

Successful

Requested by: Rick Chen

Requested on: March 10, 2020 4:35 PM

Tasks	Component	Status	Depends On	Start Time	Completion Time
Submitted	Deployment	Successful		March 10, 2020 4:35 PM	March 10, 2020 4:35 PM
Pre-approval	Deployment	Approved		March 10, 2020 4:35 PM	March 10, 2020 4:35 PM
Change Owner	Deployment	Successful		March 10, 2020 4:35 PM	March 10, 2020 4:35 PM
Change Owner	vSphere__vCenter__Machine_1: vSphe	Successful		March 10, 2020 4:35 PM	March 10, 2020 4:35 PM
Post-approval	Deployment	Approved		March 10, 2020 4:35 PM	March 10, 2020 4:35 PM
Completed	Deployment	Successful		March 10, 2020 4:35 PM	March 10, 2020 4:35 PM

使用者使用完畢歸還資源

銷毀使用完畢的虛擬機

 零壹科技 - 數位雲平台

enter.wu

?

Q

CatalogDeploymentsAdministrationInboxInfrastructureContainers

Deployments2 items

Q Search for deployments by name, description, IP address, resource name or machine status

Sort: Created Date (descending)

	CentOS 7-24087786 <i>No description</i> Owner: Enter Wu Business group: TNedu-vRA	2 Resources IP21 TNedu-vRA07	Created 30 minutes ... On	Never expires 172.27.21.180	ACTIONS
	Windows 10 Pure-98688067 <i>No description</i> Owner: Enter Wu Business group: TNedu-vRA	2 Resources IP21 TNedu-vRA06	Created 1 day ago On	Never expires 172.27.21.182	Change Lease Change Owner Change Security Destroy Expire Scale In Scale Out View Details

擴充更多的服務項目

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零壹科技 · 數位雲平台

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搜尋使用

依名稱或說明搜尋目錄項目

排序: 名稱 (遞增)

3Tier-APP

Web+APP+DBS with NSX-T

業務群組

BG-PROD

服務

Product

申請

CentOS

CentOS Select folder

業務群組

BG-DEV

服務

Develop

申請

CentOS-NSX-Tag

CentOS Select folder & NSXT-Tag

業務群組

BG-DEV

服務

Develop

申請

CentOS-Tag

CentOS Select folder

業務群組

BG-DEV

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Develop

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CentOS-vSAN Policy

CentOS with vSAN Policy

業務群組

BG-DEV

服務

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申請

Create a user with a password in a group

Creates a user and sets a password for the user.

業務群組

BG-DEV

服務

Develop

申請

GitLab CE 11.11.3-0

This is a Single-Tier deployment for GitLab CE 11.11.3-0. GitLab CE blueprint published by Bitnami is secure, up-to-date, and pre-

業務群組

BG-DEV

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Jenkins 2.176.1-0

This is a Single-Tier deployment for Jenkins 2.176.1-0. Jenkins blueprint published by Bitnami is secure, up-to-date, and pre-configured to work

業務群組

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JFrog Artifactory Open Source 6.10.4-0

This is a Single-Tier deployment for JFrog Artifactory Open Source 6.10.4-0. JFrog Artifactory Open Source blueprint published by Bitnami

業務群組

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Kubernetes

Installs current Kubernetes on CentOS 7 kubectl get nodes

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RHEL

RedHat Enterprise Linux version 7.2

業務群組

BG-DEV, 1 更多

服務

Product

申請

Windows 2012 size

Windows 2012r2 select SIZE

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申請

Windows 2016 + IIS85

Windows 2016 and IIS 8.5 with audit logon policy

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Windows 2016 no admin

Windows 2016 and rename admin

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Windows SQL

Windows 2016 and Install MSSQL 2016

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服務

Product

申請

Thank You