企業網路系統研究
(Enterprise Networking Systems Research)
(VMware vSphere)
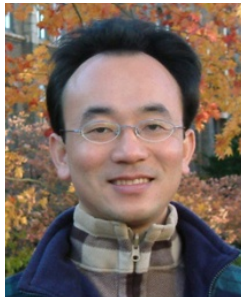
Course Introduction
(課程介紹)

1022VM01
MI4
Thu 9,10 (16:10-18:00) (B310)

Min-Yuh Day
戴敏育
Assistant Professor
專任助理教授
Dept. of Information Management, Tamkang University
淡江大學 資訊管理學系

http://mail. tku.edu.tw/myday/
2014-02-20

企業網路系統研究
(VMware vSphere)

課程
(Course)

實務
(Practice)

認證
(Certification)

淡江大學102學年度第2學期課程教學計畫表
Spring 2014 (2014.02 - 2014.06)

- 課程名稱：企業網路系統研究
  (Enterprise Networking Systems Research)
  (VMware vSphere)

- 授課教師：戴敏育 (Min-Yuh Day)

- 開課系級：資管四P (TLMXB4P)

- 開課資料：選修 單學期 2 學分 (2 Credits, Elective)

- 上課時間：週四 9,10 (Thu 16:10-18:00)

- 上課教室：B310

課程簡介

- 本課程介紹建立雲端基礎架構虛擬化平台 VMware vSphere 基本概念與技術實務。

- 課程內容包括：
  - 虛擬化與雲端運算架構、
  - 建立虛擬機、
  - 配置資源以維企業運作、
  - 遷移虛擬機 、
  - 虛擬機運作負載平衡、
  - 監控虛擬資料中心、
  - 高可用性和容錯、
  - 建立私有雲：擴充 VMware vSphere 能力、
  - VMware vSphere實作練習。

Course Introduction

- This course introduces the fundamental concepts and practices of VMware vSphere, a virtualization platform for building cloud infrastructures.

- Topics include:
  - Virtualization and Cloud Computing Infrastructure,
  - Creating Virtual Machines,
  - Allocating Resources to Business Functions,
  - Migrating Virtual Machines,
  - Balancing Virtual Machine Workloads,
  - Monitoring the Virtual Datacenter,
  - High Availability and Fault Tolerance,
  - Build Private Cloud: Extending VMware vSphere Capabilities,
  - VMware vSphere Laboratory Exercises.

課程目標
(Objective)

- 瞭解及應用
  建立雲端基礎架構
  虛擬化平台
  基本概念與技術實務。

- Understand and apply the fundamental concepts and technology of **virtualization platform** for building **cloud infrastructures**.

課程大綱 (Syllabus)

週次 (Week)　日期 (Date)　內容 (Subject/Topics)

1　103/02/20　Course Introduction (課程介紹)

2　103/02/27　Virtual Infrastructure Overview:
Virtualization Platform for Building Cloud Infrastructures
(虛擬架構概觀: 建立雲端基礎架構虛擬化平台)

3　103/03/06　Creating Virtual Machines (建立虛擬機)

4　103/03/13　VMware vSphere Laboratory Exercises I
(VMware vSphere實作練習 I)(B206)

5　103/03/20　Allocating Resources to Business Functions
(配置資源以維繫企業運作)

6　103/03/27　Migrating Virtual Machines (遷移虛擬機)

7　103/04/03　教學行政觀摩日 (Off-campus study)

8　103/04/10　VMware vSphere Laboratory Exercises II
(VMware vSphere實作練習 II)(B206)

課程大綱 (Syllabus)

週次 (Week)　日期 (Date)　內容 (Subject/Topics)

9　103/04/17　Balancing Virtual Machine Workloads
(虛擬機運作負載平衡)

10　103/04/24　期中考試週 (Midterm Exam)

11　103/05/01　Monitoring the Virtual Datacenter
(監控虛擬資料中心)

12　103/05/08　High Availability and Fault Tolerance
(高可用性和容錯)

13　103/05/15　Build Private Cloud:
Extending VMware vSphere Capabilities
(建立私有雲：擴充 VMware vSphere 能力)

14　103/05/22　VMware vSphere Laboratory Exercises III
(VMware vSphere實作練習 III)(B206)

15　103/05/29　畢業考試週 (Final Exam)

教學方法與評量方法

- 教學方法
  - 講述、討論、賞析、模擬、實作、問題解決
- 評量方法
  - 紙筆測驗、實作、報告、上課表現

教材課本

- 講義 (Slides)
- VMware vSphere: Overview
- VMware Training

作業與學期成績計算方式

- 學期成績計算方式
  - ☑期中評量：30 ％
  - ☑期末評量：30 ％
  - ☑其他（課堂參與及報告討論表現）： 40 ％

企業網路系統研究
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(Practice)

認證
(Certification)

VMware vSphere
Laboratory Exercises 1, 2, 3
(VMware vSphere 實作練習 1, 2, 3)
(3/13 , 4/10, 5/22)(B206)

講師：

張維廷 (Chang, Wei-ting)

淡江大學資訊處 網路管理組

(TKU-OIS Network Management Section)

淡江軟體雲

http://cloudweb.tku.edu.tw

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VMware Certification Roadmap

Certification tracks

	Cloud			Data Center Virtualization		End User Computing		Network Virtualization
	Engineer & Administrator	Architect	Governance & Operations	Engineer & Administrator	Architect	Engineer & Administrator	Architect	Engineer & Administrator
Expert	VCDX – Cloud			VCDX – Data Center Virtualization		VCDX – Desktop		
Advanced Professional	VCAP – Cloud Infrastructure Administration	VCAP – Cloud Infrastructure Design	VCAP – Cloud Governance	VCAP – Data Center Administration	VCAP – Data Center Design	VCAP – Desktop Administration	VCAP – Desktop Design	
Professional	VCP – Cloud			VCP5 – Data Center Virtualization		VCP – Desktop		
Associate	VCA – Cloud			VCA – Data Center Virtualization		VCA – Workforce Mobility		VCA – Network Virtualization

Progression

Legend: ■ Available today ■ New release ■ Coming soon

What's next?
Learn more and get started
vmware.com/certification

VMware Certification: Be exceptional

vmware EDUCATION SERVICES

VMware Certification

VMware Certified Associate - Data Center Virtualization (**VCA**-DCV)(VCDA510)

VMware Data Center Virtualization Fundamentals

VMware Certified Professional 5 - Data Center Virtualization (VCP5-DCV)(VCP510 or VCP550)

Get VCP5-DCV Certified

There are different paths to VCP5-DCV certification based on your background. Choose your path and complete the three core validation components:

1. Attend a qualifying VMware authorized course.
2. Gain hands-on experience with VMware vSphere 5.
3. Pass the VCP5-DCV (VCP510 or VCP550) Exam.

IF YOU ARE...	TRAINING COURSES	EXAM	CERTIFICATION
Just starting with VMware data center virtualization technologies OR Currently VCP2 or VCP3 certified	REQUIRED VMware vSphere: Install, Configure, Manage [V5.x] OR VMware vSphere: Fast Track [V5.x] OR VMware vSphere: Optimize and Scale [V5.x] OR VMware vSphere: Troubleshooting Workshop [V5.x] OR VMware vSphere with Operations Management: Fast Track [V5.1]	Pass the VCP5-DCV Exam	VCP5-DCV
Currently VCP4-DCV certified	REQUIRED VMware vSphere: What's New [V5.x]	Pass the VCP5-DCV Exam	VCP5-DCV
Not VCP4-DCV Certified but have completed a VCP4-DCV qualifying course: • VMware vSphere: Fast Track [V4.x] • VMware vSphere: Advanced Fast Track [V4.x] • VMware vSphere: Automation Fast Track [V4.1] • VMware vSphere: Install, Configure, Manage [V4.1] • VMware vSphere: Troubleshooting [V4.x]	REQUIRED VMware vSphere: What's New [V5.x]	Pass the VCP5-DCV Exam	VCP5-DCV
Currently VCP5-DT or VCP-Cloud certified	RECOMMENDED VMware vSphere: What's New [V5.x]	Pass the VCP5-DCV Exam	VCP5-DCV

- VCDX Login

>> Subscribe to the Quarterly Newsletter VIEWPOINT

>> See Previous Issues

vmware EDUCATION BLOG

vmware CERTIFIED PROFESSIONAL DATA CENTER VIRTUALIZATION

Source: http://mylearn.vmware.com/mgrReg/plan.cfm?plan=12457&ui=www_cert

VMware Certified Professional 5 - Data Center Virtualization (VCP5-DCV)(VCP510 or VCP550)

1. Attend a qualifying VMware authorized course.
   - Training Courses (*Required)
     - VMware vSphere: Install, Configure, Manage [V5.x]
2. Gain hands-on experience with VMware vSphere 5.
3. Pass the VCP5-DCV (VCP510 or VCP550) Exam.

Course Introduction

Module 1

Source: VMware vSphere: Overview

Importance

- This course introduces the foundational capabilities and features of virtualization and VMware vSphere®.

- It also provides a brief overview of the array of products available from VMware®.

Learner Objectives

After this course, you should be able to do the following:

- Understand VMware virtualization concepts.
- Deploy virtual machines using VMware vCenter Server™.
- Perform live migrations using VMware vSphere® vMotion® and vSphere Storage vMotion.
- Configure VMware ESXi™ clusters to automatically distribute virtual machine workloads.
- Hierarchically allocate CPU and memory resources to specific business functions.
- Use vCenter Server performance graphs and alarms to proactively monitor the virtual datacenter.
- Ensure high availability of applications with vSphere High Availability and VMware Fault Tolerance.
- Understand how to extend vSphere capabilities.

You Are Here

VMware vSphere: Overview

Course Introduction

Virtual Infrastructure Overview

Creating Virtual Machines

Allocating Resources to Business Functions

Migrating Virtual Machines

Distributing Virtual Machine Workloads

Monitoring the Virtual Datacenter

High Availability and Fault Tolerance

Extending VMware vSphere Capabilities

Typographical Conventions

The following typographical conventions are used in this course:

`Monospace`	Filenames, folder names, path names, command names: the `bin` directory
`Monospace bold`	What the user types: Type **`ipconfig`** and press Enter.
Boldface	Graphical user interface items: the **Configuration** tab
Italic	Book titles and emphasis: *vSphere Datacenter Administration Guide*
<filename>	Placeholders: <ESXi_host_name>

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VMware Online Resources

VMware Communities: http://communities.vmware.com

- – Start a discussion.

- – Access the knowledge base.

- – Access documentation, technical papers, and compatibility guides.

- – Access communities.

- – Access user groups.

VMware Support: http://www.vmware.com/support

VMware Education: http://www.vmware.com/education

- – Access course catalog and worldwide course schedule.

vmware®

Key Points

- This course demonstrates vSphere features capable of reducing your IT costs while improving efficiency, availability, flexibility, and manageability.

- This course will help you make or influence informed buying decisions about vSphere.

vmware®

Physical Infrastructure

applications
operating system
physical host

Ethernet

Fibre Channel

iSCSI storage

NFS storage

Network

Fibre Channel storage

Source: VMware vSphere: Overview

Virtual Infrastructure

virtual machines →

hypervisor →

VMware ESXi™ host →

VMware vSphere

Ethernet

Fibre Channel

iSCSI storage

NFS storage

Network

Fibre Channel storage

Source: VMware vSphere: Overview
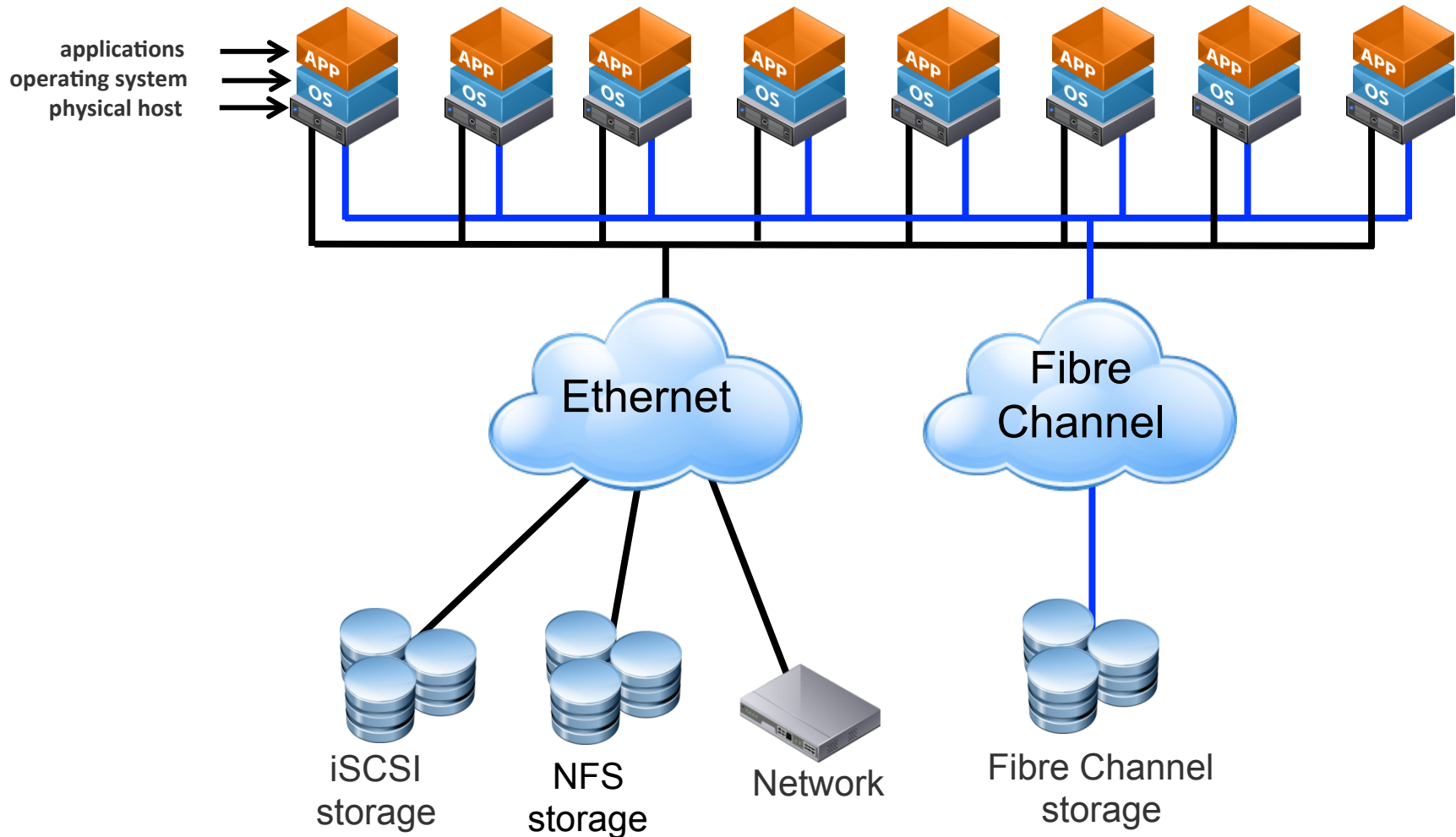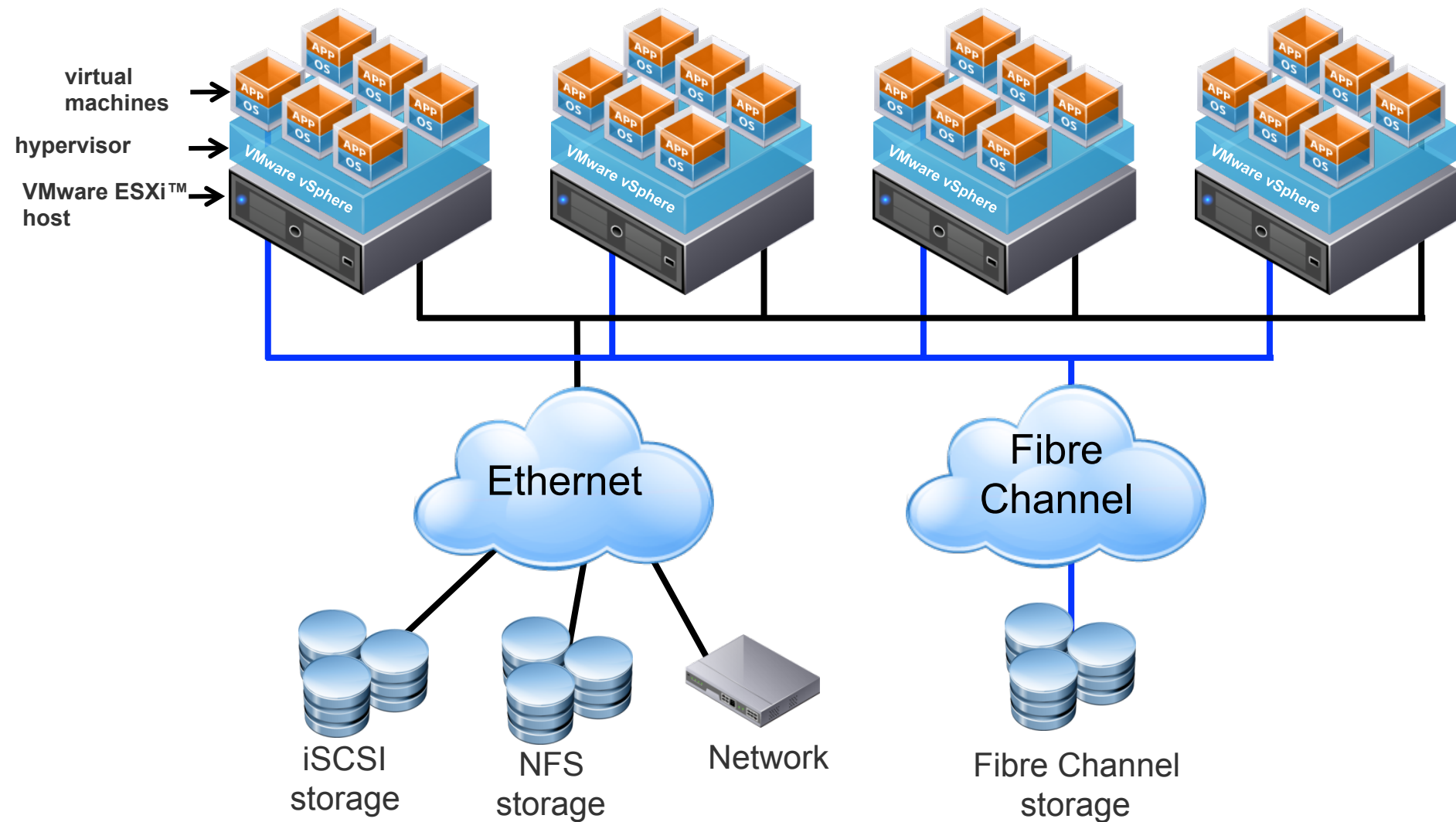
Physical Versus Virtual Architecture

Source: VMware vSphere: Overview

What Is VMware vSphere?

VMware vSphere

| vSphere Client | vSphere Web Access | vSphere SDK |

| DRS | HA | Consolidated Backup | Plug-in |

vCenter Server

virtual machines

| apps | apps | apps | apps | apps | apps | apps |
| OS | OS | OS | OS | OS | OS | OS |

| Virtual SMP | ESXi Hosts | VMFS |

enterprise servers

enterprise network
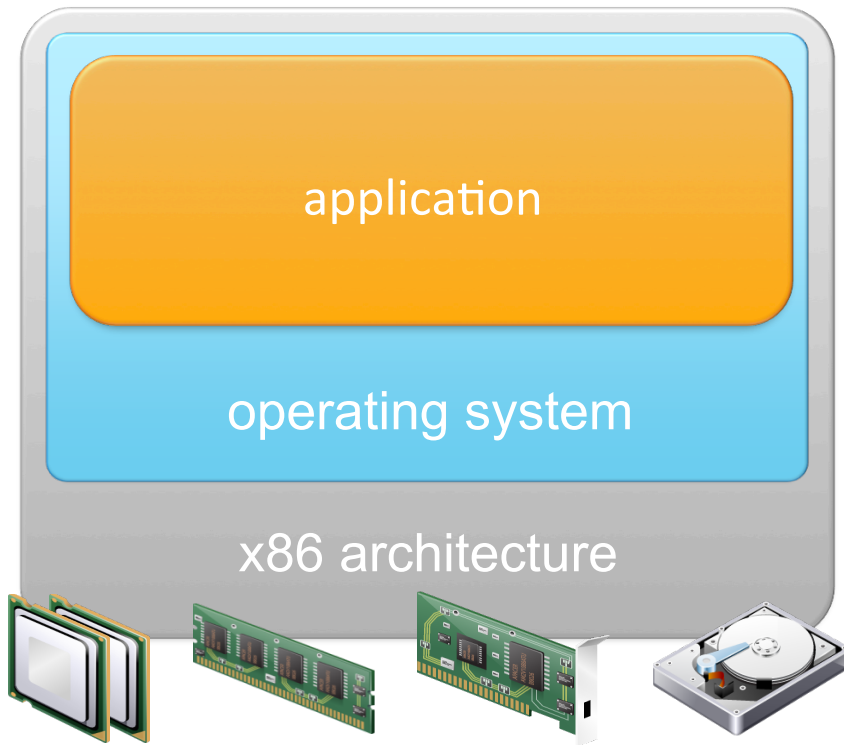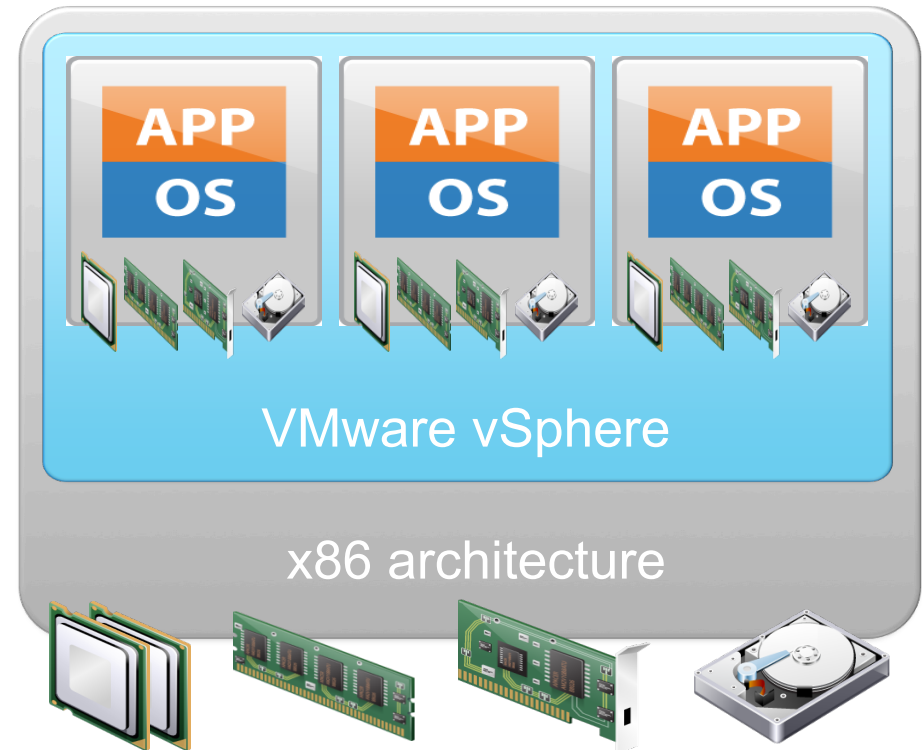
enterprise storage
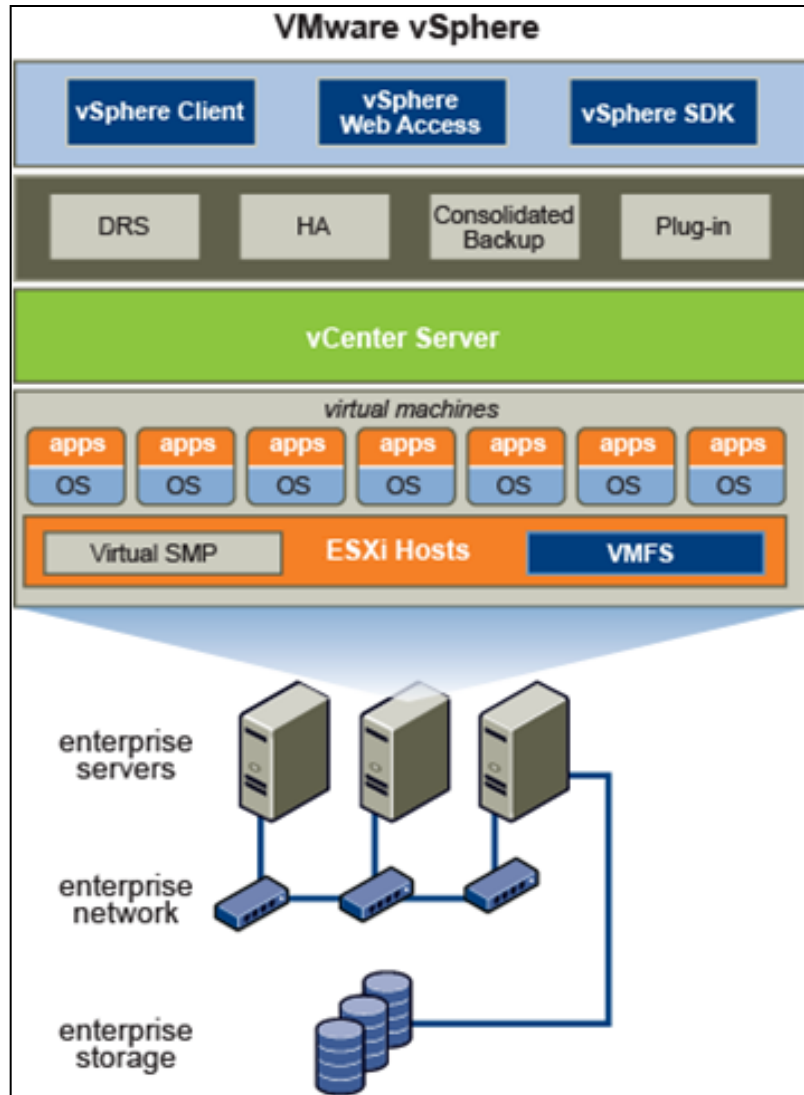
An infrastructure virtualization suite that provides virtualization, management, resource optimization, application availability, and operational automation capabilities

It consists of the following components:

- VMware ESXi
- VMware vCenter Server™
- VMware vSphere® Client™
- VMware vSphere® VMFS
- VMware vSphere® Virtual Symmetric Multiprocessing

User Interfaces

vSphere Client

Your desktop

Web Client

vCenter Server

ESXi host
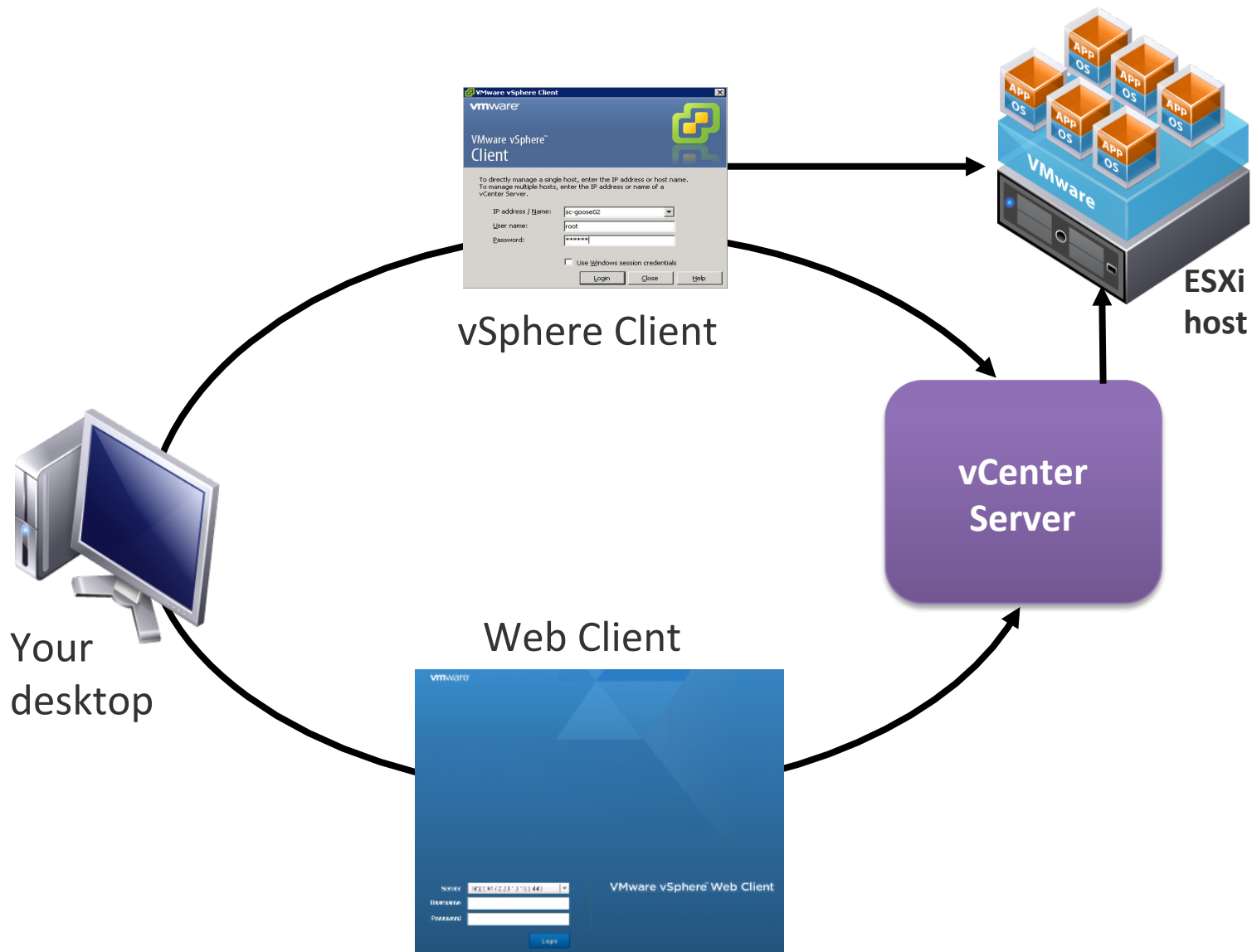
vmware®

How vSphere Fits into Cloud Computing

- Installing vSphere 5 creates a virtual infrastructure.
- Your virtual machines run in this virtual infrastructure.
- VMware vCloud Director™ enables you to create a cloud.
- Third-party providers can host public or private clouds.
- VMware® clouds empower you to run your virtual machines in a private, public, or hybrid cloud to fit your business needs.

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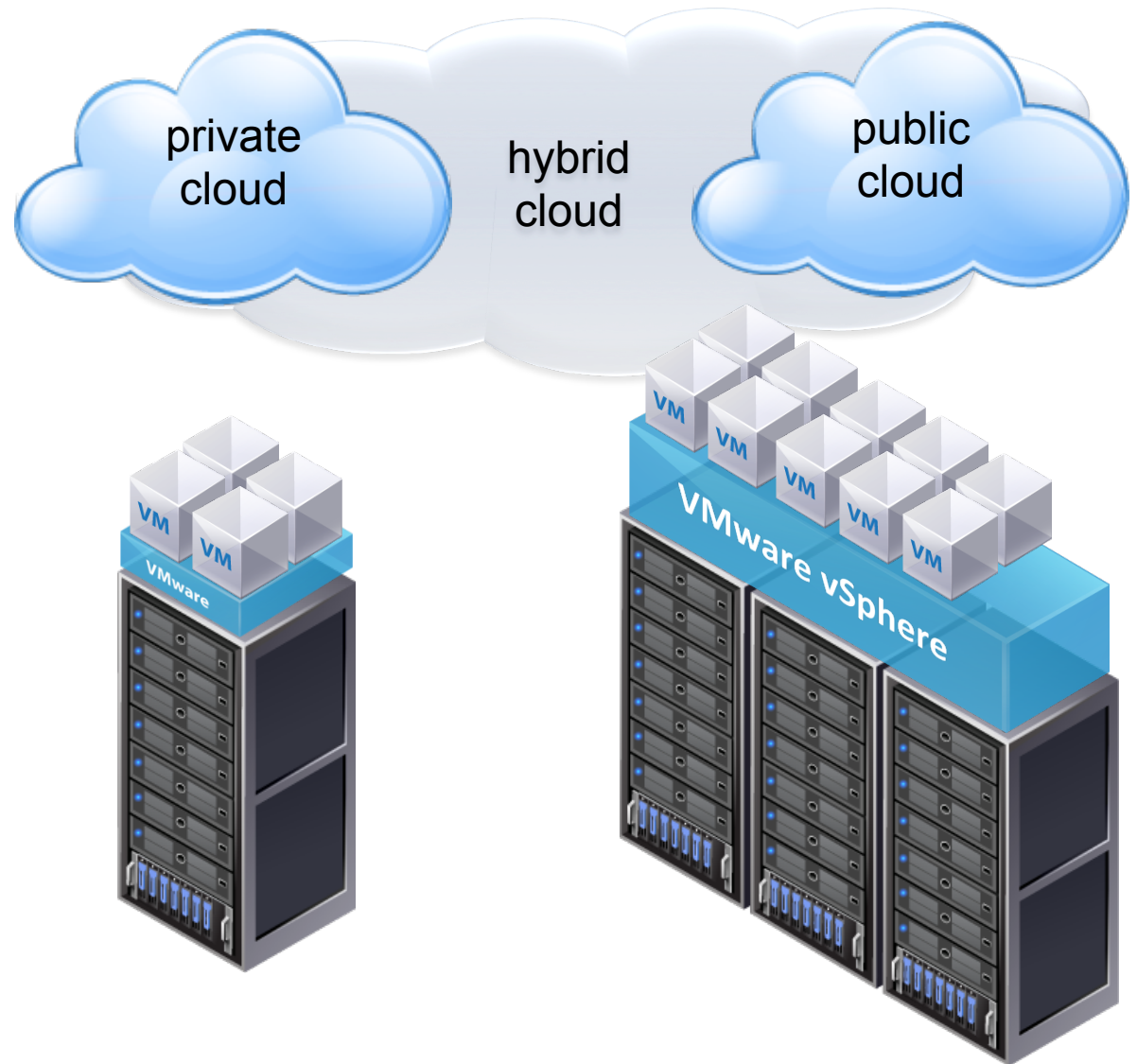
Contact Information

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