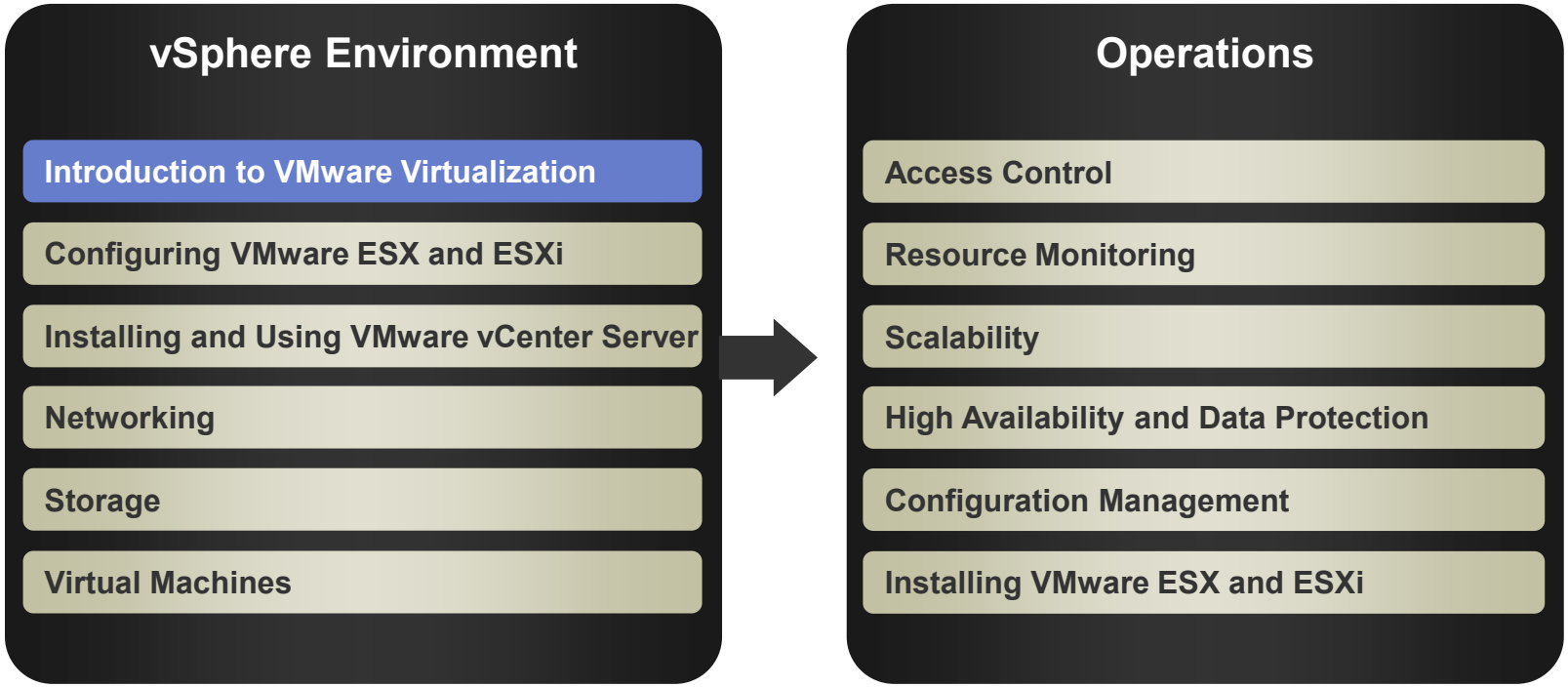
Introduction to VMware Virtualization

Module 2

You Are Here



Importance

- VMware® vSphere™ is based on many components that, as a vSphere administrator, you should be familiar with. This module describes the basic concept of virtualization, the types of virtualization available from VMware, and the virtual machine. This module then shows you the fundamental components of vSphere and provides some examples of how vSphere can be used in your environment.

Lesson Objectives

- Understand the concept of virtualization
- Identify the benefits of using a virtual machine
- Describe vSphere components
- Describe scenarios for using virtualization

What Is Virtualization?

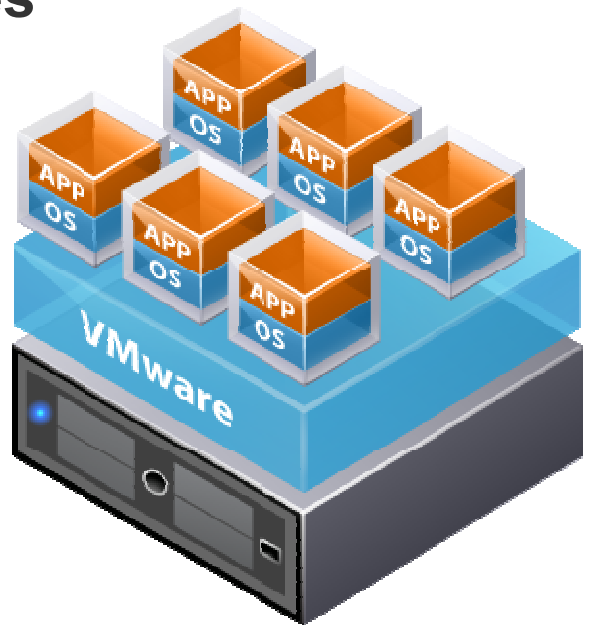
Virtualization is a technology that transforms hardware into software.

Virtualization allows you to run multiple operating systems as virtual machines on a single computer.

- Each copy of an operating system is installed into a *virtual machine*.

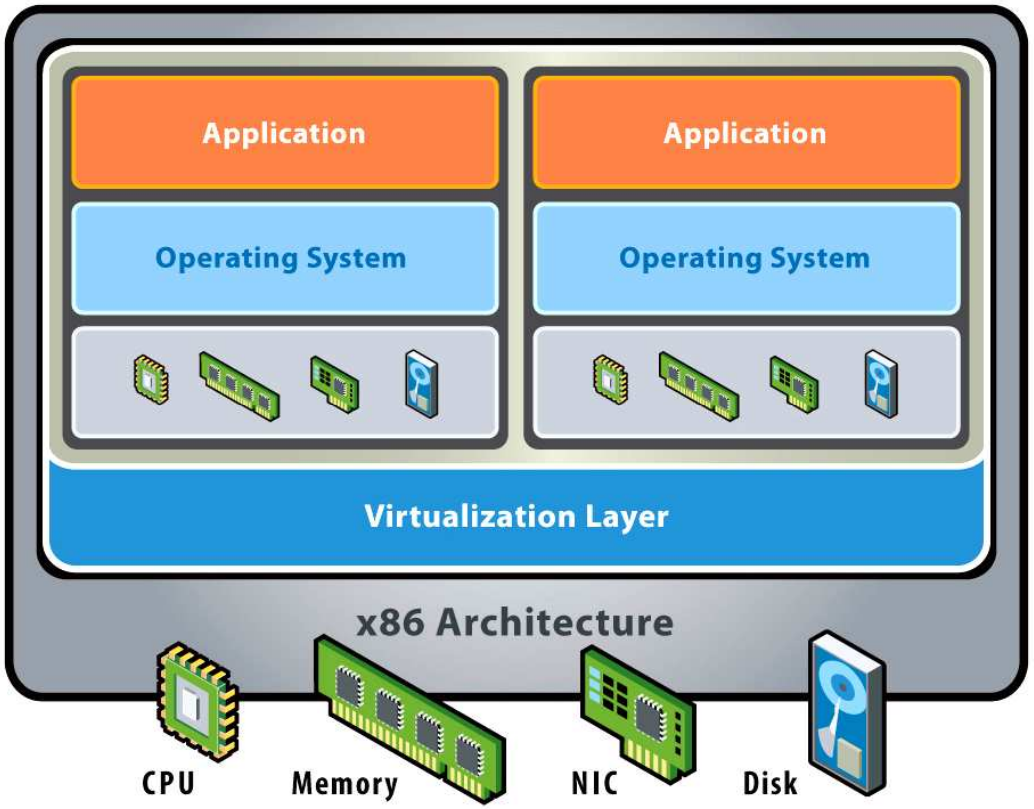
Virtualization is *not*:

- Simulation
- Emulation

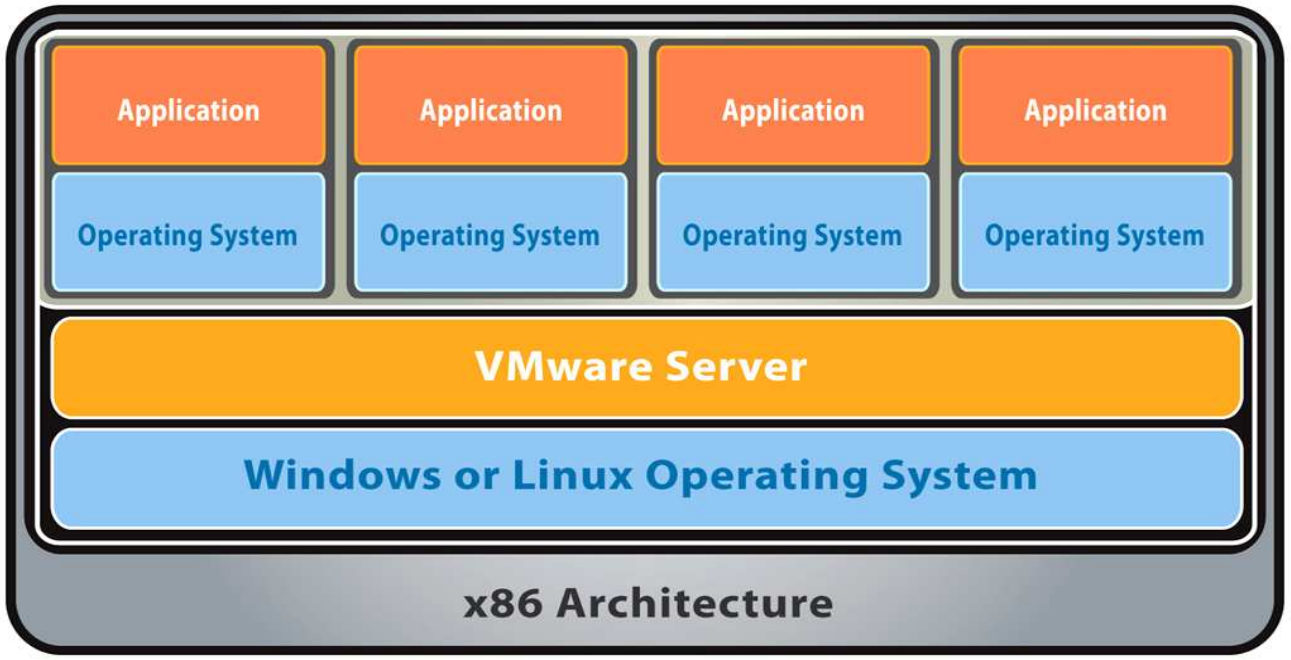


How Does Virtualization Work?

A virtualization layer is installed. It uses either a hosted or hypervisor architecture.

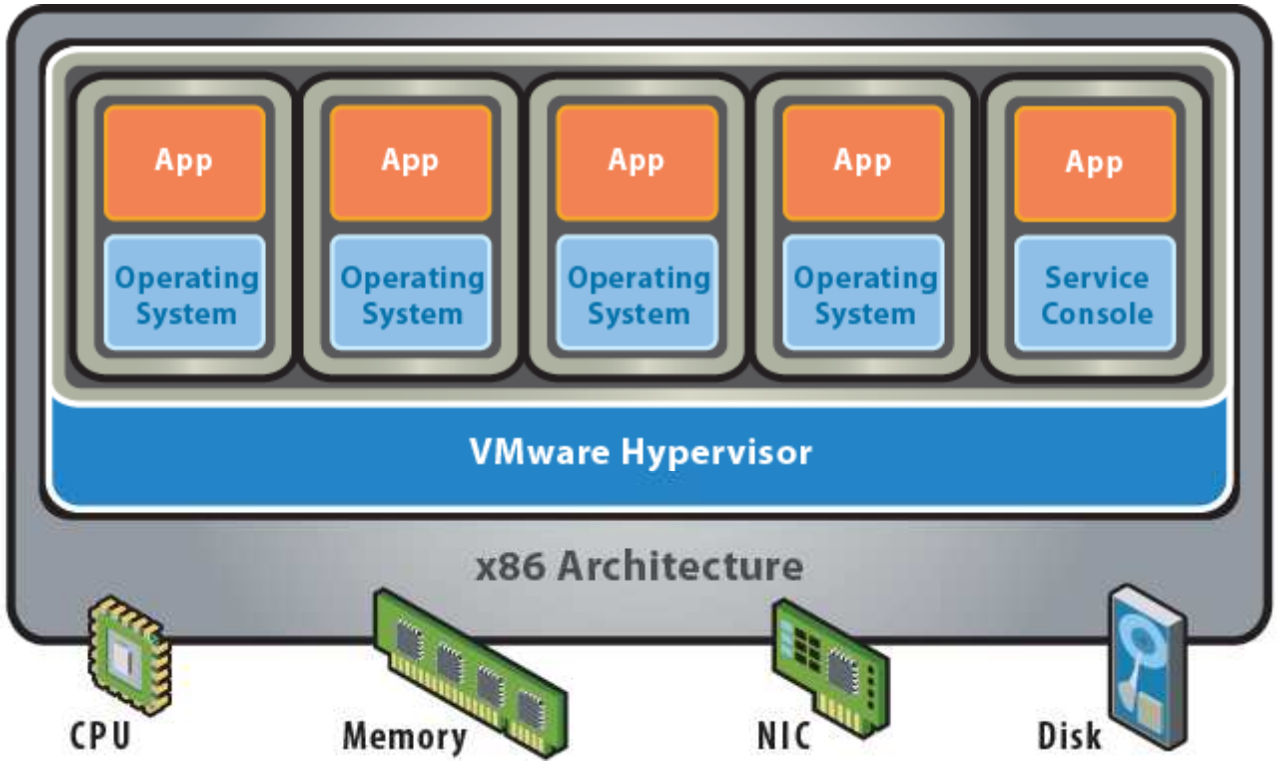


Host Operating System–Based Virtualization



A host-based virtualization system requires an operating system (such as Windows or Linux) to be installed on the computer.

Virtualization Using a Bare-Metal Hypervisor



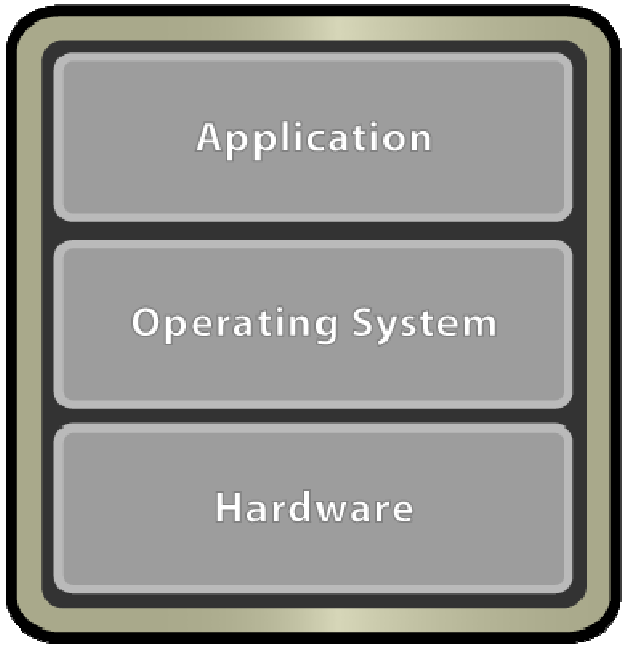
A bare-metal hypervisor system does not require an operating system. The hypervisor *is* the operating system.

What Is a Virtual Machine?

From the user's perspective, it is a software platform that, like a physical computer, runs an operating system and applications.

From the hypervisor's perspective, it is a discrete set of files. These are the main files:

- Configuration file
- Virtual disk file
- NVRAM settings file
- Log file



Virtual Machine

Why Use Virtual Machines?

Physical Machine

Difficult to move or copy

Bound to a specific set of hardware components

Often has short life cycle

Requires personal contact to upgrade hardware

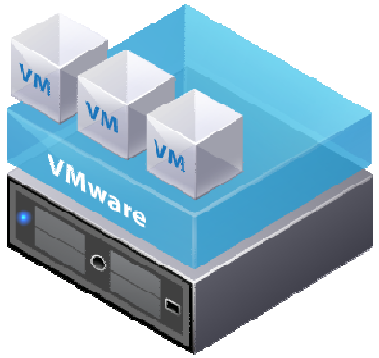
Virtual Machine

Easy to move and copy

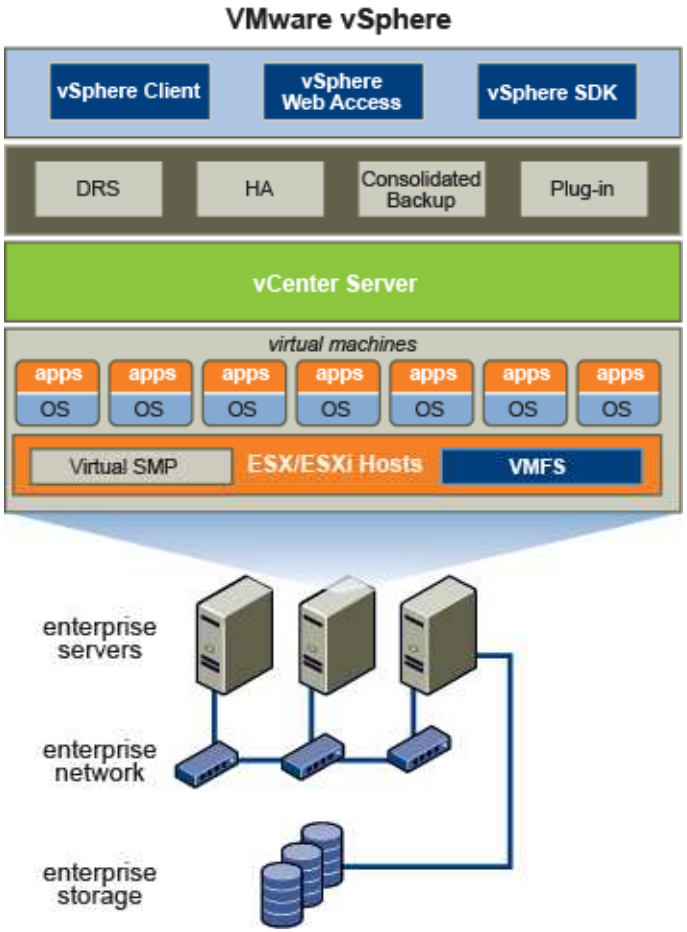
- Encapsulated into files
- Independent of physical hardware

Easy to manage

- Isolated from other virtual machines running on the same physical hardware
- Insulated from physical hardware changes



vSphere Components

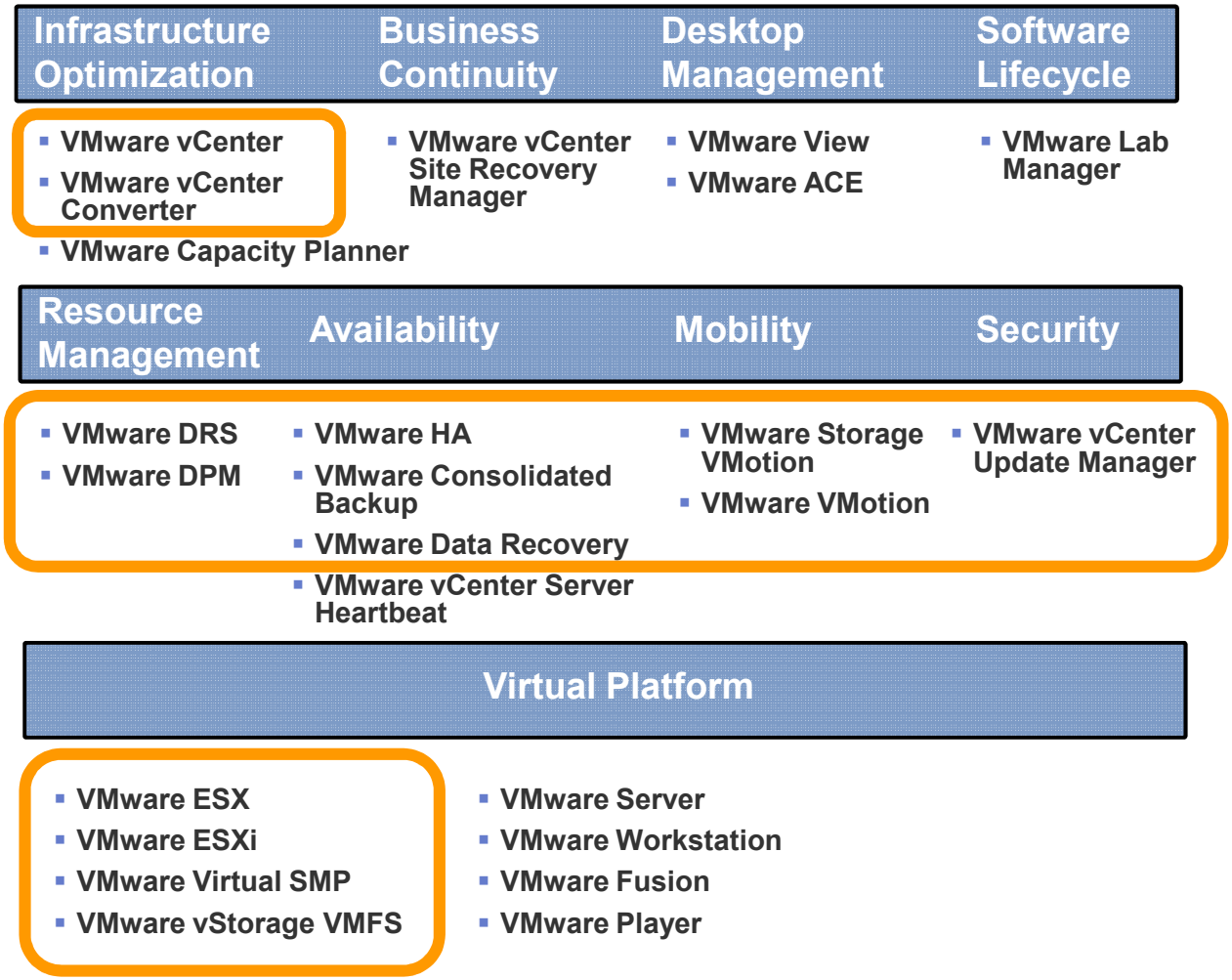


- VMware ESX™/ESXi
- VMware vCenter™ Server
- VMware vSphere Client
- VMware vSphere Web Access
- VMware vStorage VMFS
- VMware Virtual SMP

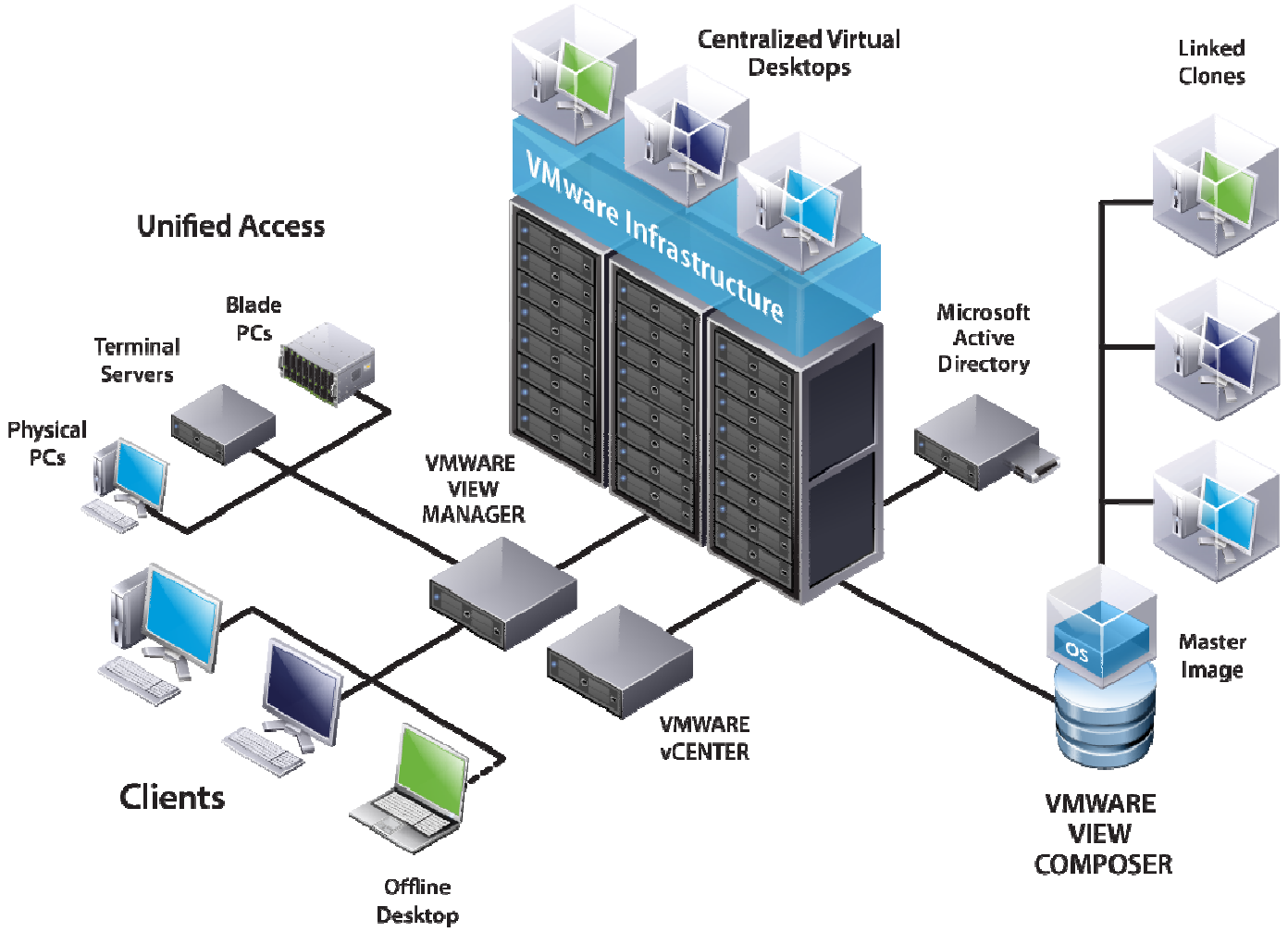
Using vSphere in a Datacenter

vSphere is compatible with various other VMware products.

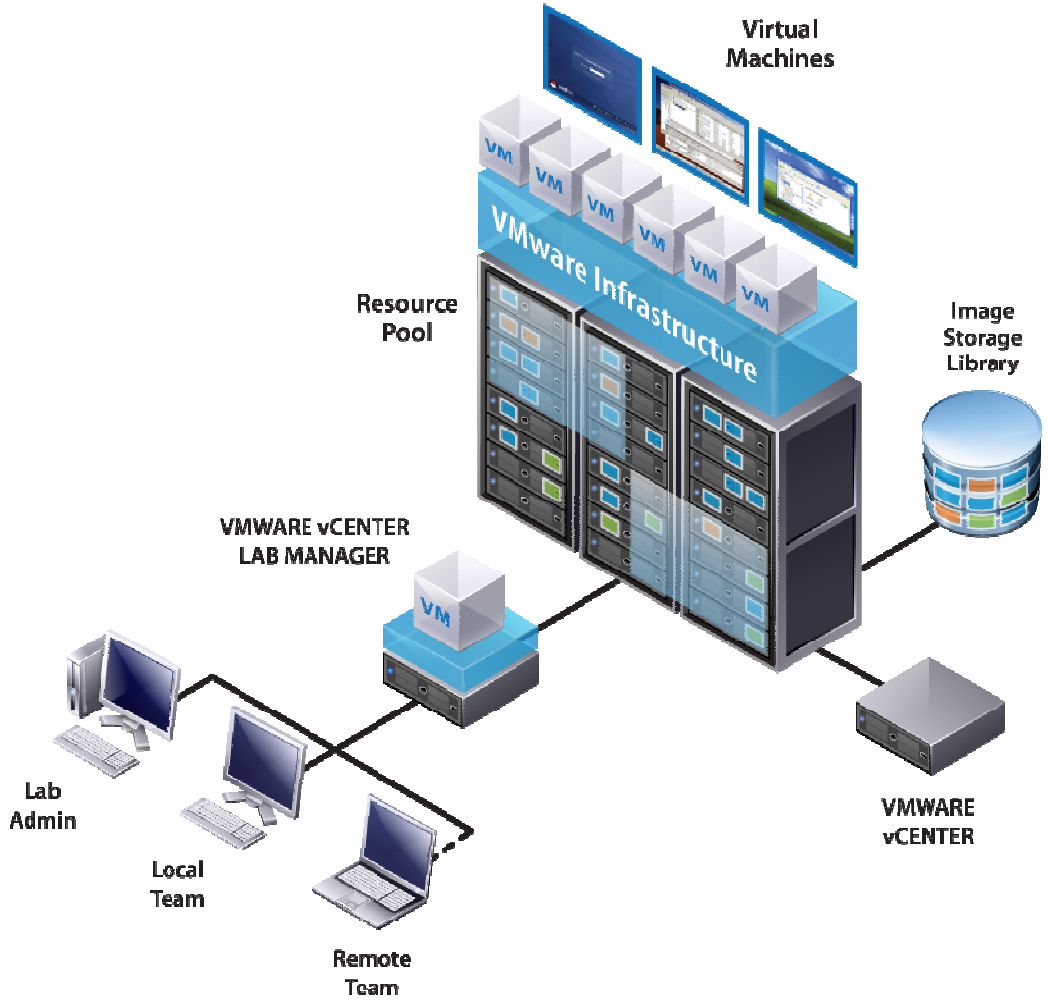
- For up-to-date version compatibility information, go to http://www.vmware.com.



Using VMware View with vSphere



Using VMware Lab Manager with vSphere



Key Points

- ESX/ESXi uses virtualization layers based on the hypervisor architecture.
- Virtual machines are encapsulated into files and independent of physical hardware, making them easy to move and copy between hosts.
- vSphere is commonly used for datacenter consolidation.