



Welcome

Exchange Server 2010 通訊創新應用

快速建置高可用性的訊息平台

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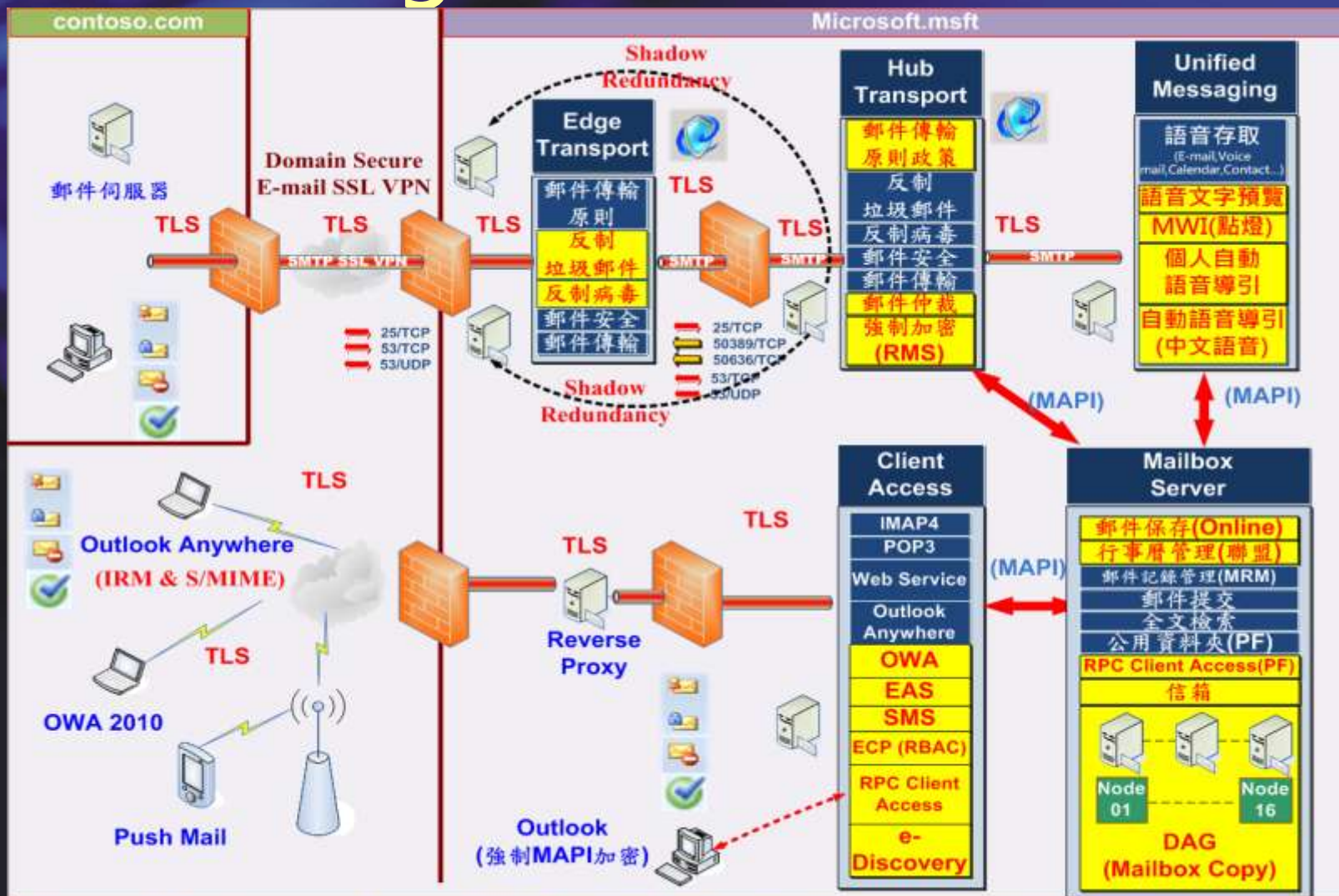
公司：長成資訊顧問股份有限公司

本課程假設您已經瞭解...

- ◆ Exchange 2003/2007的管理
- ◆ Windows 2003/2008的管理
- ◆ 瞭解高可用性(HA)的基本管理

課程內容：Level 300

Exchange 2010基本架構圖



Microsoft Exchange Server 2010基礎架構圖 長成資訊顧問股份有限公司 謝長明製

講授大綱

- ◆ Exchange 2010 高可用的願景與目標
- ◆ Exchange 2010 高可用性的特性說明
- ◆ Exchange 2010 高可用性的深入研究
- ◆ 如何部署高可用性的 Exchange 2010
- ◆ 如何轉換到Exchange 2010 高可用性
- ◆ 改善Exchange End-to-End 可用性
- ◆ Exchange 2010 高可用性的設計範例

Exchange 2010 的高可用性

願景與目標

◆ 願景

- 提供一個快速且容易部署和操作
- 能節省成本又能達到服務不間斷

◆ 目標

- 能夠使得備援資料中心快速接手服務的能力
- 減少對昂貴與複雜的儲存設備的需求與投資
- 簡化高可用性的管理程序和降低支援的成本
- 增加 end-to-end 的高可用性與容錯的能力
- 支援 Exchange Server 2010 Online 的服務

Exchange 2010 的高可用性

- ◆ 整合高可用性與Site resilience的技術
- ◆ 一個全新的高可性郵件伺服器的架構
- ◆ 連續複寫技術改良,儲存設備更具彈性
- ◆ 整合至Exchange 2010 的管理機制中

Exchange Server 2003的HA架構

Outlook OWA, ActiveSync, 或 Outlook 無所不在

resilience 和 recovery

台中

Standby Cluster

DB1

DB2

DB3

台北

Front End Server

叢集信箱伺服器必須手動建立

NodeA (active)

NodeB (passive)

需要Third-party 的複製技術

必須瞭解叢集技術

DB1

DB2

DB3

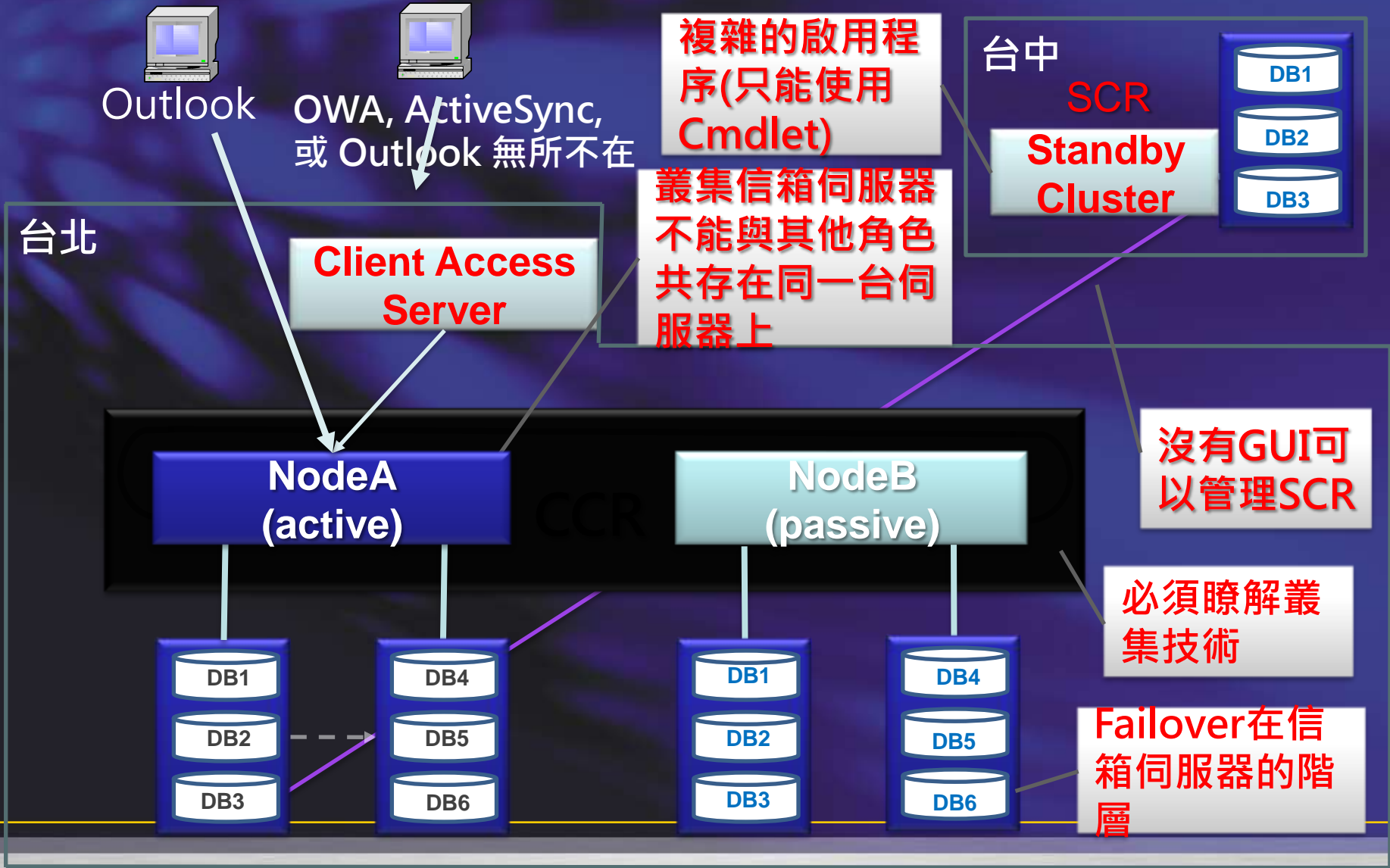
DB4

DB5

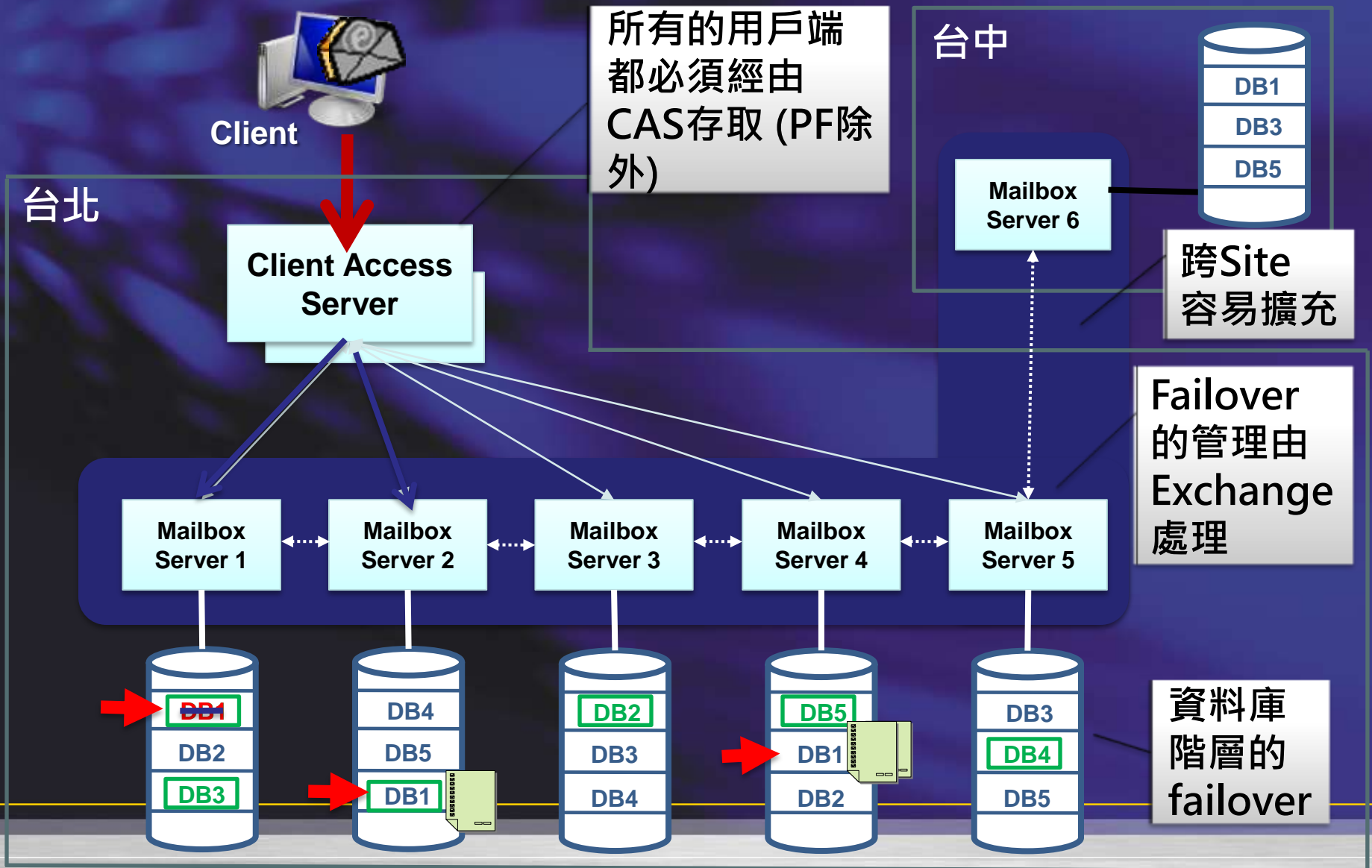
DB6

Failover在信箱伺服器的階層

Exchange Server 2007的HA架構



Exchange Server 2010的HA架構



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Exchange 2010 的高可用性

特性名稱

- ◆ Mailbox Resiliency
 - 整合高可用性與 Site Resilience的解決方案
- ◆ Database Availability Group (DAG)
 - 每一個DAG最多可以有16個Server的成員
- ◆ Mailbox Database Copy
 - Active
 - Passive
- ◆ Database Mobility
 - 單一信箱資料庫可以複製或裝載在其他的伺服器

Exchange 2010 的高可用性

特性

◆ RPC Client Access service

- 是Client Access Server中的一項特性
- 所有信箱內容的存取,均經由它處理
- 公用資料夾則保持與信箱伺服器直接連接

◆ Shadow Redundancy

- 在整個郵件傳送的過程中提供redundancy

◆ 漸近式的部署

- 可以先部署信箱伺服器後,再啟用HA的功能

Exchange 2010 的高可用性

專業用語

◆ High Availability

- 提供資料和服務的可用性
- 服務或資料失效後,具有自動復原能力

◆ Disaster Recovery

- 當服務失效後,手動復原

◆ Site Resilience

- 當整個Site的服務失效後的復原

◆ *over

- Switchover (手動)
- Failover (自動)

Exchange 2007 續用的技術與服務

◆ Extensible Storage Engine (ESE)

- 資料庫
- 記錄檔

◆ 連續性複製技術

- Log shipping 和replay
- 資料庫seeding
- Store 和Replication服務
- 資料庫的健康和狀態監視
- 資料庫的Divergence
- 資料庫自動裝載的方式

◆ quorum 和 witness

◆ *overs 的概念

Exchange 2010不再支援的服務

◆ Exchange 2010

- 不使用儲存群組(Storage groups)
- 資料庫不必受限於伺服器名稱

◆ Exchange 2010的HA不再需要

- 建立叢集信箱伺服器
 - ❖ 安裝與設定 Windows Failover Cluster
 - ❖ 安裝在叢集模式
 - ❖ 在伺服器之間轉移CMS network identity
 - ❖ Shared storage

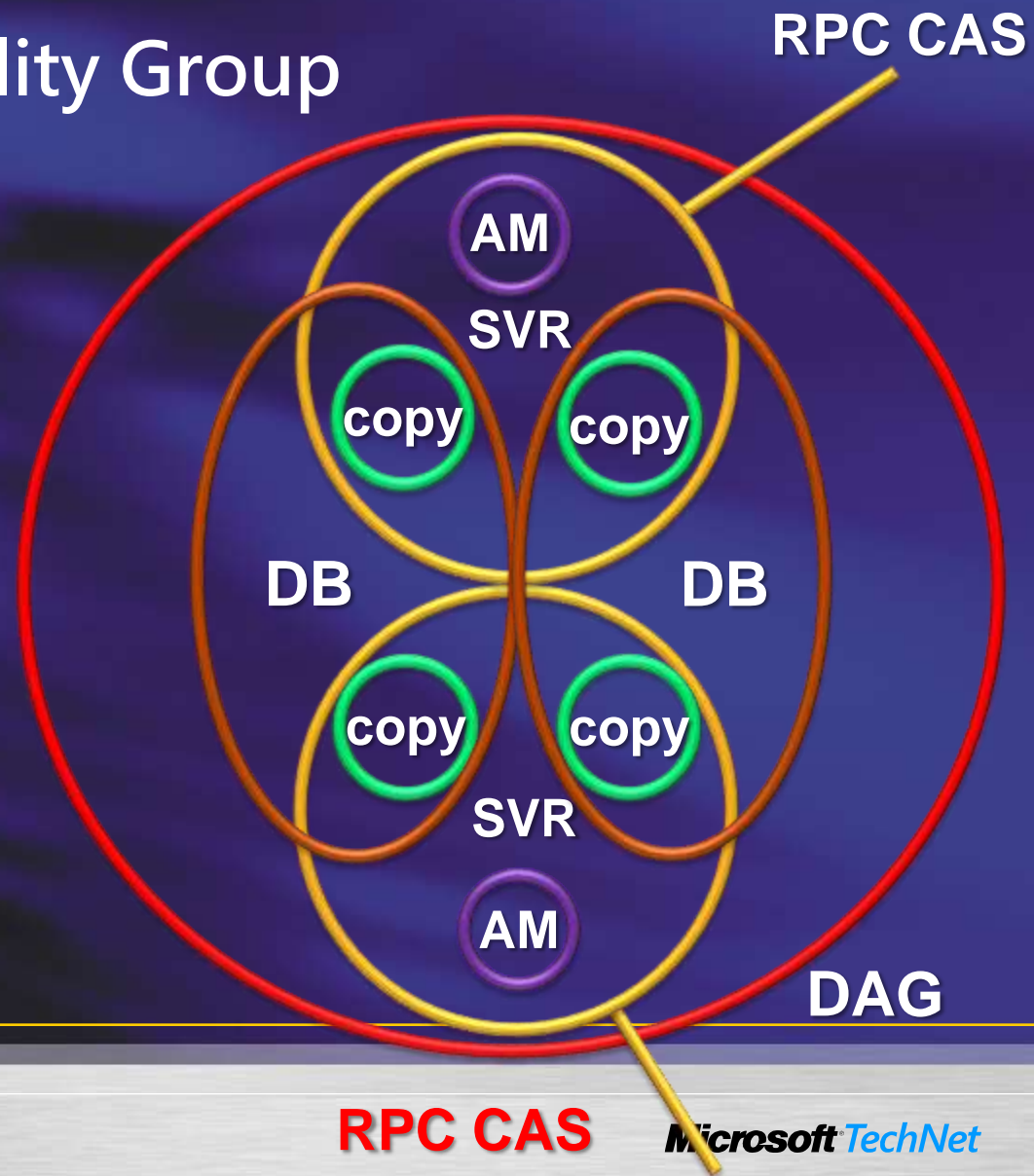
◆ HA的Node數由2 nodes增加至16

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Exchange 2010 HA 的基本原理

- ◆ Database Availability Group
(資料庫可用性群組)
- ◆ Server (伺服器)
- ◆ Database(資料庫)
 - 企業版(100個)
 - 標準版(5個)
- ◆ Database Copy
(資料庫副本)
- ◆ Active Manager
- ◆ RPC Client Access



Database Availability Group (DAG)

- ◆ HA與site resilience的基本元件
- ◆ 是HA伺服器成員的總集合
- ◆ 將Windows Failover Cluster包裝起來
 - DAG的成員相當於node
 - 提供DAG成員之間的heartbeat
 - Active Manager儲存資料在叢集資料庫中
- ◆ 訂定範圍：
 - 信箱資料庫複製
 - 資料庫和伺服器 *overs
 - Active Manager

Active Manager(1)

- ◆ 管理*overs的Exchange 2010元件
 - 存在於每一台DAG成員伺服器上
 - Failovers時負責選擇最佳可用的資料庫副本
 - 決定最後Active 資料庫的來源
 - ❖ 儲存這資訊於叢集資料庫
 - ❖ 提供這資訊給其他的Exchange元件(例如: RPC Client Access 、 Hub Transport)
 - Active Manager的角色
 - ❖ Primary Active Manager (PAM)
 - ❖ Standby Active Manager (SAM)

Active Manager(2)

- ◆ Primary Active Manager (PAM)
 - 執行於擁有叢集群組的Node上
 - 拓樸改變將會通知PAM
 - 對伺服器的服務失效作出反應
 - 於 *overs 時選擇一個最好的資料庫拷貝
- ◆ Standby Active Manager (SAM)
 - 執行於在同一個DAG的其他node上
 - 回應資料庫active copy的查詢

Active Manager(3)

Active Database Copy 的選擇

- ◆ Active Manager 選擇最好的資料庫為Active 資料庫



Catalog
Copy status

Healthy

Healthy, DisconnectedAndHealthy,
DisconnectedAndResynchronizing,

or

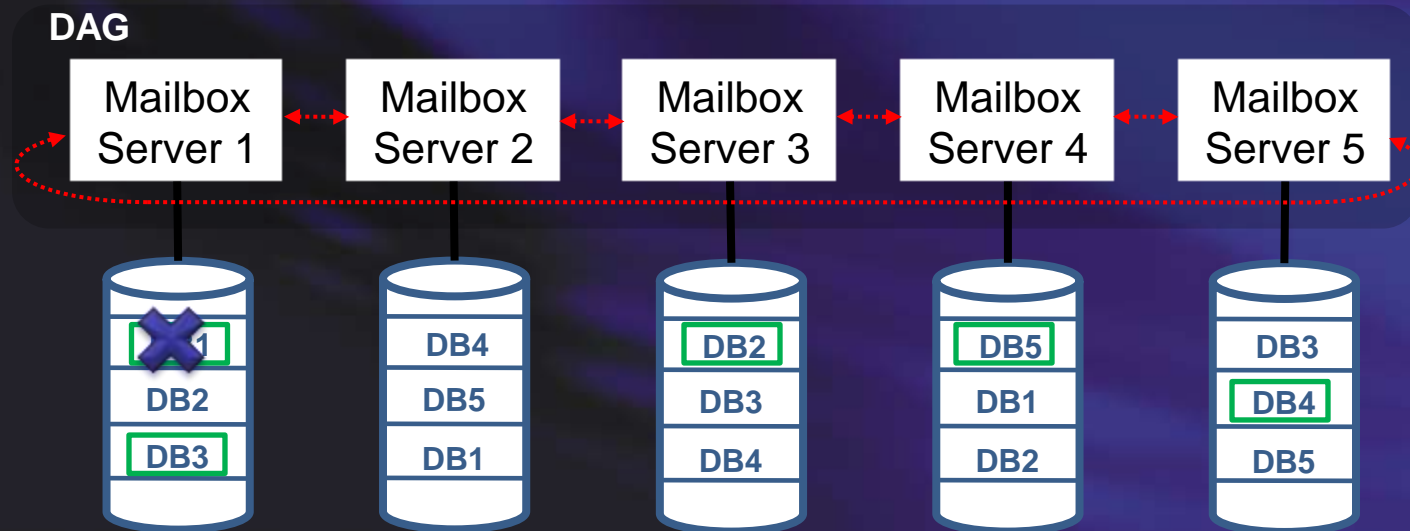
SeedingSource

ReplayQueueLength < 10 < 50

ReplayQueueLength < 50

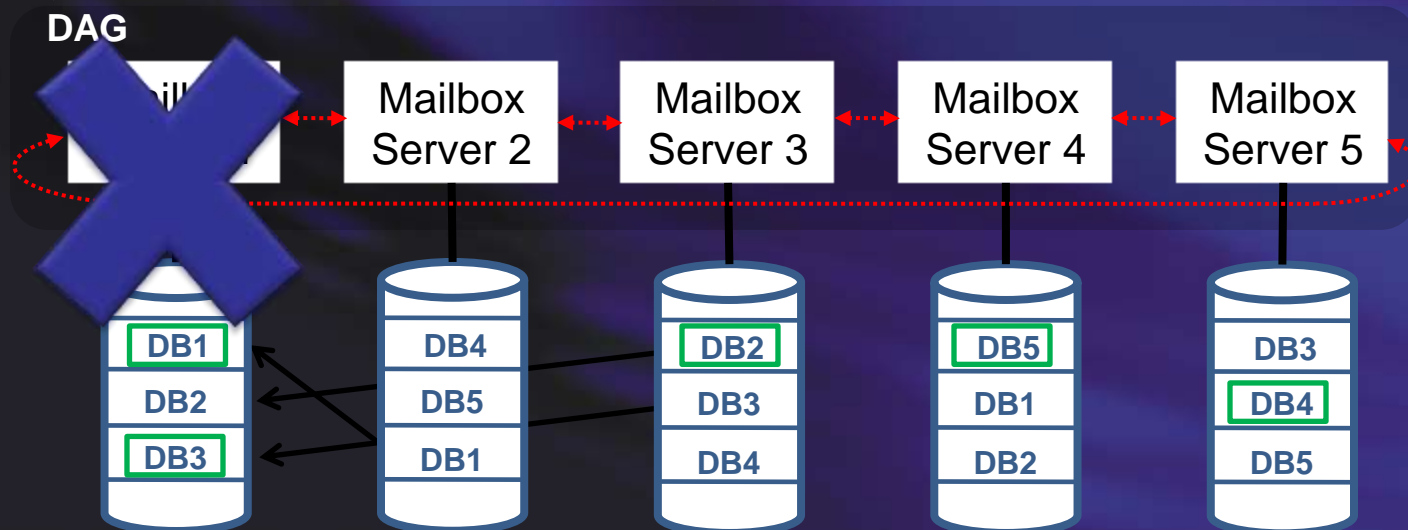
Example: Database Failover

- ◆ 發生資料庫失效
- ◆ Active Manager 移動active 資料庫
- ◆ 資料庫副本還原
- ◆ 流程如下:



伺服器失效後自動復原的範例

- ◆ 伺服器失效
- ◆ 叢集接到Node失效的通知
- ◆ Active Manager移動active資料庫
- ◆ 伺服器恢復
- ◆ 叢集接到node啟用的通知
- ◆ 資料庫重新與active資料庫同步



DAG 的生命週期

- ◆ DAG 建立時,會以一個空的物件存在於AD
- ◆ 當第一個信箱伺服器被加入到 DAG時
 - Windows failover cluster會自動以DAG的名字建立Node Majority quorum
 - 此時,伺服器物件會被加入DAG
 - cluster network object (CNO)也被建立
 - 一或多個IP 地址被指定到DAG,然後註冊到DNS
 - 更新設定到叢集資料庫

DAG 的生命週期(續)

- ◆ 當第二或以後加入至DAG的信箱伺服器
 - 伺服器被加入到這DAG的叢集
 - quorum 的模式會自動被調整
 - ❖ **Node Majority - DAGs (含奇數的成員)**
 - ❖ Node and File Share Majority - DAGs (含偶數的成員)
 - ❖ 當需要時,Exchange會自動建立File share witness cluster resource, directory, 和 share
 - 伺服器物件被加入到DAG
 - 更新設定資訊到叢集資料庫

DAG 的生命週期(續)

- ◆ 當伺服器被加入至 DAG 後
 - 設定 DAG
 - ❖ 網路加密
 - ❖ 網路壓縮
 - 設定 DAG 的網路
 - ❖ Network subnets
 - ❖ 啟用/停用 MAPI traffic/replication
 - 建立信箱資料庫的副本
 - ❖ Seeding 自動進行
 - 監視資料庫副本拷貝的狀態
 - 視需要實施 switchovers

DAG 的生命週期(續)

- ◆ 若要將某個DAG成員移除,必須先移除這個成員的所有信箱資料庫的副本
- ◆ 當一個伺服器被移出 DAG時
 - 伺服器會被叢集收回節點
 - 叢集quorum 會自動調整
 - 這伺服器會從DAG 成員中被移除
- ◆ 若要將DAG移除,則必須移除所有的伺服器成員

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網路與目錄服務

元件	要求
Schema master	Windows 2003 或Windows 2008 (32或64bit)
Global catalog server	在欲安裝Exchange 2010的AD Site至少一台Windows 2003 SP1 或Windows 2008
Domain controller	必須為Windows 2003 SP1 或者Windows 2008 (64位元或32位元)
Active Directory forest	Windows 2003 forest functionality mode 或Windows 2008 若Domain中含有Exchange 2003，則不支援Domain Functional Level升至Windows 2008

Active Directory 準備工作(一)

PrepareLegacyExchangePermissions

◆ 使用時機

- 準備傳統樹系中的權限
- 若Exchange組織中有Exchange 2003或Exchange 2007時則必須執行此命令

◆ 安裝權限

- Enterprise Admins group

◆ 指令用法

- Setup /PrepareLegacyExchangePermission (pl)
- 或者Setup /pl:<Domain FQDN>
 - ❖ 針對某一指定的網域
- 使用Active Directory Replication Monitor tool 檢查同步

Active Directory 準備工作(二)

PrepareSchema

◆ 使用時機

- 安裝Exchange 2010前必須要擴充AD的Schema

◆ 安裝權限

- 具有Schema Admins group 與Enterprise Admins group

◆ 指令用法

- Setup /PrepareSchema (ps)
- 使用Active Directory Replication Monitor tool 檢查同步

Active Directory 準備工作(三)

PrepareAD

◆ 使用時機

- 安裝Exchange 2010的準備

◆ 執行權限

- 具有Enterprise Admins group權限
- 若有Exchange 2003則必須為Exchange Organization Administrators group 的成員
- 必須在Schema Master網域裡執行此命令

◆ 指令用法

- Setup /PrepareAD (簡寫setup /p)

Active Directory 準備工作(四)

PrepareDomain

◆ PrepareDomain

➤ 使用時機

- ❖ 針對欲安裝Exchange 2010的網域執行網域準備

➤ Setup /PrepareDomain:<網域FQDN>

- ❖ 簡寫Setup /PD:<網域FQDN>

- ❖ 沒指明網域，代表安裝時的該網域

◆ PrepareAllDomains

➤ 使用時機

- ❖ 針對所有網域，進行網域準備

➤ Setup /PrepareAllDomains

- ❖ 簡寫Setup /PAD

部署Exchange HA程序的比較表

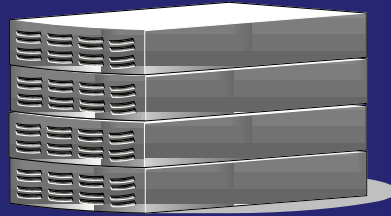
Exchange 2007 HA部署的步驟 (CCR/SCC)	Exchange 2010 漸近式的部署 (DAG)
<ol style="list-style-type: none">1. 準備硬體, 安裝OS、更新至最新版<ul style="list-style-type: none">✓若是SCC: configure storage2. 建立Windows Failover Cluster<ul style="list-style-type: none">✓若是SCC: configure storage3. 設定叢集quorum、file share witness、public 和private networks4. 執行客製化安裝叢集信箱伺服器5. 設定叢集信箱伺服器<ul style="list-style-type: none">✓若是SCC: 設定磁碟6. Test *overs	<ol style="list-style-type: none">1. 準備硬體, 安裝OS、更新至最新版2. 安裝信箱伺服器角色3. 建立DAG 和複製資料庫4. Test *overs

E2010 HA 儲存設備規劃更彈性



SAN

- HA = Shared Storage Clustering
- +1.0 IOPS/Mailbox
- 3.5" 15K 146GB FC Disks
- RAID10 for DB & Logs
- Dedicated Spindles
- Multi-path (HBA's, FC Switches, SAN array controllers)
- Backup = Streaming off active
- Fast Recovery = Hardware VSS (Snapshots/Clones)



DAS (SAS)

- HA = CCR
- .33 IOPS/Mailbox
- 2.5" 146GB 10K SAS Disks
- RAID5 for DB
- RAID10 for Logs
- SAS Array Controller (/w BBU)
- Backup = VSS Snapshot
- Fast Recovery = CCR

Microsoft
Exchange Server 2007



DAS (SATA/Tier2)

- HA = DAG (2+ DB copies)
- .11 IOPS/Mailbox
- 3.5" 1TB 7.2K SATA/Tier2 Disks
- RAID10 for DB & Logs
- SAS Array Controller (/w BBU)
- Backup = VSS Snapshot/Optional
- Fast Recovery = Database Failover



Microsoft
Exchange Server 2010



JBOD (SATA/Tier2)

- HA = DAG (3+ DB copies)
- .11 IOPS/Mailbox
- 3.5" 1TB 7.2K SATA/Tier2 Disks
- 1 DB = 1 Disk
- SAS Array Controller (/w BBU)
- Backup = VSS Snapshot/Optional
- Fast Recovery = Database Failover

More options to reduce storage cost

Exchange 2010可以共存的版本

- ◆ Exchange 2010可以與下列的環境共存
 - Exchange 2003
 - Exchange 2007
 - Exchange 2003+Exchange 2007
- ◆ Exchange 2000不能直接與Exchange 2010共存
 - 建議先升級至Exchange 2003
 - 再升級至Exchange 2010

Exchange 2010企業版vs.標準版

- ◆ Exchange 2010沒有Storage Group的單位
- ◆ Mailbox Store
 - 企業版：100個
 - 標準版：5個
- ◆ 提供高可用性的技術
 - DAG(Database Availability Groups)
 - 必須配合Windows 2008 或Windows 2008 R2 X64 企業版

Exchange 2010的CPU基本要求

- ◆ x64 architecture-based computer with Intel processor that supports Intel 64 architecture (formerly known as Intel EM64T)
- ◆ AMD processor that supports the AMD64 platform
- ◆ Intel Itanium IA64 processors not supported

Exchange 2010的記憶體規劃(1)

角色	最小	最大	建議
Edge Transport	4 GB	16 GB	1 GB per core (4 GB minimum, 8 GB maximum)
Hub Transport	4 GB	16 GB	1 GB per core (4 GB minimum, 8 GB maximum)
Client Access	4 GB	16 GB	2 GB per core (2 GB minimum, 8 GB maximum)
Unified Messaging	4 GB	16 GB	2 GB per core (4 GB minimum, 8 GB maximum)
Mailbox	4 GB	64 GB	4GB plus 2-10MB/mailbox: Variable based on user profile, see Mailbox Memory Recommendation in table below
Multiple roles (combinations of Hub Transport, Client Access, and Mailbox server roles)	8 GB	64 GB	8GB plus 2-10MB per mailbox. This is variable based on user profile. For more details, see "Mailbox Server Role" later in this topic

Exchange 2010的記憶體規劃(2)

信箱大小	記憶體
0 - 1GB	2MB
1GB - 3GB	4MB
3GB - 5GB	6MB
5GB - 10GB	8MB
+10GB	10MB

Exchange 2010的操作系统要求

- ◆ 64-bit edition of Windows Server 2008 Standard with Service Pack 2 (SP2)
- ◆ 64-bit edition of Windows Server 2008 Enterprise with SP2
- ◆ 64-bit edition of Windows Server 2008 R2 Standard
- ◆ 64-bit edition of Windows Server 2008 R2 Enterprise

Exchange 2010的管理程式平台要求

- ◆ Windows Vista with SP2 for management tools only installation
- ◆ 64-bit edition of Windows Server 2008 Standard with SP2
- ◆ 64-bit edition of Windows Server 2008 Enterprise with SP2
- ◆ 64-bit edition of Windows Server 2008 R2 Standard
- ◆ 64-bit edition of Windows Server 2008 R2 Enterprise
- ◆ Windows 7

使用Windows 2008當平台的準備工作

安裝Exchange 2010前的準備工作(1)

Windows 2008 SP2

◆ 安裝Microsoft .NET Framework 3.5 Service Pack 1 (SP1)

➤ <http://www.microsoft.com/downloads/details.aspx?familyid=AB99342F-5D1A-413D-8319-81DA479AB0D7&displaylang=en>

➤ Hotfix

❖ <http://www.microsoft.com/downloads/details.aspx?FamilyID=98E83614-C30A-4B75-9E05-0A9C3FBDD20D&displaylang=en&displaylang=en>

◆ 安裝Windows Remote Management (WinRM) 2.0 和Windows PowerShell V2

➤ <https://connect.microsoft.com/windowsmanagement/Downloads>

安裝Exchange 2010前的準備工作(2)

Windows 2008 SP2

- ◆ Microsoft Filter Pack (for HTS /MBS)

- <http://www.microsoft.com/downloads/details.aspx?FamilyId=60C92A37-719C-4077-B5C6-CAC34F4227CC&displaylang=en>

Exchange 2010各角色的準備工作(1)

Windows 2008 SP2

◆ Mailbox Role

- ServerManagerCmd -ip Exchange-MBX.xml – Restart

◆ Hub Transport Role

- ServerManagerCmd -ip Exchange-Hub.xml – Restart

◆ Client Access Role

- sc config NetTcpPortSharing start= auto
ServerManagerCmd -ip Exchange-CAS.xml –Restart

◆ Unified Messaging role

- ServerManagerCmd -ip Exchange-UM.xml – Restart

Exchange 2010各角色的準備工作(2)

Windows 2008 SP2

◆ Edge Transport role

- ServerManagerCmd -ip Exchange-Edge.xml - Restart

◆ Client Access & Hub Transport Role

- sc config NetTcpPortSharing start= auto
ServerManagerCmd -ip Exchange-Typical.xml -Restart

◆ Hub Transport & Mailbox Role

- ServerManagerCmd -ip Exchange-Typical.xml -Restart

Exchange 2010各角色的準備工作(3)

Windows 2008 SP2

◆ Client Access & Mailbox Role

- `sc config NetTcpPortSharing start= auto`
- `ServerManagerCmd -ip Exchange-Typical.xml -Restart`

◆ Client Access & Hub Transport & Mailbox Role

- `sc config NetTcpPortSharing start= auto`
- `ServerManagerCmd -ip Exchange-Typical.xml -Restart`

Exchange 2010各角色的準備工作(4)

Windows 2008 SP2

- ◆ Client Access & Hub Transport & Mailbox Role & Unified Messaging server roles
 - `sc config NetTcpPortSharing start= auto`
 - `ServerManagerCmd -i Desktop-Experience`
 - `ServerManagerCmd -ip Exchange-Typical.xml -Restart`

使用Windows 2008 R2當平台的準備工作

安裝Exchange 2010前的準備工作(1)

Windows 2008 R2

- ◆ Microsoft Filter Pack (for HTS /MBS)

- <http://www.microsoft.com/downloads/details.aspx?FamilyId=60C92A37-719C-4077-B5C6-CAC34F4227CC&displaylang=en>

- ◆ 使用Windows Powershell 2.0執行

- Import-Module ServerManager

Exchange 2010各角色的準備工作(2)

Windows 2008 R2

◆ Client Access, Hub Transport, and the Mailbox role

- Add-WindowsFeature NET-Framework,RSAT-ADDS,Web-Server,Web-Basic-Auth,Web-Windows-Auth,Web-Metabase,Web-Net-Ext,Web-Lgcy-Mgmt-Console,WAS-Process-Model,RSAT-Web-Server,Web-ISAPI-Ext,Web-Digest-Auth,Web-Dyn-Compression,NET-HTTP-Activation,RPC-Over-HTTP-Proxy –Restart

Exchange 2010各角色的準備工作(3)

Windows 2008 R2

- ◆ Client Access, Hub Transport, Mailbox, and Unified Messaging server
 - Add-WindowsFeature NET-Framework,RSAT-ADDS,Web-Server,Web-Basic-Auth,Web-Windows-Auth,Web-Metabase,Web-Net-Ext,Web-Lgcy-Mgmt-Console,WAS-Process-Model,RSAT-Web-Server,Web-ISAPI-Ext,Web-Digest-Auth,Web-Dyn-Compression,NET-HTTP-Activation,RPC-Over-HTTP-Proxy,Desktop-Experience -Restart

Exchange 2010各角色的準備工作(4)

Windows 2008 R2

◆ Client Access and Hub Transport server roles

- Add-WindowsFeature NET-Framework,RSAT-ADDS,Web-Server,Web-Basic-Auth,Web-Windows-Auth,Web-Metabase,Web-Net-Ext,Web-Lgcy-Mgmt-Console,WAS-Process-Model,RSAT-Web-Server,Web-ISAPI-Ext,Web-Digest-Auth,Web-Dyn-Compression,NET-HTTP-Activation,RPC-Over-HTTP-Proxy -Restart

Exchange 2010各角色的準備工作(5)

Windows 2008 R2

◆ Hub Transport and Mailbox server roles

- Add-WindowsFeature NET-Framework,RSAT-ADDS,Web-Server,Web-Basic-Auth,Web-Windows-Auth,Web-Metabase,Web-Net-Ext,Web-Lgcy-Mgmt-Console,WAS-Process-Model,RSAT-Web-Server -Restart

Exchange 2010各角色的準備工作(6)

Windows 2008 R2

◆ Client Access and Mailbox server roles

➤ Add-WindowsFeature NET-Framework,RSAT-ADDS,Web-Server,Web-Basic-Auth,Web-Windows-Auth,Web-Metabase,Web-Net-Ext,Web-Lgcy-Mgmt-Console,WAS-Process-Model,RSAT-Web-Server,Web-ISAPI-Ext,Web-Digest-Auth,Web-Dyn-Compression,NET-HTTP-Activation,RPC-Over-HTTP-Proxy -Restart

Exchange 2010各角色的準備工作(7)

Windows 2008 R2

◆ Client Access role

- Add-WindowsFeature NET-Framework,RSAT-ADDS,Web-Server,Web-Basic-Auth,Web-Windows-Auth,Web-Metabase,Web-Net-Ext,Web-Lgcy-Mgmt-Console,WAS-Process-Model,RSAT-Web-Server,Web-ISAPI-Ext,Web-Digest-Auth,Web-Dyn-Compression,NET-HTTP-Activation,RPC-Over-HTTP-Proxy -Restart

Exchange 2010各角色的準備工作(8)

Windows 2008 R2

◆ Hub Transport or the Mailbox role

- Add-WindowsFeature NET-Framework,RSAT-ADDS,Web-Server,Web-Basic-Auth,Web-Windows-Auth,Web-Metabase,Web-Net-Ext,Web-Lgcy-Mgmt-Console,WAS-Process-Model,RSAT-Web-Server -Restart

Exchange 2010各角色的準備工作(9)

Windows 2008 R2

◆ Unified Messaging role

- Add-WindowsFeature NET-Framework,RSAT-ADDS,Web-Server,Web-Basic-Auth,Web-Windows-Auth,Web-Metabase,Web-Net-Ext,Web-Lgcy-Mgmt-Console,WAS-Process-Model,RSAT-Web-Server,Desktop-Experience –Restart

◆ Edge Transport role

- Add-WindowsFeature NET-Framework,RSAT-ADDS,ADLDS -Restart

Exchange 2010各角色的準備工作(10)

Windows 2008 R2

◆在各角色的準備工作後

➤ Windows PowerShell下執行

❖ Set-Service NetTcpPortSharing -StartupType Automatic

Exchange 2010的部署

◆ 具備兩片網卡

- MAPI Public Network
- Private Network

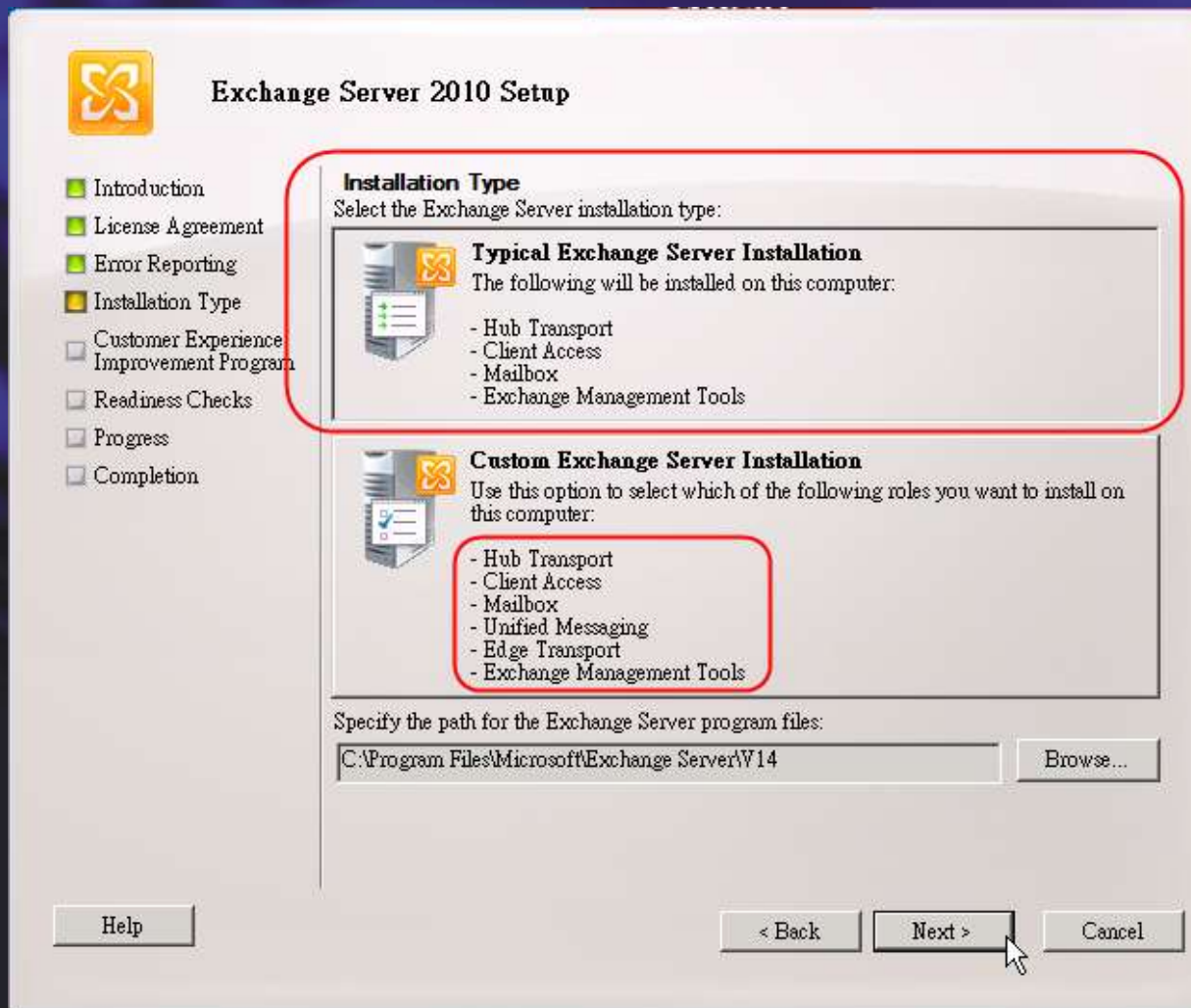
◆ 安裝程序

- 執行Exchange 2010的安裝光碟 或點選 setup.exe 進入安裝精靈

➤ 安裝步驟

- ❖ Step 1: Install .NET Framework 3.5 SP1
- ❖ Step 2: Install Windows PowerShell V2
- ❖ Step 3: Choose Exchange language option
- ❖ Step 4: Install Microsoft Exchange
- ❖ Step 5: Get critical updates for Microsoft Exchange

角色選擇 (必須含有Mailbox Role)



The image shows the 'Exchange Server 2010 Setup' dialog box. On the left is a navigation pane with the following items: Introduction, License Agreement, Error Reporting, Installation Type (highlighted), Customer Experience Improvement Program, Readiness Checks, Progress, and Completion. The main area is titled 'Installation Type' and contains two options: 'Typical Exchange Server Installation' and 'Custom Exchange Server Installation'. The 'Typical' option lists: Hub Transport, Client Access, Mailbox, and Exchange Management Tools. The 'Custom' option lists: Hub Transport, Client Access, Mailbox, Unified Messaging, Edge Transport, and Exchange Management Tools. A red box highlights the 'Mailbox' role in both lists. Below the options is a text box for the program files path, currently set to 'C:\Program Files\Microsoft\Exchange Server\V14', with a 'Browse...' button. At the bottom are 'Help', '< Back', 'Next >', and 'Cancel' buttons. A mouse cursor is pointing at the 'Next >' button.

Exchange Server 2010 Setup

- Introduction
- License Agreement
- Error Reporting
- Installation Type
- Customer Experience Improvement Program
- Readiness Checks
- Progress
- Completion

Installation Type
Select the Exchange Server installation type:

Typical Exchange Server Installation
The following will be installed on this computer:

- Hub Transport
- Client Access
- Mailbox
- Exchange Management Tools

Custom Exchange Server Installation
Use this option to select which of the following roles you want to install on this computer:

- Hub Transport
- Client Access
- Mailbox
- Unified Messaging
- Edge Transport
- Exchange Management Tools

Specify the path for the Exchange Server program files:
C:\Program Files\Microsoft\Exchange Server\V14

Exchange 2010 DAG的設定程序(續)

◆ 建立資料庫可用性群組(DAG)

- `New-DatabaseAvailabilityGroup -Name DAG01
-WitnessServer HUB-A -WitnessDirectory
C:\DAGWitness\DAG1.contoso.com
-DatabaseAvailabilityGroupIPAddresses
192.168.1.8,192.168.2.8`
- `Set-DatabaseAvailabilityGroup -Identity DAG01
-AlternateWitnessDirectory
C:\DAGWitness\DAG1.contoso.com
-AlternateWitnessServer HUB-B`

Exchange 2010 DAG的設定程序

➤ 如果witness Server不是Exchange 2010伺服器, 必須將Exchange Trusted Subsystem萬用安全性群組加入該電腦的Local Administrator Group, 否則會出現如下的錯誤訊息

◆ *Error: An error occurred during discovery of the database availability group topology. Error: An error occurred while attempting a cluster operation. Error: Cluster API "AddClusterNode() (MaxPercentage=12) failed with 0x80070005. Error: Access is denied."*

Exchange 2010 DAG的設定程序

◆ 加入信箱伺服器到 DAG

- Add-DatabaseAvailabilityGroupServer
-Identity DAG01 -MailboxServer MBS01
- Add-DatabaseAvailabilityGroupServer
-Identity DAG01 -MailboxServer MBS02

◆ 設定Mailbox Database copy

- Add-MailboxDatabaseCopy -Identity DB01
-MailboxServer MBS02
-ActivationPreference 2

DEMO

Exchange 2010的部署
建立 資料庫可用性群組
加入伺服器到 資料庫可用性群組
設定信箱資料庫的副本
資料庫的 switchover

講授大綱

- ◆ Exchange 2010 高可用的願景與目標
- ◆ Exchange 2010 高可用性的特性說明
- ◆ Exchange 2010 高可用性的深入研究
- ◆ 如何部署高可用性的 Exchange 2010
- ◆ 如何轉換到Exchange 2010 高可用性
- ◆ 改善Exchange End-to-End 可用性
- ◆ Exchange 2010 高可用性的設計範例

如何轉移至Exchange 2010的HA

- ◆ 檢查是否符合安裝 Exchange 2010的要求
- ◆ 部署Exchange 2010
- ◆ 使用Exchange 2010 mailbox 移動信箱的功能轉移
- ◆ 不支援的轉移方式
 - 前版In-place upgrade 到Exchange 2010
 - 前版的database portability還原至Exchange 2010
 - 前版的資料庫備份還原至Exchange 2010
 - 使用連續複寫技術於Exchange 2010和Exchange 2007

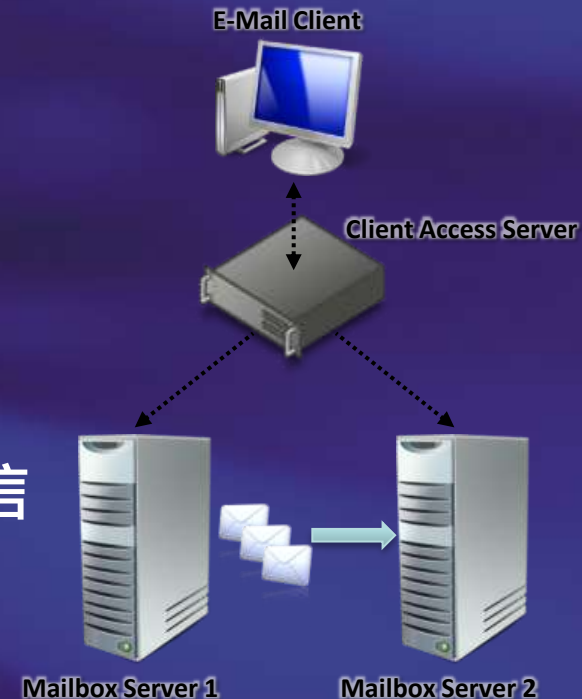
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- ◆ 改善Exchange End-to-End 可用性
- ◆ Exchange 2010 高可用性的設計範例

改善Exchange 2010 End-to-End 可用性

◆ 線上信箱的移動

- Exchange 2007 SP2與Exchange 2010 資料庫
- Exchange 2010與Exchange 2010
- 信箱被移動中,使用者還能存取他的信箱
- 以非同步的方式移動
 - ❖ Microsoft Exchange Mailbox Replication Service (MRS)
 - ❖ 此服務存在於Client Access servers



改善Exchange 2010 End-to-End 可用性(續)

- ◆ RPC Client Access service
 - 此服務存在於CAS
 - Exchange 2010的RPC endpoint連線必須藉由RPC Client Access Service
- ◆ 公用資料夾的存取仍然直接與Public Folder Server溝通

改善Exchange 2010 End-to-End 可用性(續)

Shadow Redundancy



伺服器保留郵件的“shadow copies”，直到他們被遞送至下一個SMTP 伺服器

改善Exchange 2010 End-to-End 可用性(續)

◆改善Transport Dumpster

- 從replication pipe line得知何時刪除了郵件
 - ❖ 一旦郵件已經遞送且此郵件的logs已被複製, transport dumpster 就會刪除這個郵件
 - ❖ 當在dumpster的資料尚未被複製, Replay不會要求刪除這封信件
- 當發生lossy failover時, 回應重新遞送的要求

講授大綱

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- ◆ Exchange 2010 高可用性的設計範例

高可用性的設計範例

分公司/小型辦公室



硬體式負載平衡器

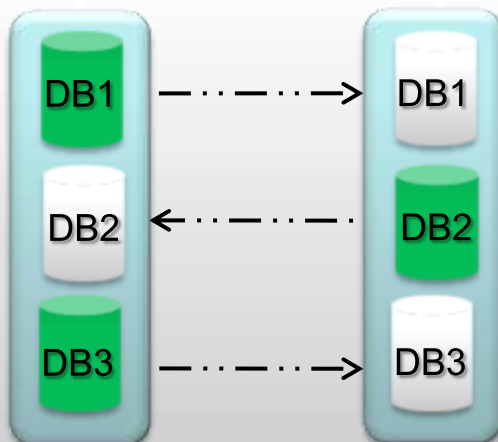
CPU:8核心 (建議)
RAM:最大64GB

Client Access
Hub Transport
Mailbox

Client Access
Hub Transport
Mailbox

DAG的成員可以與其他角色共存

UM 角色不建議放在同一台



最好使用RAID

高可用性的設計範例

雙復原力- 維護+ 資料庫失效

AD: Taipei



- 2 servers out -> manual activation of server 3
- 3 Nodes
- In 3 server DAG, quorum is lost
- 3 HA Copies
- DAGs with more servers sustain more failures -> greater resiliency

Mailbox Server 1



Mailbox Server 2



Mailbox Server 3



Database Availability Group

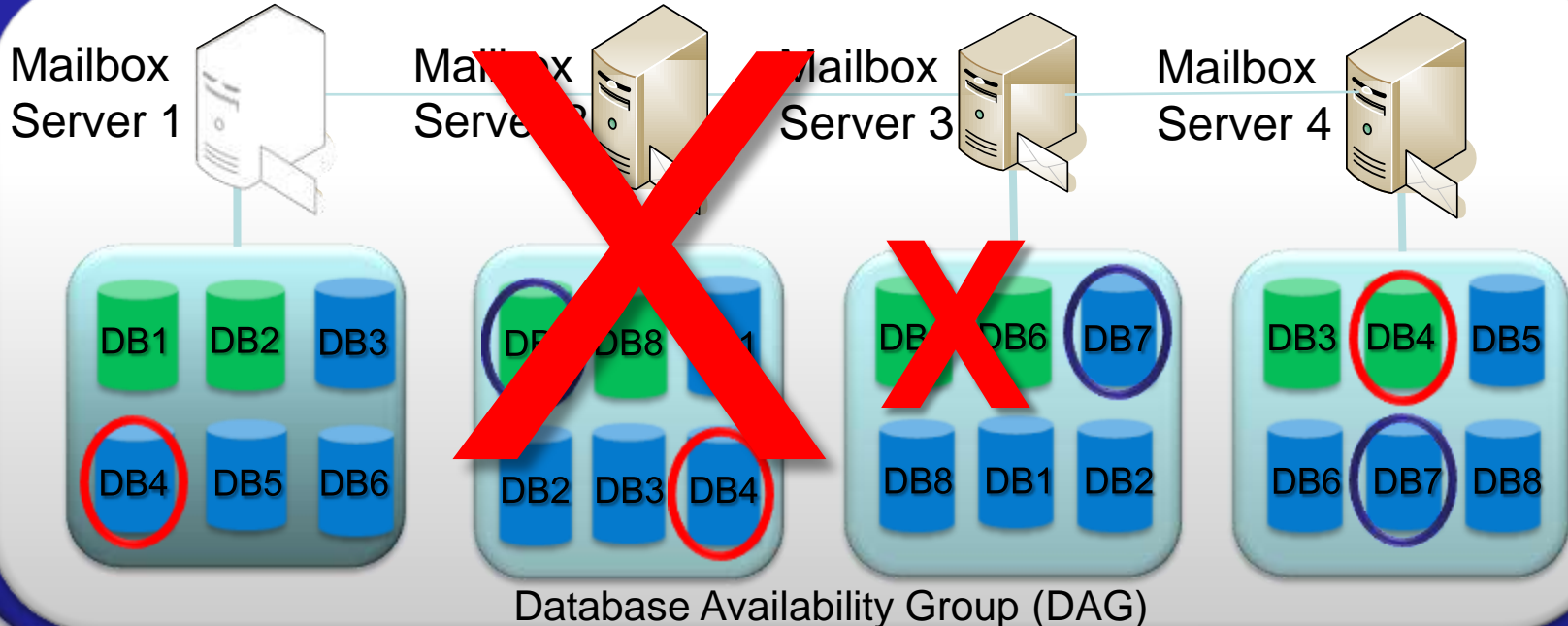
高可用性的設計範例

雙節點/磁碟失效復原

AD: Taipei



- Upgrade server 1
- Server 2 fails
- 3 server copies upgrade is done
- JB Active 3 copies of the Copies



摘要

- ◆ 提昇遞送可用性與信箱的復原能力
- ◆ 整合高可用性與Site 失效的復原力
- ◆ 提供漸近式且容易快速部署的方式
- ◆ 提供多樣性的儲存設備與降低成本

問題與解答

摘要

- ◆ 語音撥入式的電話會議，讓會議更加容易
- ◆ 客服電話總機語音辨識，來電應答不漏接
- ◆ 結合電話語音功能整合，語音辨識能用說
- ◆ 企業交換機整合OCS R2，商業處理最優化

For More Information

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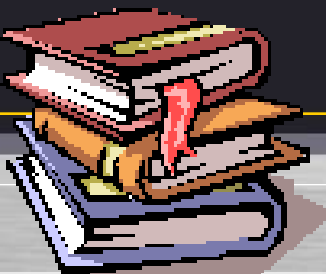
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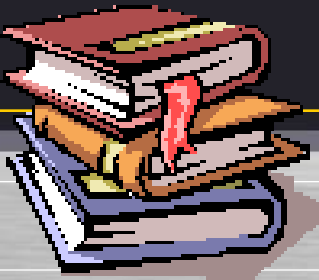
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