

企業網路系統研究 (Enterprise Networking Systems Research) (VMware vSphere)



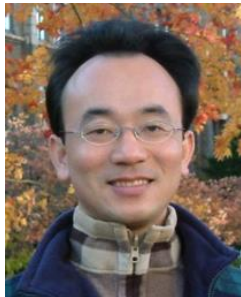
Tamkang
University

Course Introduction (課程介紹)

1032VM01

MI4

Thu 7,8 (14:10-16:00) (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/>

2015-02-26



企業網路系統研究 (VMware vSphere)



淡江大學103學年度第2學期

課程教學計畫表

Spring 2015 (2015.02 - 2015.06)

- 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 7,8 (Thu 14:10-16:00)
- 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	2015/02/26	Course Introduction (課程介紹)
2	2015/03/05	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	2015/03/12	Creating Virtual Machines (建立虛擬機)
4	2015/03/19	VMware vSphere Laboratory Exercises I (VMware vSphere實作練習 I)
5	2015/03/26	Allocating Resources to Business Functions (配置資源以維繫企業運作)
6	2015/04/02	教學行政觀摩日 (Off-campus study)
7	2015/04/09	Migrating Virtual Machines (遷移虛擬機)
8	2015/04/16	Balancing Virtual Machine Workloads (虛擬機運作負載平衡)

課程大綱 (Syllabus)

週次 (Week)	日期 (Date)	內容 (Subject/Topics)
9	2015/04/23	VMware vSphere Laboratory Exercises II (VMware vSphere實作練習 II)
10	2015/04/30	期中考試週 (Midterm Exam)
11	2015/05/07	Monitoring the Virtual Datacenter (監控虛擬資料中心)
12	2015/05/14	High Availability and Fault Tolerance (高可用性和容錯)
13	2015/05/21	Build Private Cloud: Extending VMware vSphere Capabilities (建立私有雲：擴充 VMware vSphere 能力)
14	2015/05/28	VMware vSphere Laboratory Exercises III (VMware vSphere實作練習 III)
15	2015/06/04	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 (VMware vSphere)



VMware vSphere

Laboratory Exercises 1, 2, 3

(VMware vSphere 實作練習 1, 2, 3)

(3/19 , 4/23, 5/28)(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>

企業網路系統研究 (VMware vSphere)



Certification tracks

VMware Certification Roadmap



What's next?

Learn more and get started

vmware.com/certification

■ Available today
 ■ New release
 ■ Coming soon

VMware Certification: Be exceptional

Source: http://mylearn.vmware.com/mgrReg/plan.cfm?plan=32567&ui=www_cert

VMware Certification

vm VMware Certification x

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Cloud

VMware Certified Associate - Cloud (VCA-Cloud) **NEW**
VMware Certified Professional - Cloud (VCP-Cloud)
VMware Certified Advanced Professional – Cloud Infrastructure Design (VCAP-CID)
VMware Certified Advanced Professional – Cloud Infrastructure Administration (VCAP-CIA)
VMware Certified Advanced Professional - Cloud Governance *Coming Soon*
VMware Certified Design Expert – Cloud (VCDX-Cloud)

Data Center Virtualization

vSphere 4
VMware Certified Professional 4 - Data Center Virtualization (VCP4-DCV)
VMware Certified Advanced Professional 4 - Data Center Administration (VCAP4-DCA)
VMware Certified Advanced Professional 4 - Data Center Design (VCAP4-DCD)
VMware Certified Design Expert 4 - Data Center Virtualization (VCDX4-DCV)

vSphere 5
VMware Certified Associate - Data Center Virtualization (VCA-DCV) **NEW**
VMware Certified Professional 5 – Data Center Virtualization (VCP5-DCV)
VMware Certified Advanced Professional 5 - Data Center Administration (VCAP5-DCA)
VMware Certified Advanced Professional 5 - Data Center Design (VCAP5-DCD)
VMware Certified Design Expert 5 - Data Center Virtualization (VCDX5-DCV)

End User Computing

Network Virtualization

Cloud Application Platform

VMware Training

Cloud

- VCA-Cloud **NEW**
- VCP-Cloud
- VCAP-CID
- VCAP-CIA
- VCDX-Cloud

Data Center Virtualization

- VCA-DCV **NEW**
- VCP5-DCV
- VCAP5-DCA
- VCAP5-DCD
- VCDX5-DCV

End User Computing

- VCA-WM **NEW**
- VCP5-DT
- VCAP-DTA **NEW**
- VCAP-DTD
- VCDX-DT **NEW**

Cloud Application Platform

- Spring Professional
- Web Application Developer
- Enterprise Integration Specialist

Certified Professional Portals

- VCA Login
- VCP Login
- VCAP Login
- VCDX Login

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

vm (VCA-DCV) VCA-Data Cent x

← → ↻ mylearn.vmware.com/mgrReg/plan.cfm?plan=41162&ui=www_cert

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Get VCA-DCV Certified

To become VCA-DCV certified you must pass the VCA-DCV exam (exam code: VCAD510).

There is no training requirement, however there is a free, self-paced elearning class that can help you prepare.

IF YOU ARE...	TRAINING COURSE	EXAM	CERTIFICATION
Just starting with VMware data center virtualization technologies	RECOMMENDED VMware Data Center Virtualization Fundamentals	Pass the VCA-DCV Exam	VCA-DCV

Certification requirements are subject to change and may not be retroactive to previous versions. Please regularly check vmware.com/certification for updates.

- VCP Login
- VCAP Login
- VCDX Login

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Recommended Training Course

This free, self-paced eLearning course is recommended to help you prepare for the VCA-DCV exam, but it is not required:

- VMware Data Center Virtualization Fundamentals
- VMware Data Center Virtualization Fundamentals (Japanese)
- VMware Data Center Virtualization Fundamentals (German)
- VMware Data Center Virtualization Fundamentals (Spanish)
- VMware Data Center Virtualization Fundamentals (French)
- VMware Data Center Virtualization Fundamentals (Chinese)

VCA-DCV Links

- [How-to Register and Schedule Exam](#)
- Prepare for the Exam**
 - [Exam Blueprint](#)
 - [Program Overview](#)
 - [VCA Forum](#)
 - [vSphere Instructional Videos](#)
 - [Practice Exam](#)
- Take the Exam**
 - [Exam Registration](#)
 - [Exam Language](#)

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VMware Data Center Virtualization Fundamentals

vm VMware Data Center Virtualization x

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VMware Data Center Virtualization Fundamentals

Summary: **Self-Paced** (2.5 Hours)

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[Course Description](#) ↑

Overview:

The Free VMware Certified Associate course on Data Center Virtualization Fundamentals will provide you with a fundamental understanding of VMware's Data Center Virtualization products, including the business challenges those products are intended to solve.

The course will start by covering the concepts of Data Center Virtualization, including some common IT challenges faced by organizations. We'll then take a journey through the vSphere 5.5 product line, showing the various components and features and how they help resolve business and technical challenges. Finally, we'll help you relate the products and features to the challenges they are intended to resolve.

Objectives: At the end of this course, you should be able to:

- Define and describe the need for Data Center Virtualization.
- Provide an overview of the features of vSphere 5.5 and define how VMware's products help solve business and technical challenges with regard to Data Center Virtualization.

Outline: Module 1 is an introduction to Data Center Virtualization with VMware vSphere. This module will define Data Center Virtualization, provide examples of business and technical challenges, and finally provide an overview of the vSphere product line. At the end of this module, you should be able to:

- Provide an overview of the challenges that vSphere is intended to resolve.
- Define and describe the need for Data Center Virtualization.

Module 2 covers the components of VMware vSphere. In this module we will explain what vSphere is, and how its components support Data Center Virtualization.

You'll learn about Virtual Machines, the ESXi hypervisor, vCenter and its features, Storage and virtual networking, vCenter Operations Manager, vCenter Configuration Manager, and vCenter Site Recovery Manager. At the end of this module, you should be able to:

- Provide an overview of the challenges that vSphere is intended to resolve.
- Discuss the features of VMware vSphere.

Module 3 is applying what you have learned.

In this module you will apply what you have learned about Data Center Virtualization to overcome Availability, Scalability, Optimization, and Management challenges encountered by our Sample Companies. At the end of this module, you will be able to:

- Describe how VMware's products help overcome business and technical challenges with regard to Data Center Virtualization.

Certification

VMware Training

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

vm (VCP5-DCV) VCP-Data Cer x

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☆ ☰

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.

VCDX Login

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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

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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

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>

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>

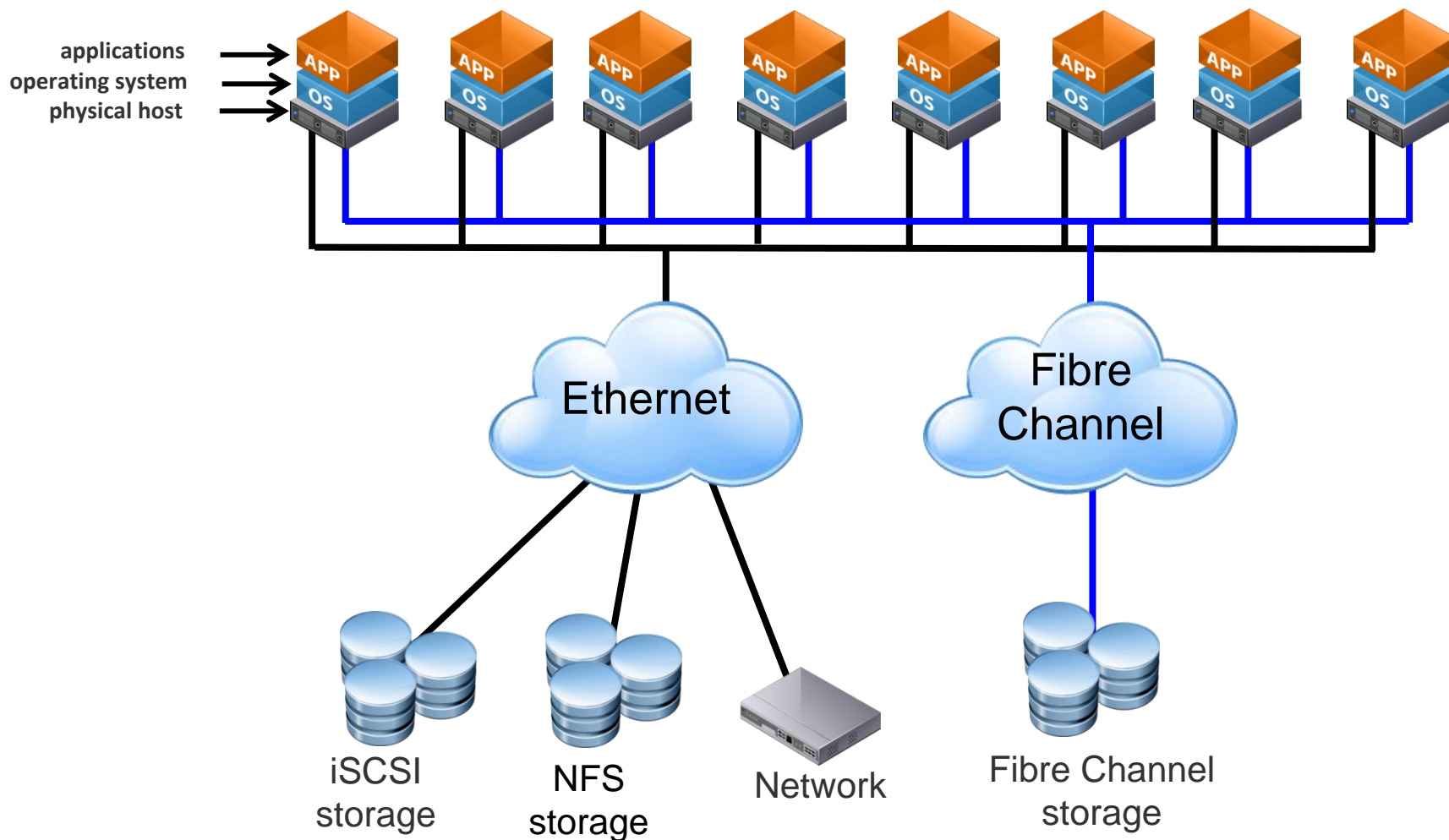
VMware Education: <http://www.vmware.com/education>

- Access course catalog and worldwide course schedule.

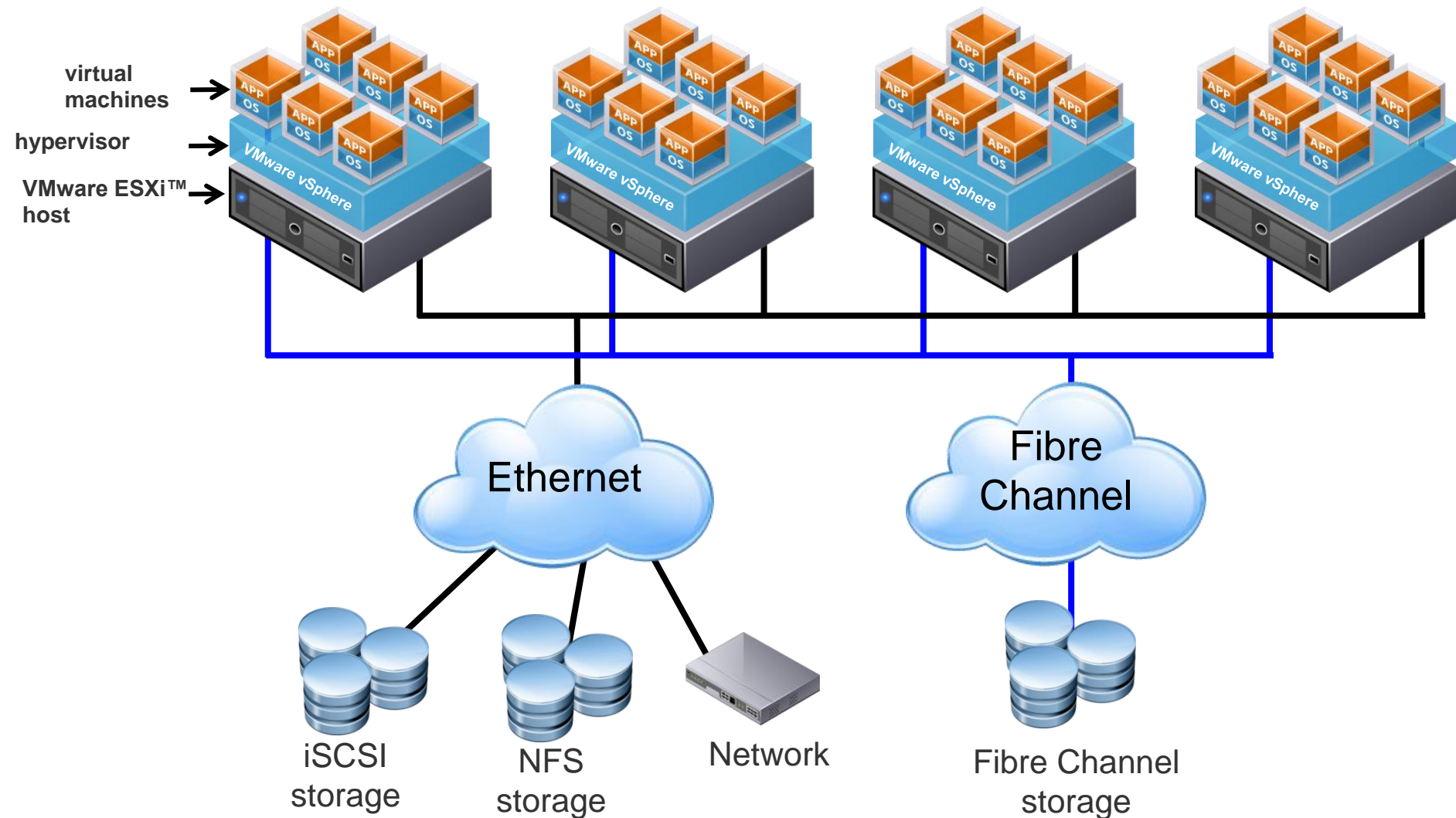
Key Points

- 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.

Physical Infrastructure

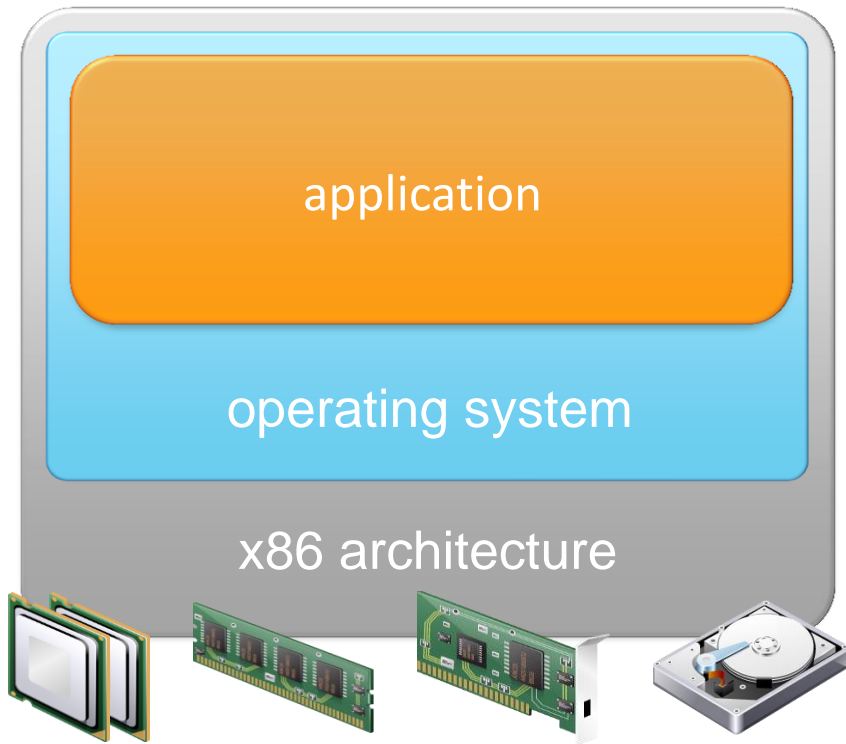


Virtual Infrastructure

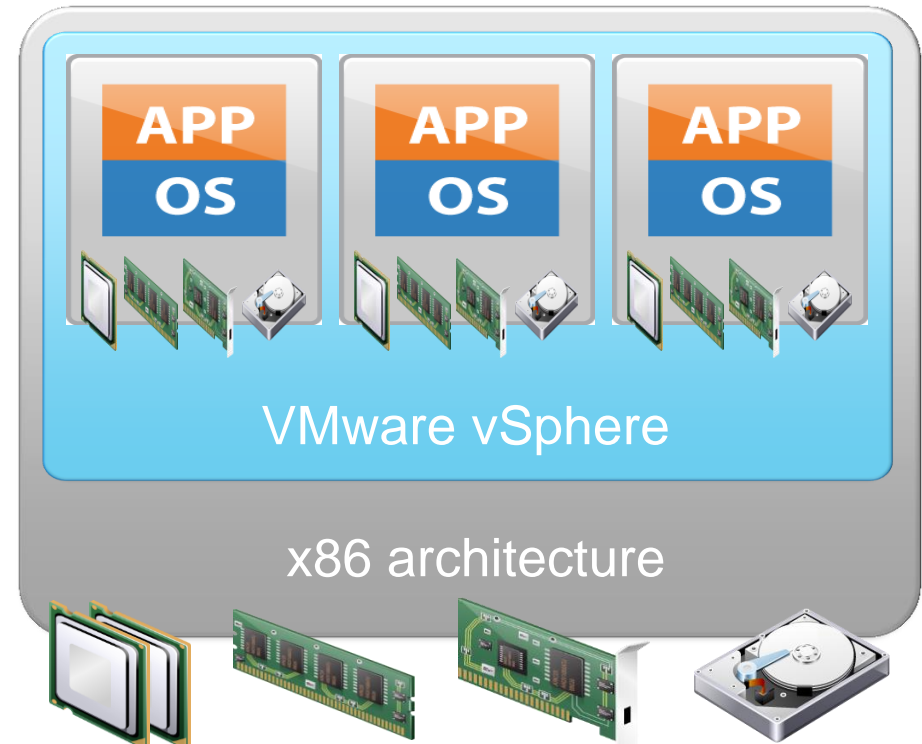


Physical Versus Virtual Architecture

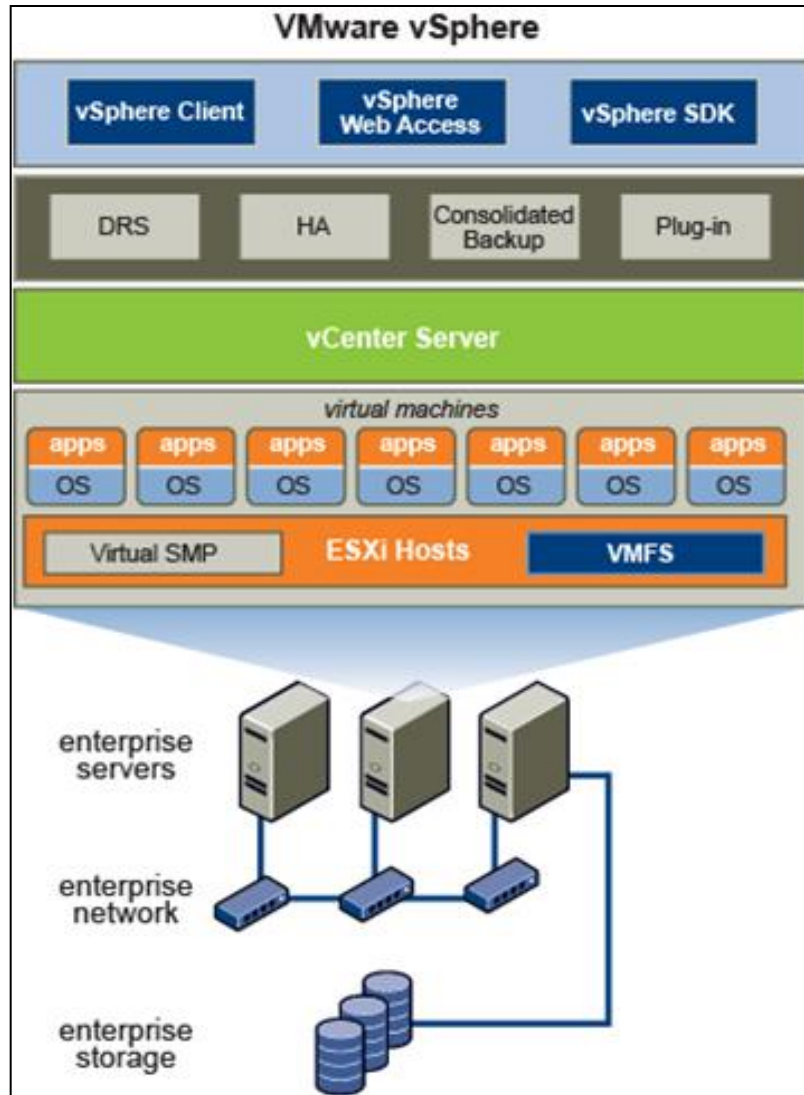
physical architecture



virtual architecture



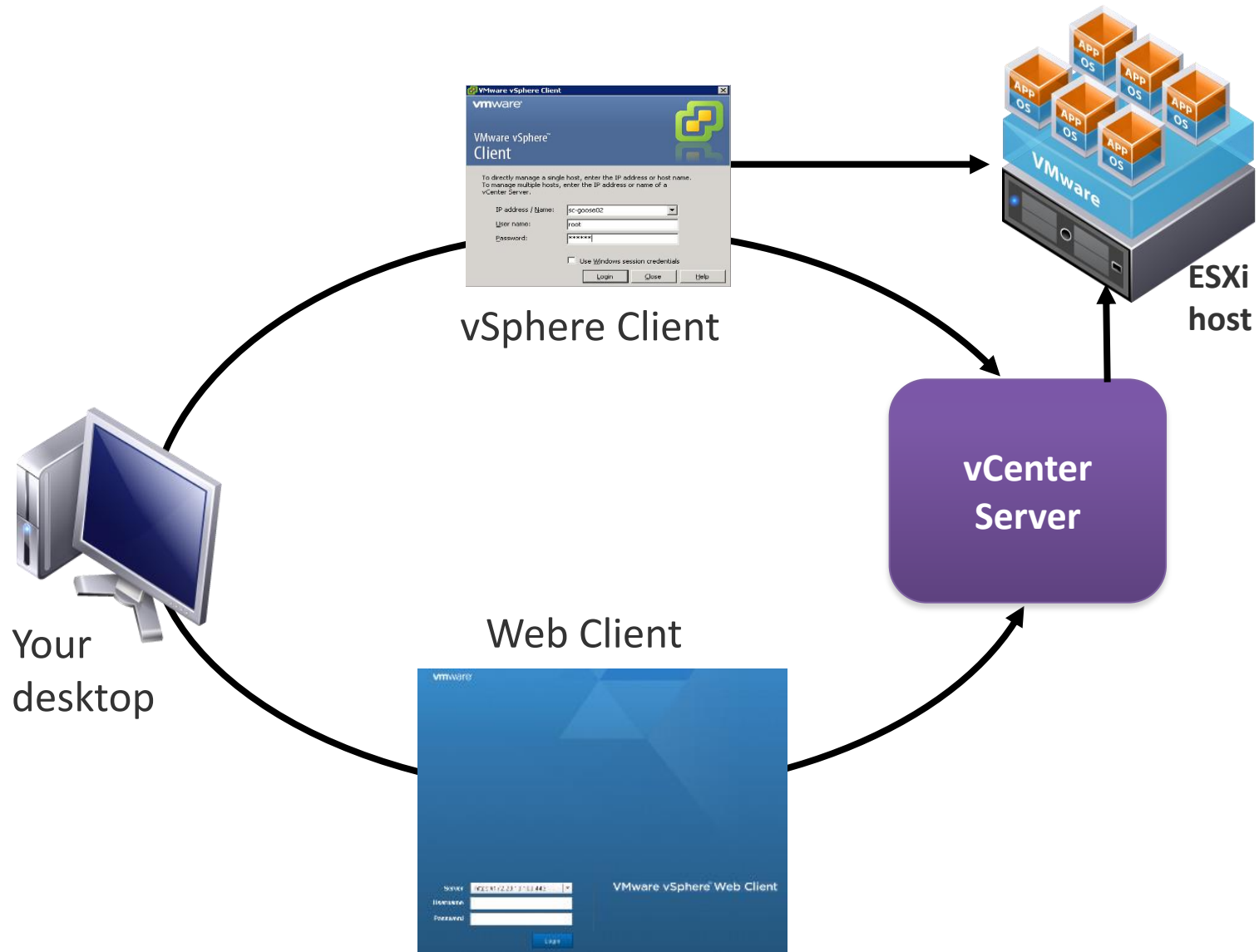
What Is VMware vSphere?



An **infrastructure virtualization suite** that provides virtualization, management, resource optimization, application availability, and operational automation capabilities. It consists of the following components:

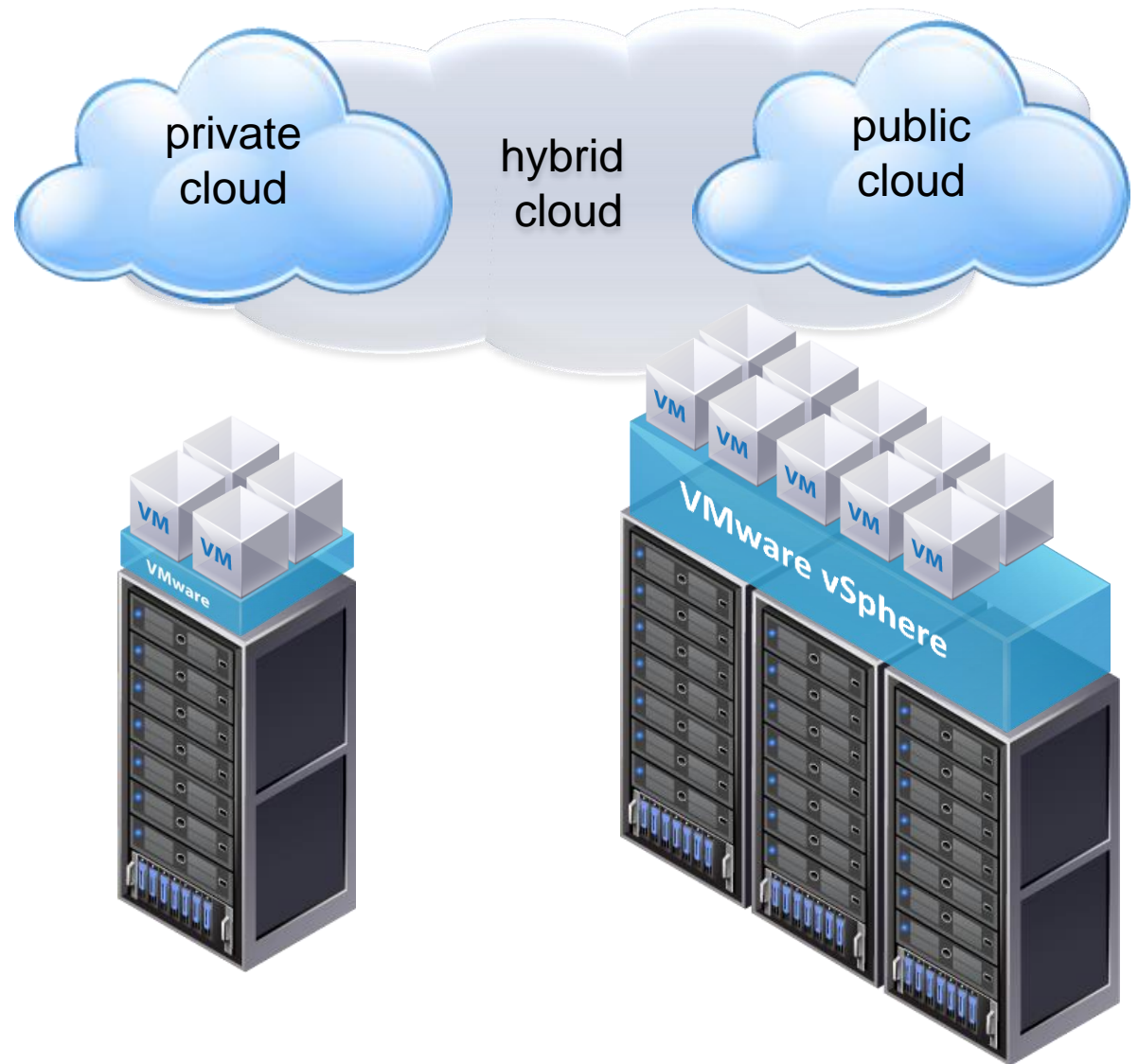
- VMware ESXi
- VMware vCenter Server™
- VMware vSphere® Client™
- VMware vSphere® VMFS
- VMware vSphere® Virtual Symmetric Multiprocessing

User Interfaces



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.



企業網路系統研究 (VMware vSphere)



Contact Information

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