VMware vSphere 7.0 : ICM
(Datacenter Virtualization)

Agenda

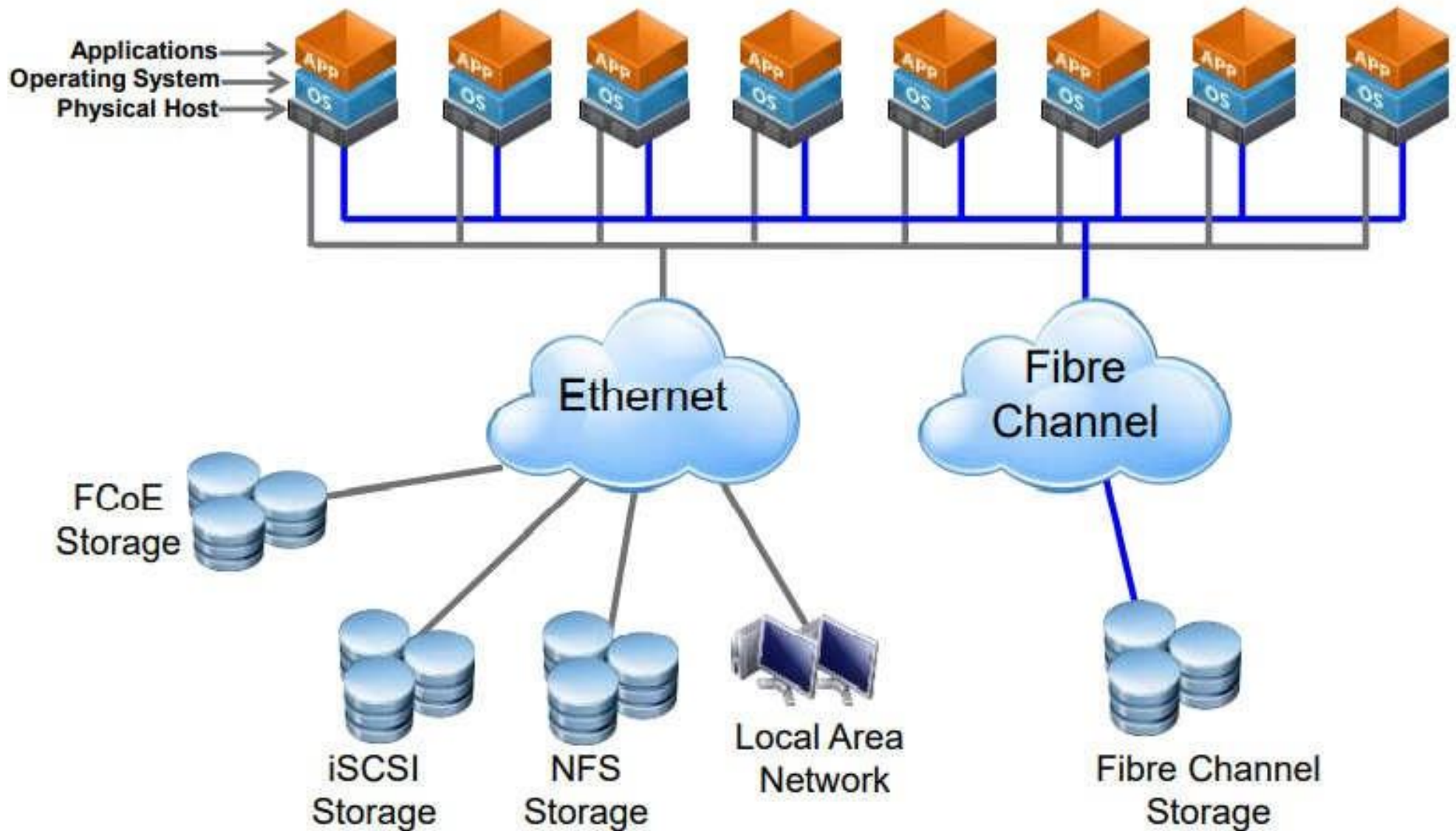After this lesson, you should be able to do the following:

- Course Objectives

- Target Audiences

- Course Prerequisites

- Why need virtualization?

- Virtualization Product Manufacturer

- About VMware & Market Share

- About VMware vSphere

- About Software Define Datacenter (SDDC)

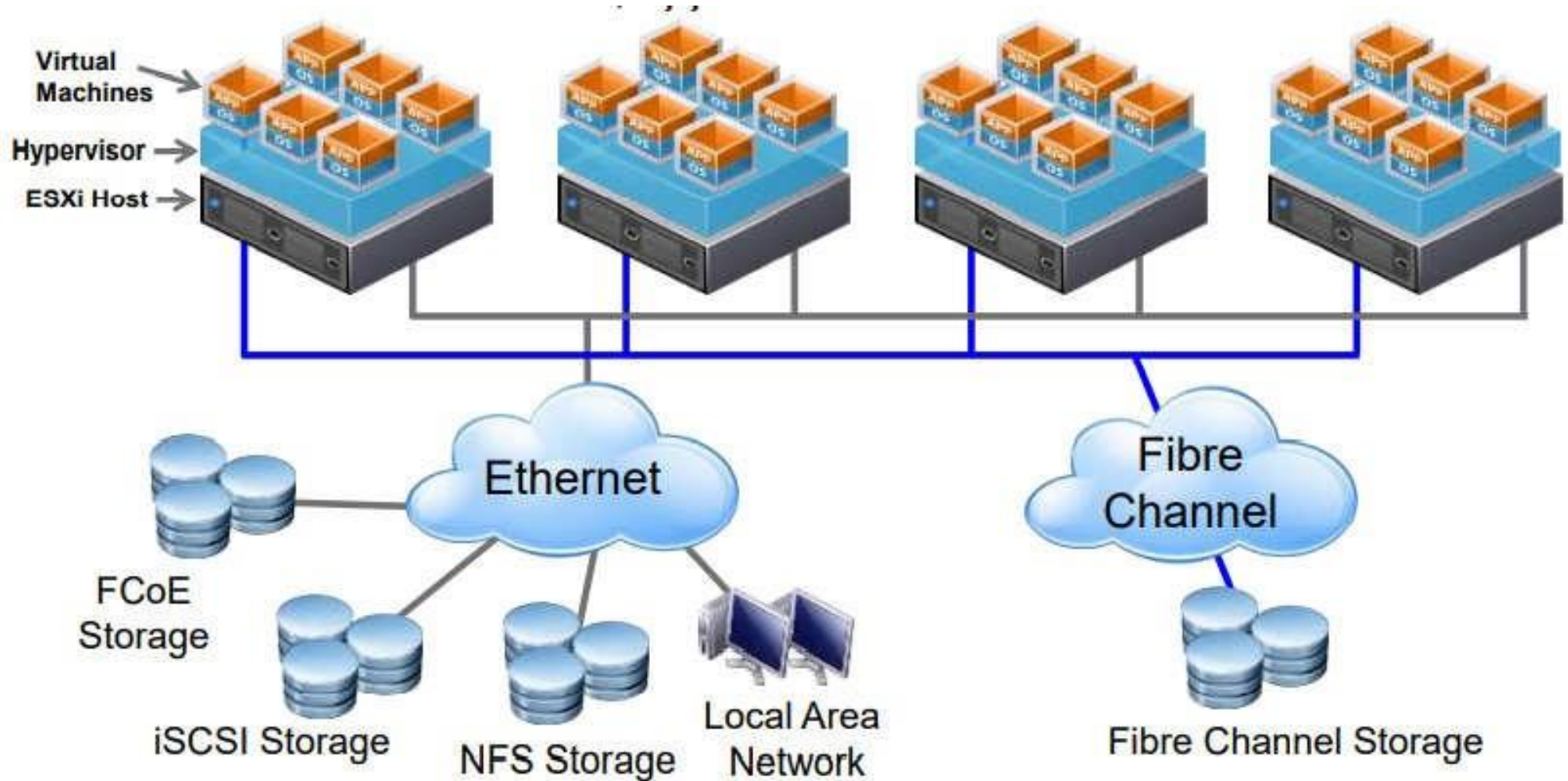- Lab Setup for this course

Data Center Concepts

WHAT IS DATACENTER

"A data center is a centralized physical facility where corporate computers, network, storage, and other IT equipment that support business operations live. The computers in a data center contain or facilitate business-critical applications, services, and data"
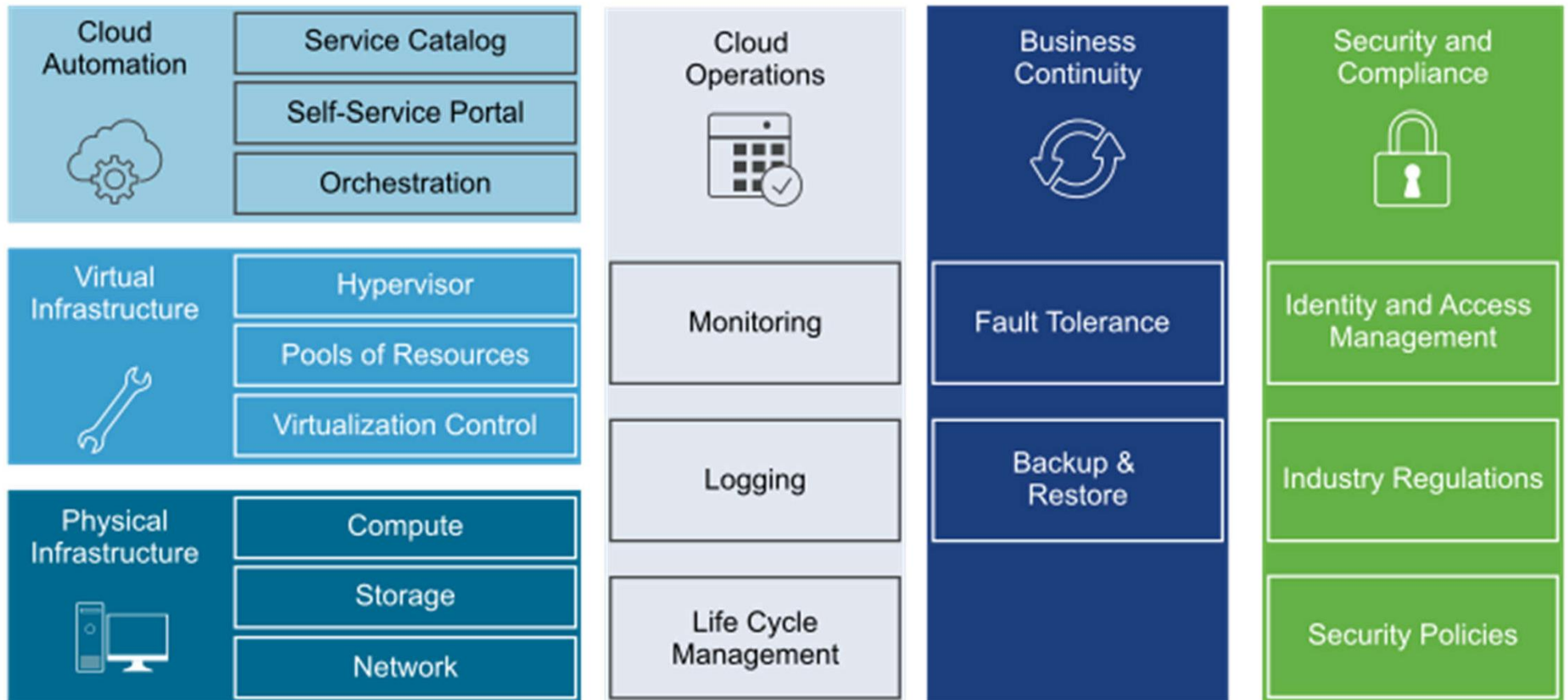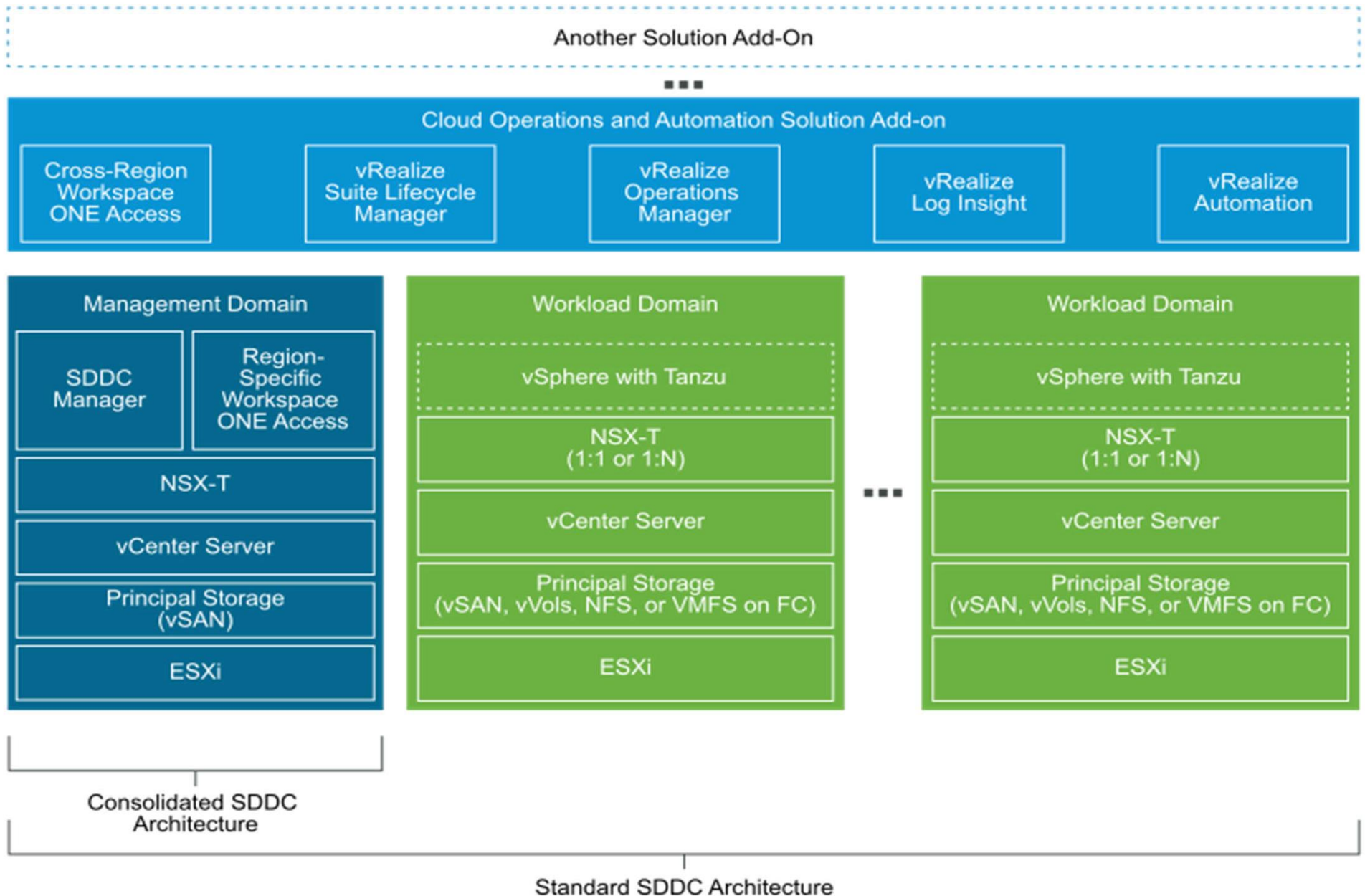
Data Center Components
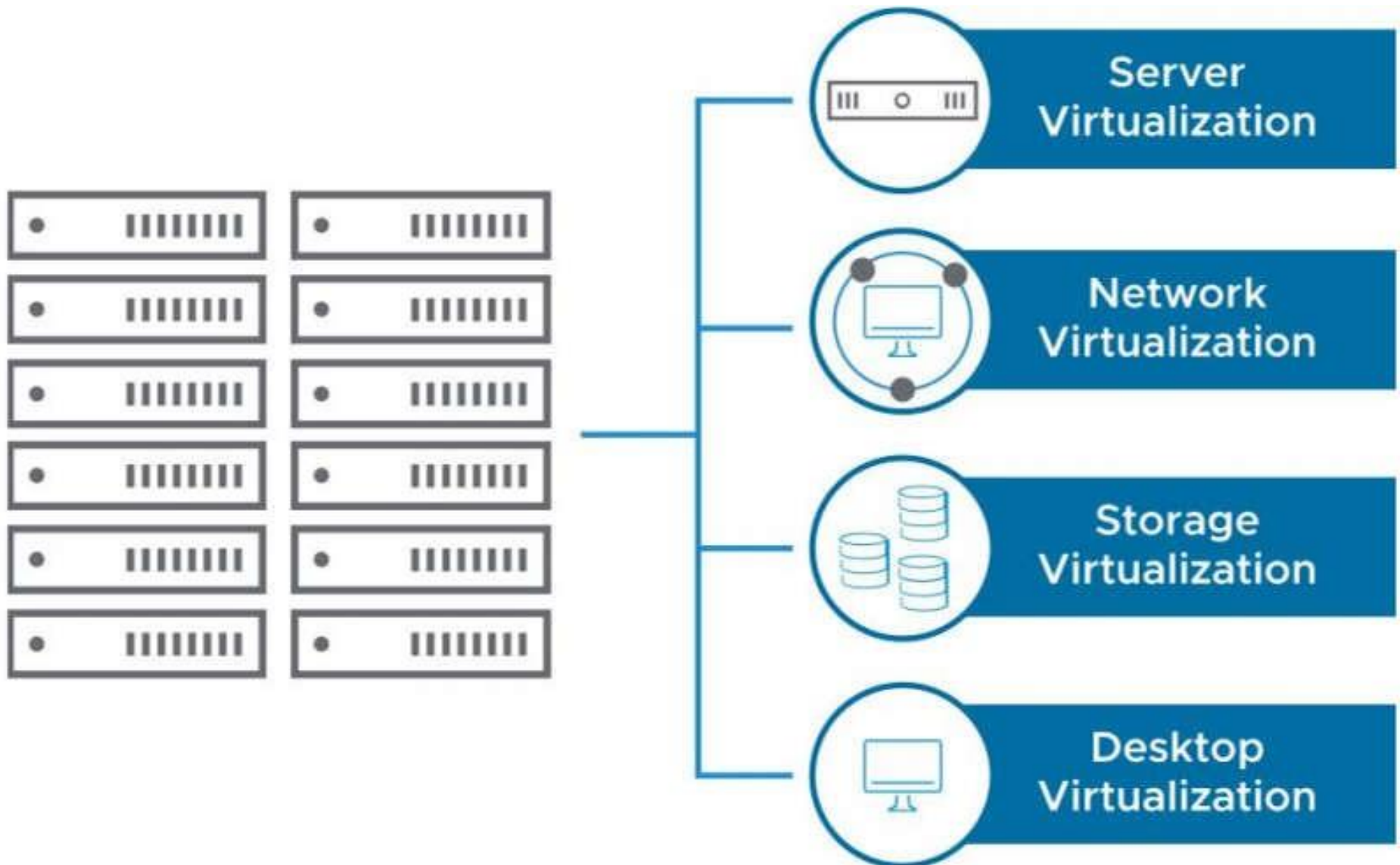
Software Define Datacenter (SDDC)

SDDC Layer & Components

Cloud Automation		Cloud Operations	Business Continuity	Security and Compliance
	Service Catalog			
	Self-Service Portal			
	Orchestration	Monitoring	Fault Tolerance	Identity and Access Management
Virtual Infrastructure	Hypervisor			
	Pools of Resources			
	Virtualization Control	Logging	Backup & Restore	Industry Regulations
Physical Infrastructure	Compute			
	Storage			
	Network	Life Cycle Management		Security Policies

Standard SDDC Architecture

Another Solution Add-On

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Cloud Operations and Automation Solution Add-on

| Cross-Region Workspace ONE Access | vRealize Suite Lifecycle Manager | vRealize Operations Manager | vRealize Log Insight | vRealize Automation |

Management Domain

| SDDC Manager | Region-Specific Workspace ONE Access |

NSX-T

vCenter Server

Principal Storage (vSAN)

ESXi

Workload Domain

vSphere with Tanzu

NSX-T (1:1 or 1:N)

vCenter Server

Principal Storage (vSAN, vVols, NFS, or VMFS on FC)

ESXi

• • •

Workload Domain

vSphere with Tanzu

NSX-T (1:1 or 1:N)

vCenter Server

Principal Storage (vSAN, vVols, NFS, or VMFS on FC)

ESXi

Consolidated SDDC Architecture

Standard SDDC Architecture

Types of Virtualization

- Server Virtualization
- Network Virtualization
- Storage Virtualization
- Desktop Virtualization

Benefits of Server Virtualization

30% Utilization

90% Utilization
90% Utilization

Application

Operating System

Physical Hardware

APP	APP	APP
OS	OS	OS

Hypervisor

Physical Hardware
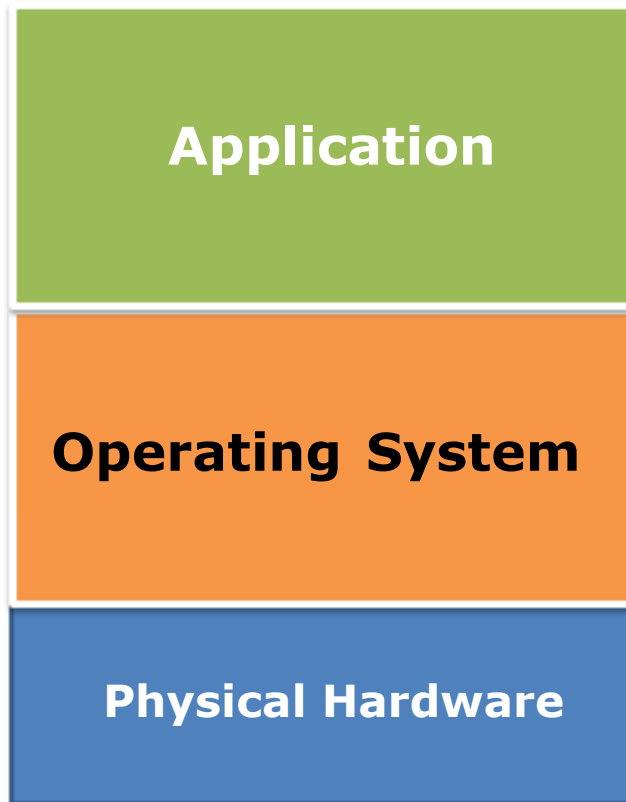
Traditional Architecture
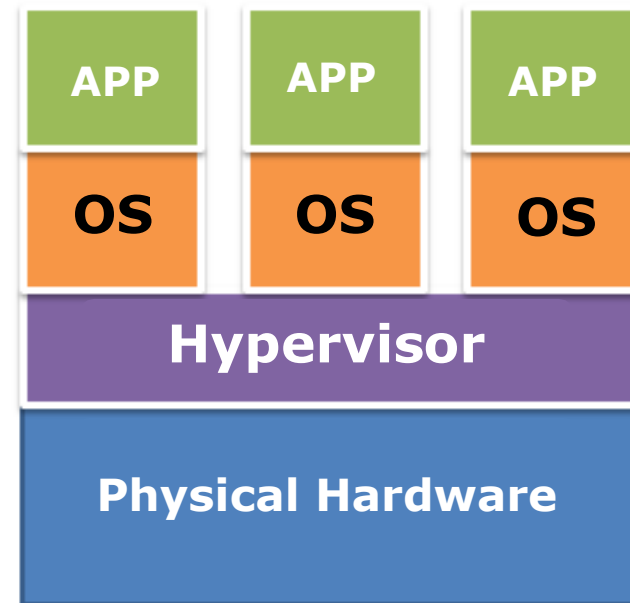
Virtual Architecture

Virtualization Vendors

VMware Market Share

AHV 2%
Hyper-V 4%
Xen 10%
VMware 84%
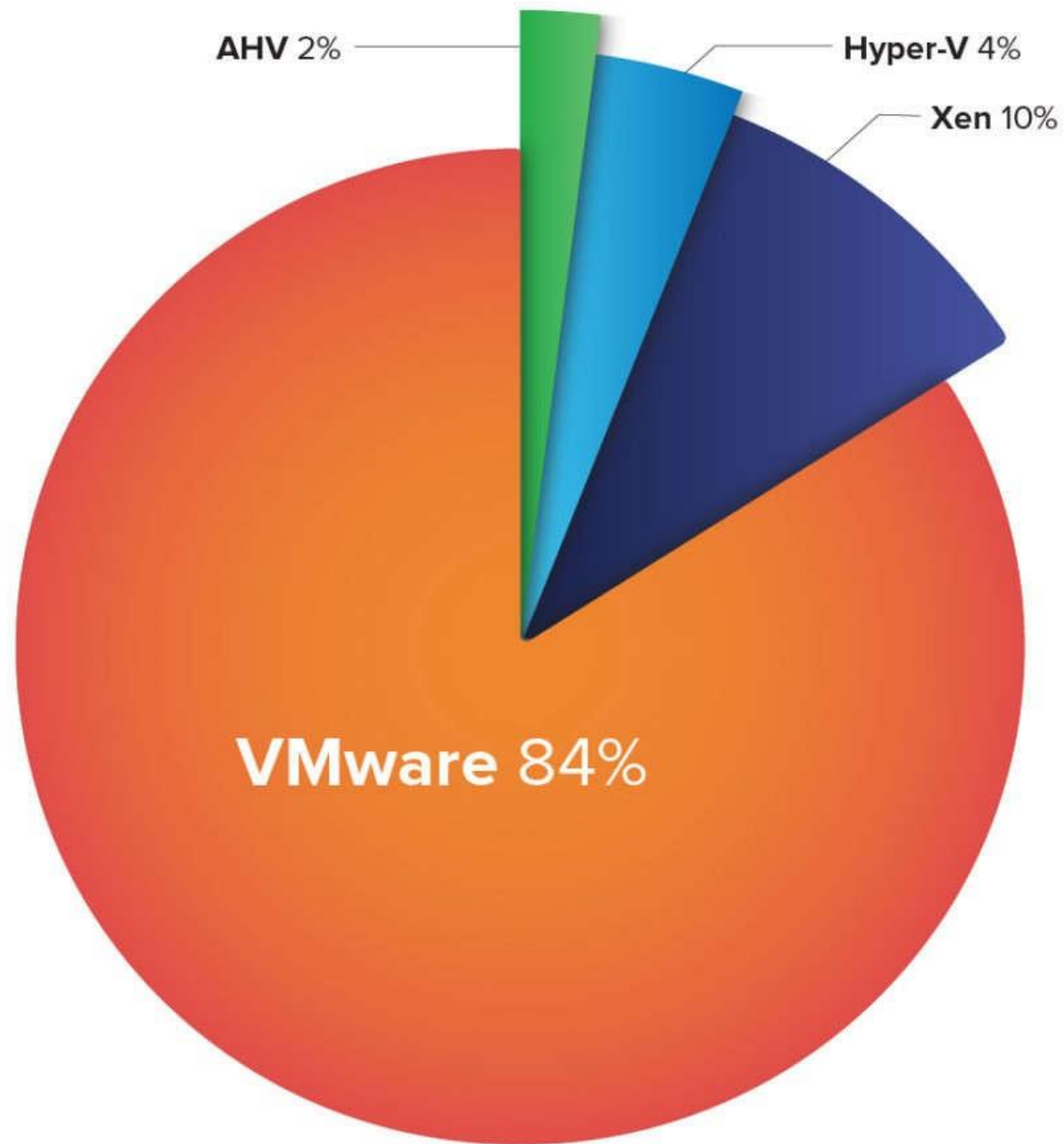
VMware Evolution
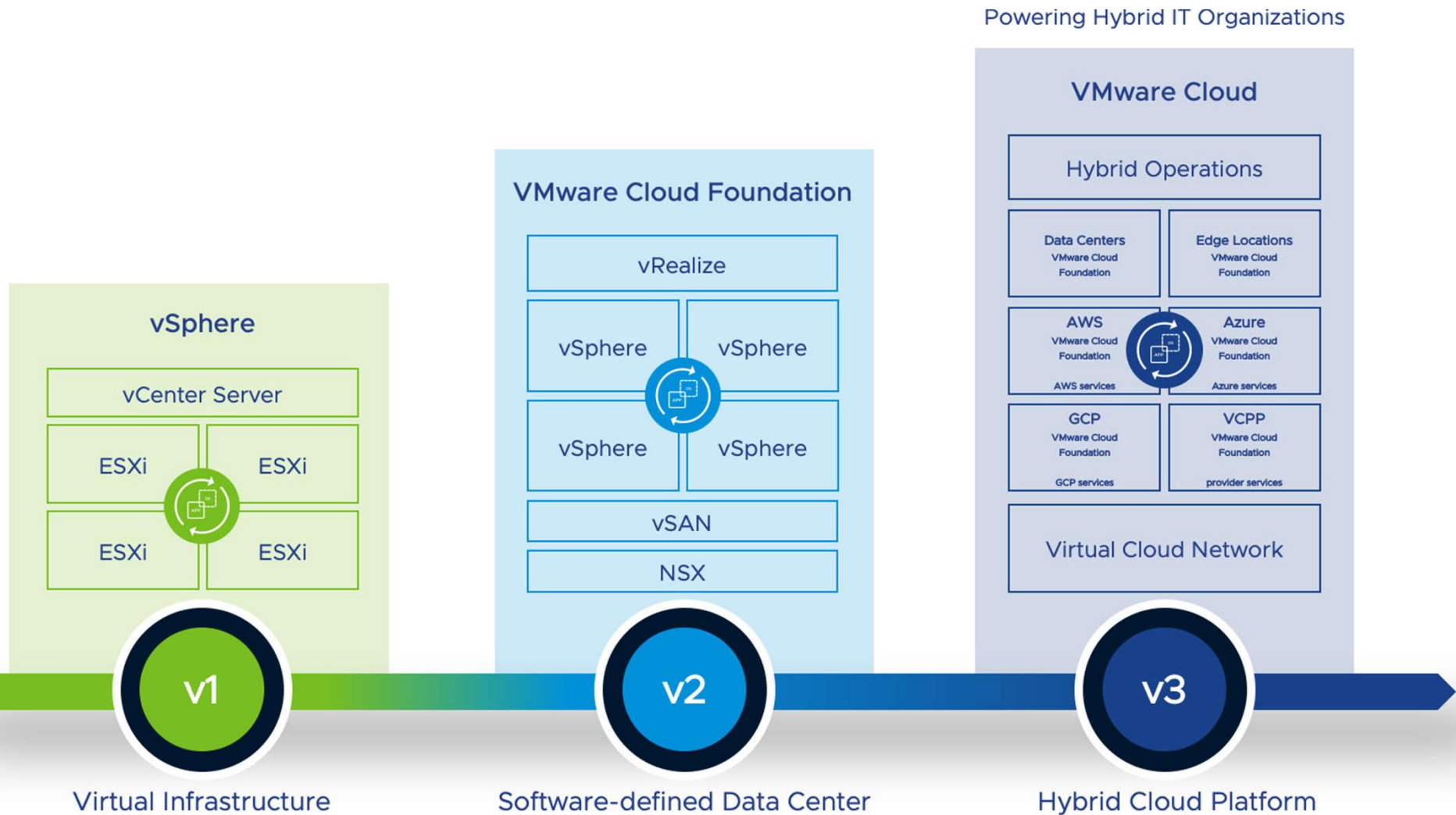
Virtual/Guest Machine Concept

Apps	Apps	Apps	Apps	Virtual Machines
OS	OS	OS	OS	

Virtual Hardware

Hypervisor — Virtualization Layer

Physical Hardware

CPU | I/O | RAM | Disk
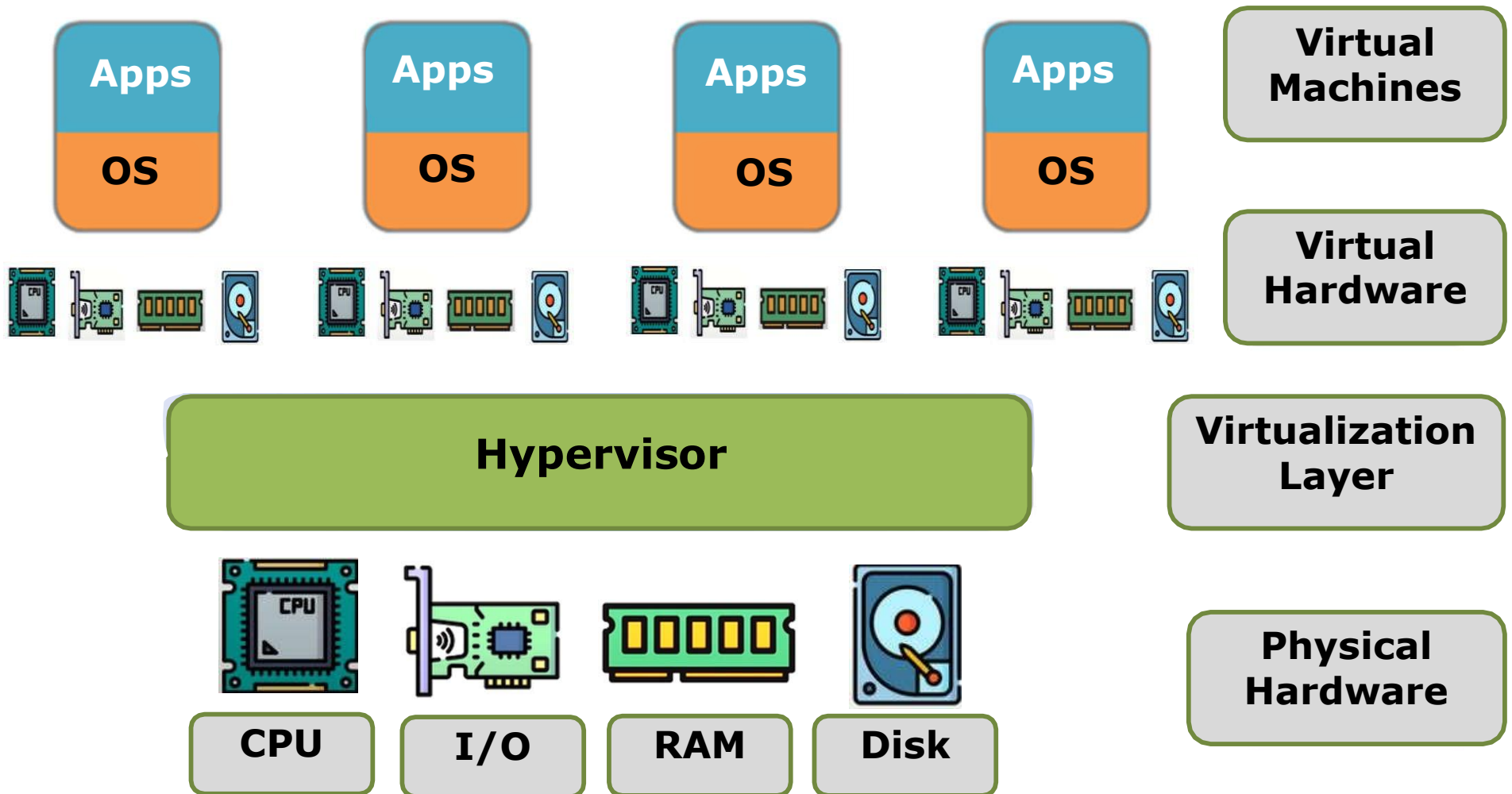
Virtual Machine Concepts
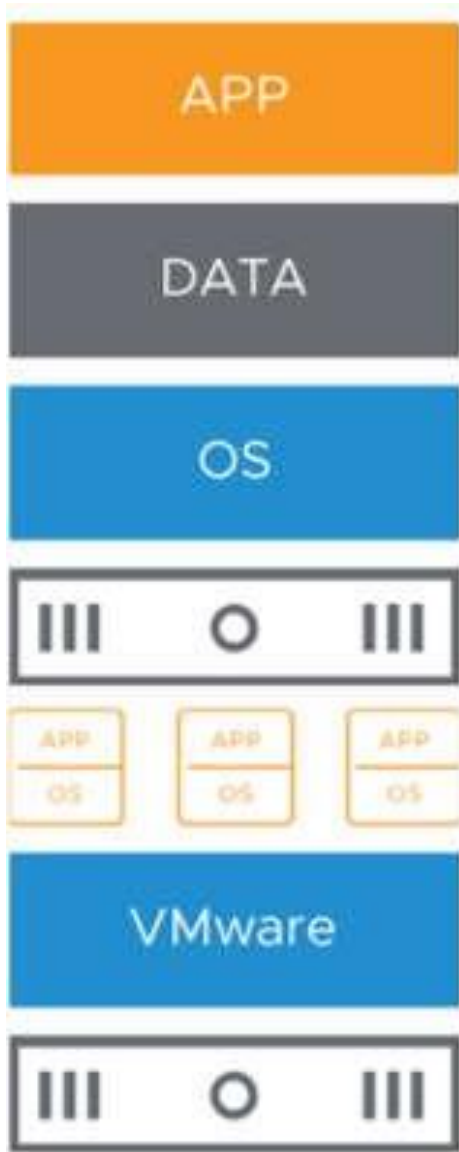
Physical machines:

- Difficult to move or copy
- Bound to a specific set of hardware components
- Often have a short life cycle
- Require personal contact to upgrade hardware

Virtual machines:

- Easy to move or copy
- Independent of physical hardware because VMs are encapsulated into files
- Isolated from other VMs running on same physical H/W
- Insulated from physical hardware changes

Virtual Machine Overview

✔ Hosting VM Files	✘ High Availability
✔ Virtual HDD	✘ Scale Out

Multi-Server Environment

Shared Storage

Enhanced vSphere Capabilities

- ✔ vMotion
- ✔ High Availability
- ✔ DRS
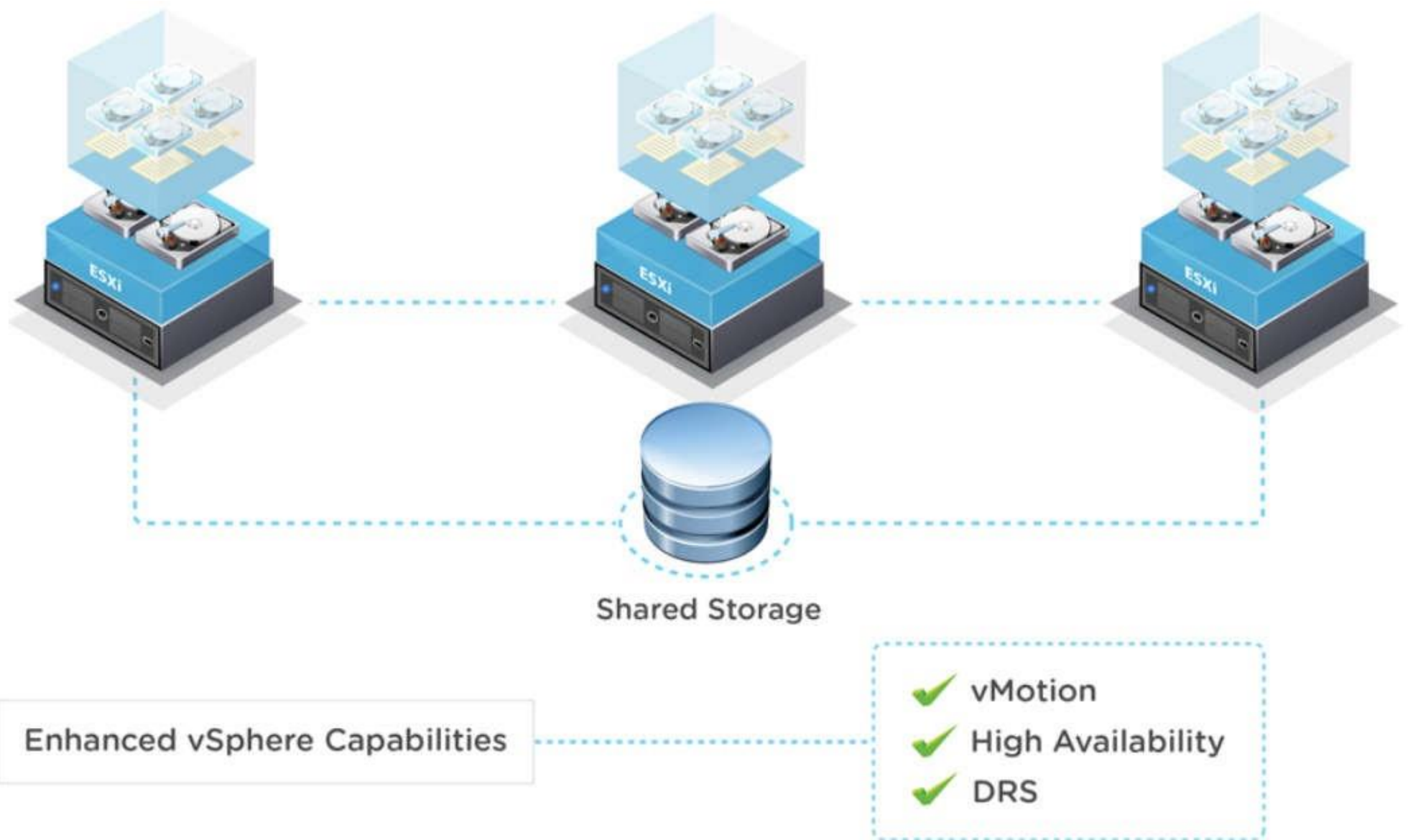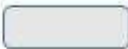
vCenter Server Overview
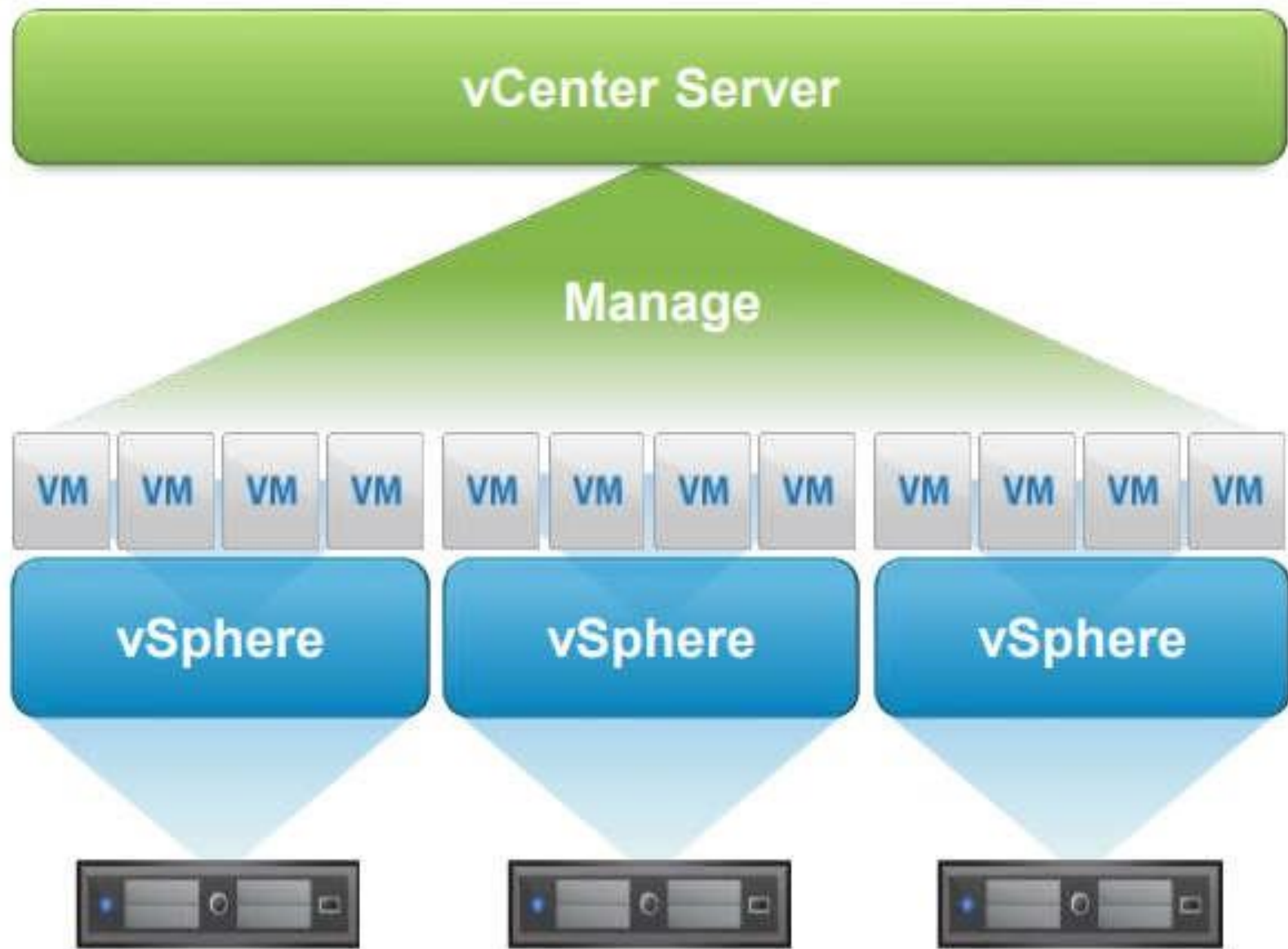
Virtual Networking
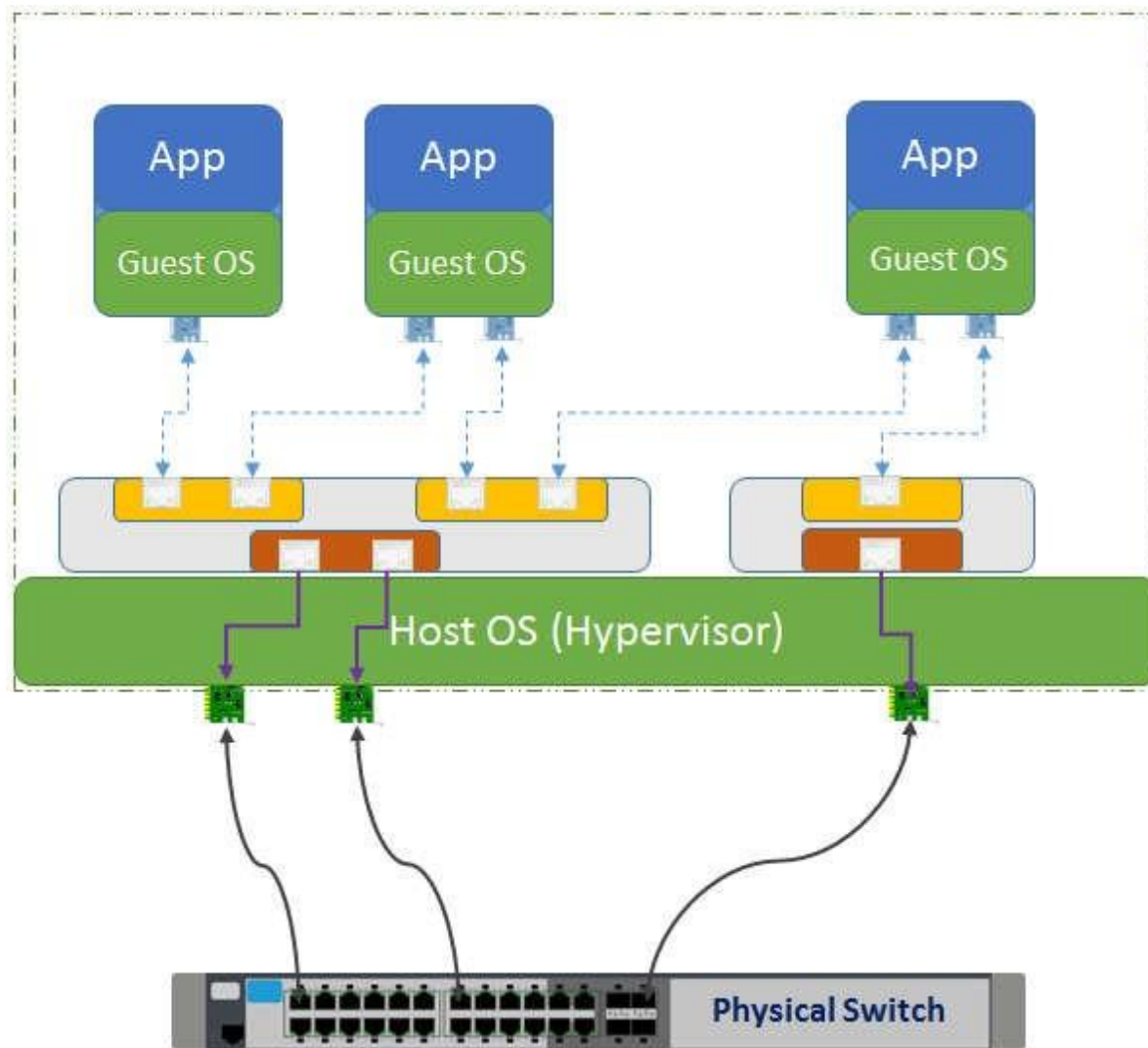
Standard vSwtich

ESX Hosts with Single vNetwork Standard Switch
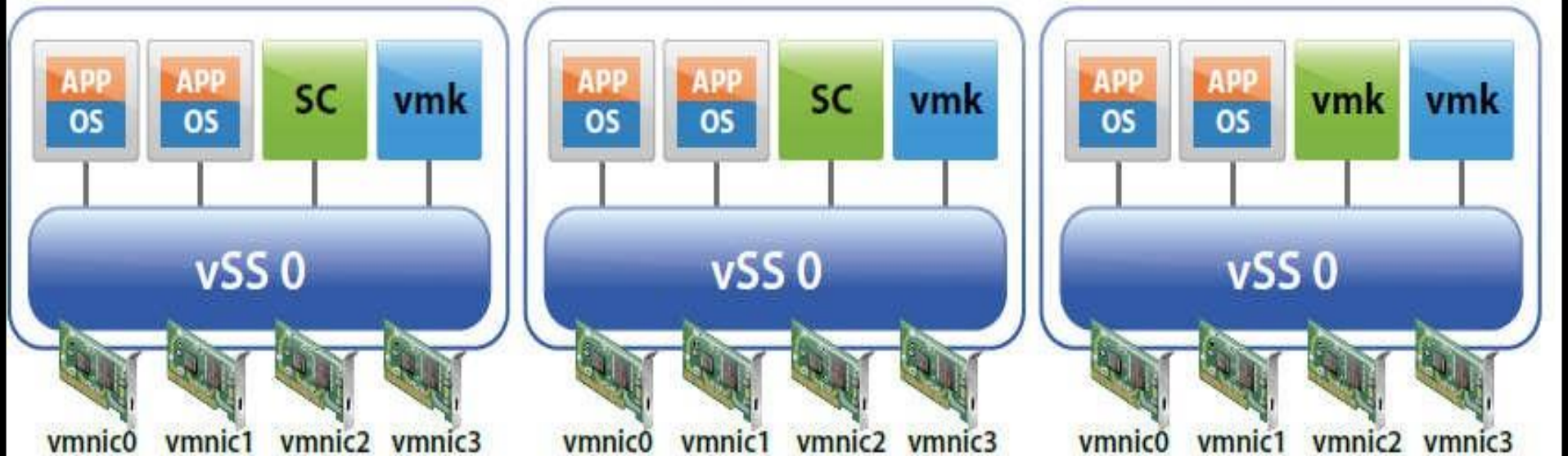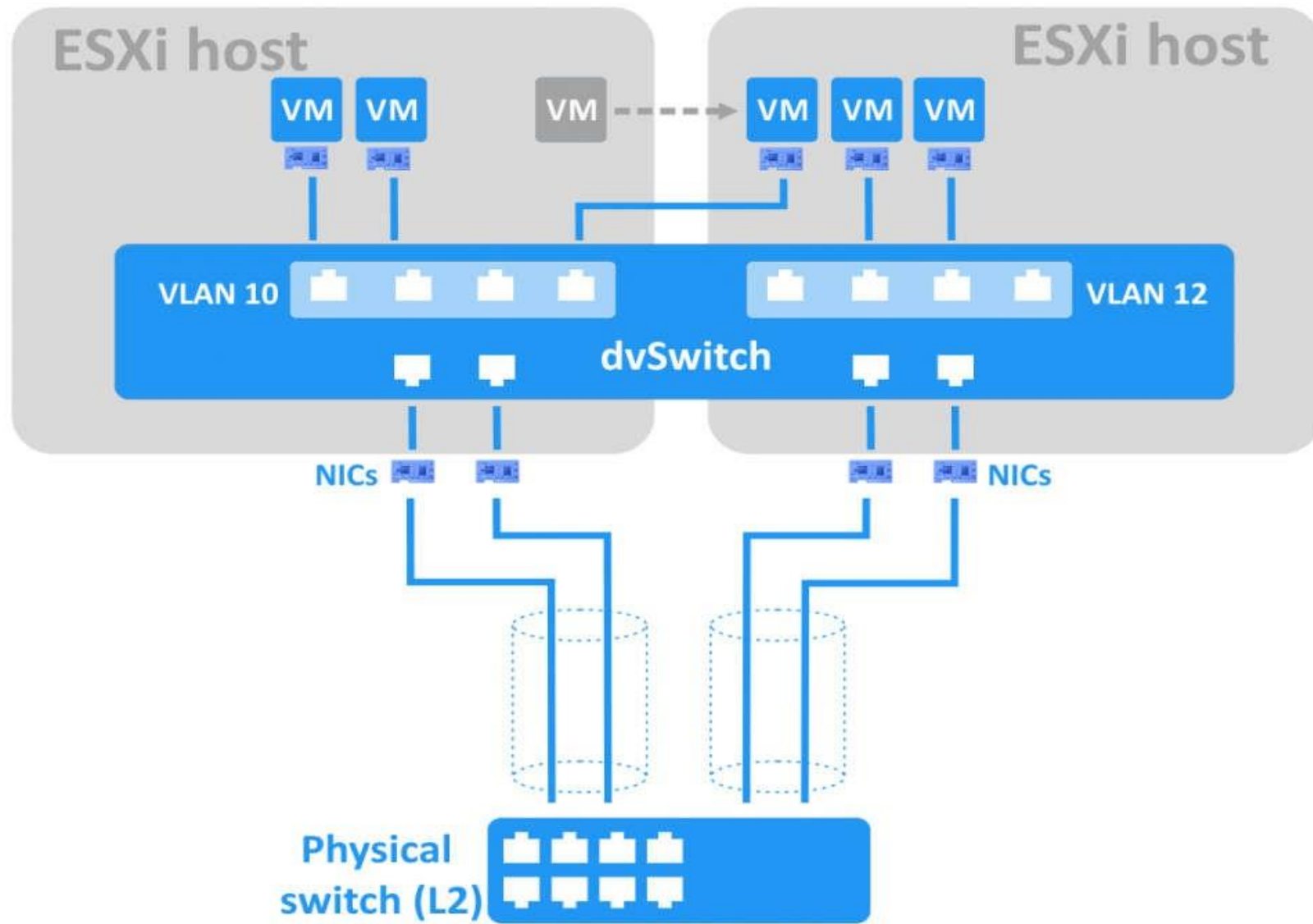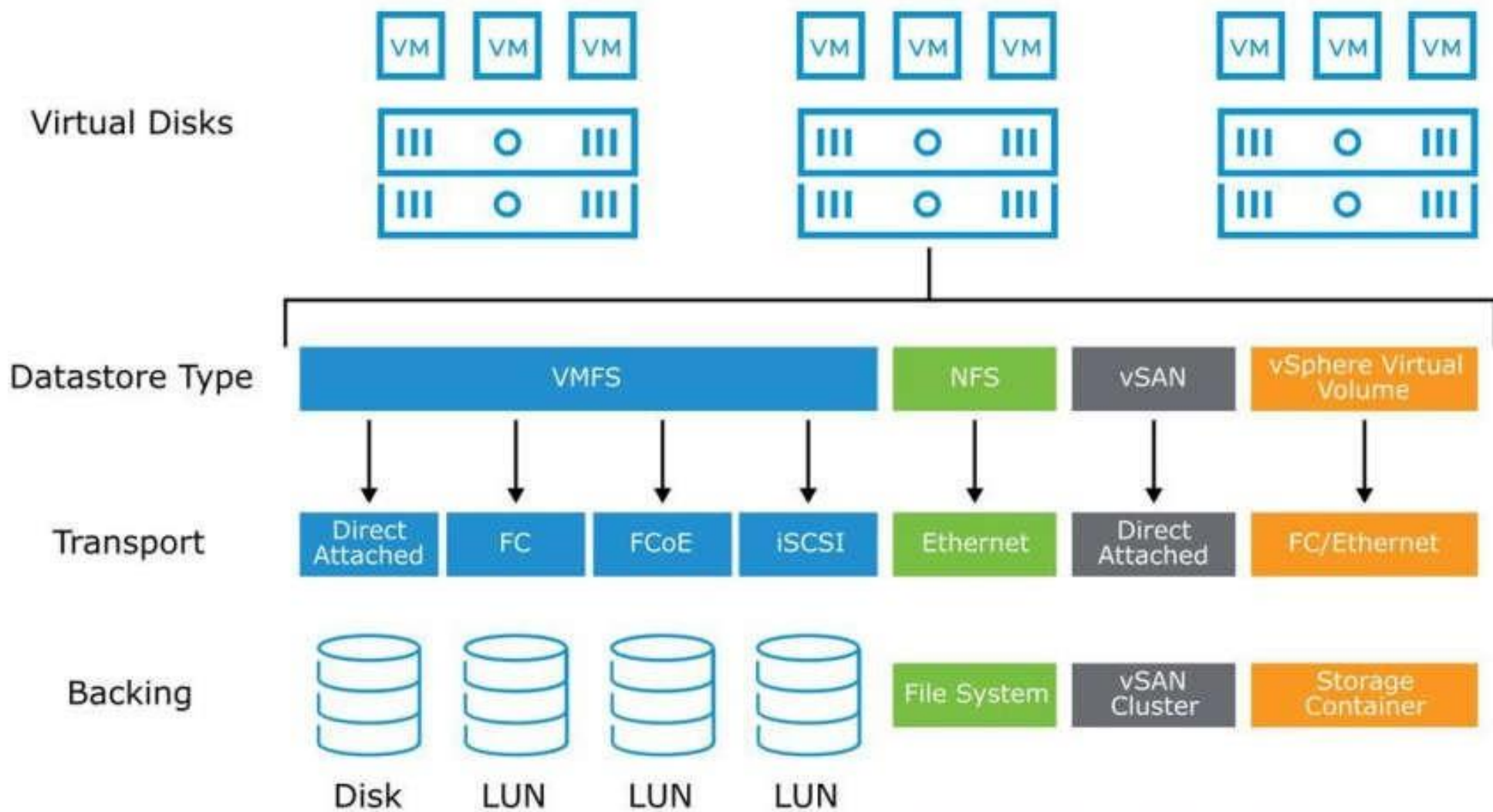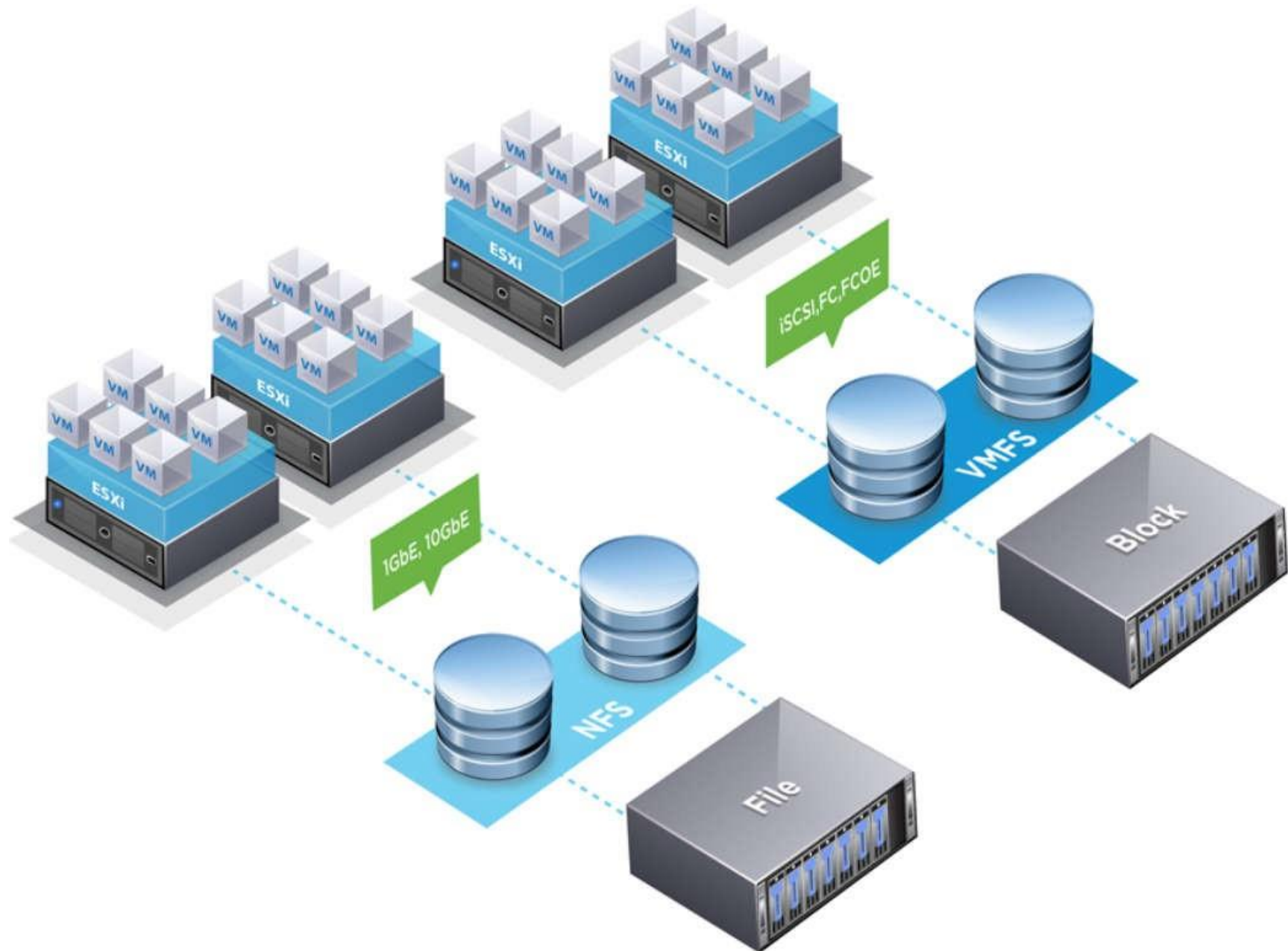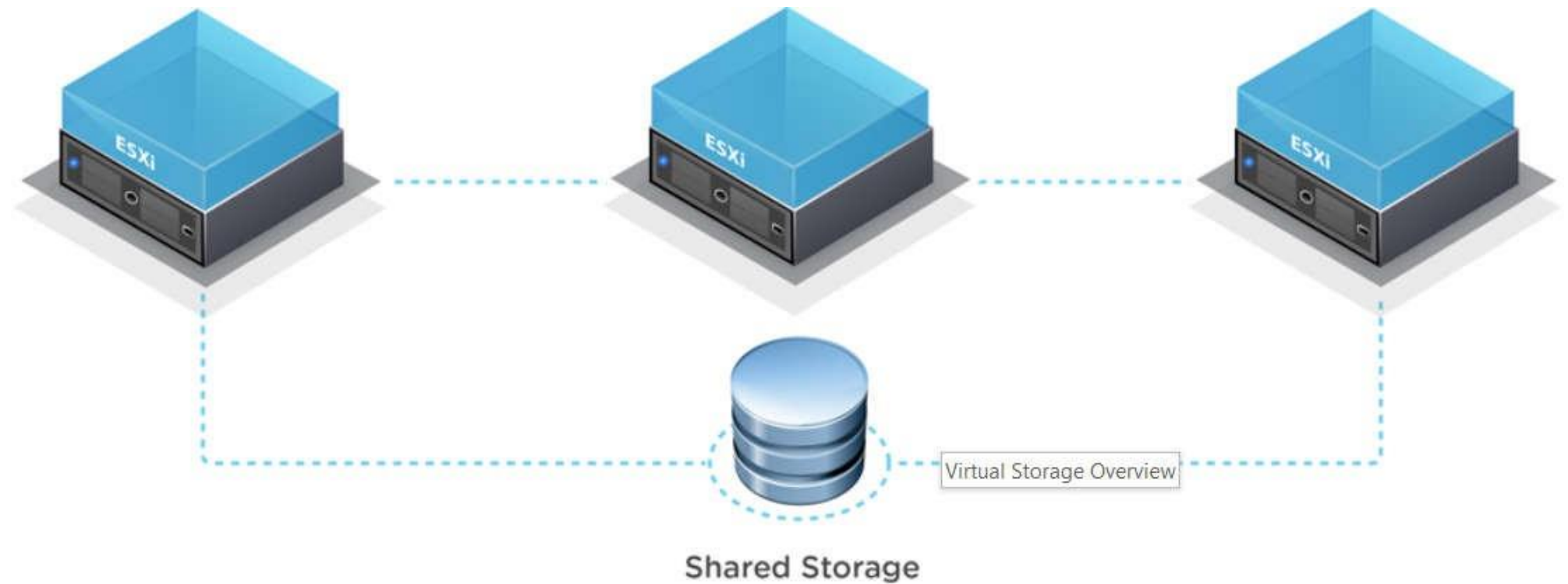
vSphere Networking
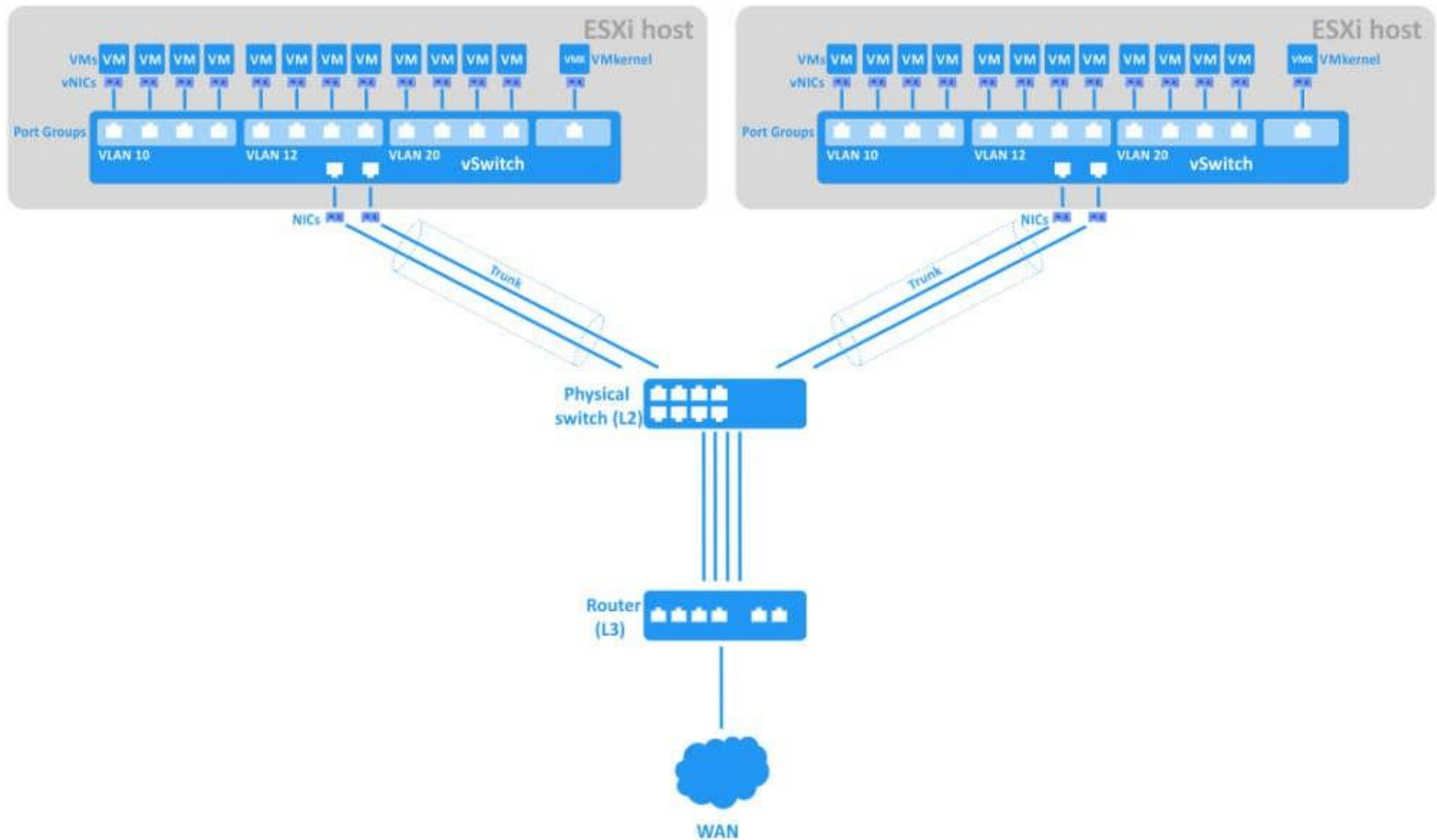
vSphere Advanced Networking

Virtual Storage Overview

Virtual Storage Overview

vSAN Enabled Shared Storage

Shared Storage

Virtual Machine Management
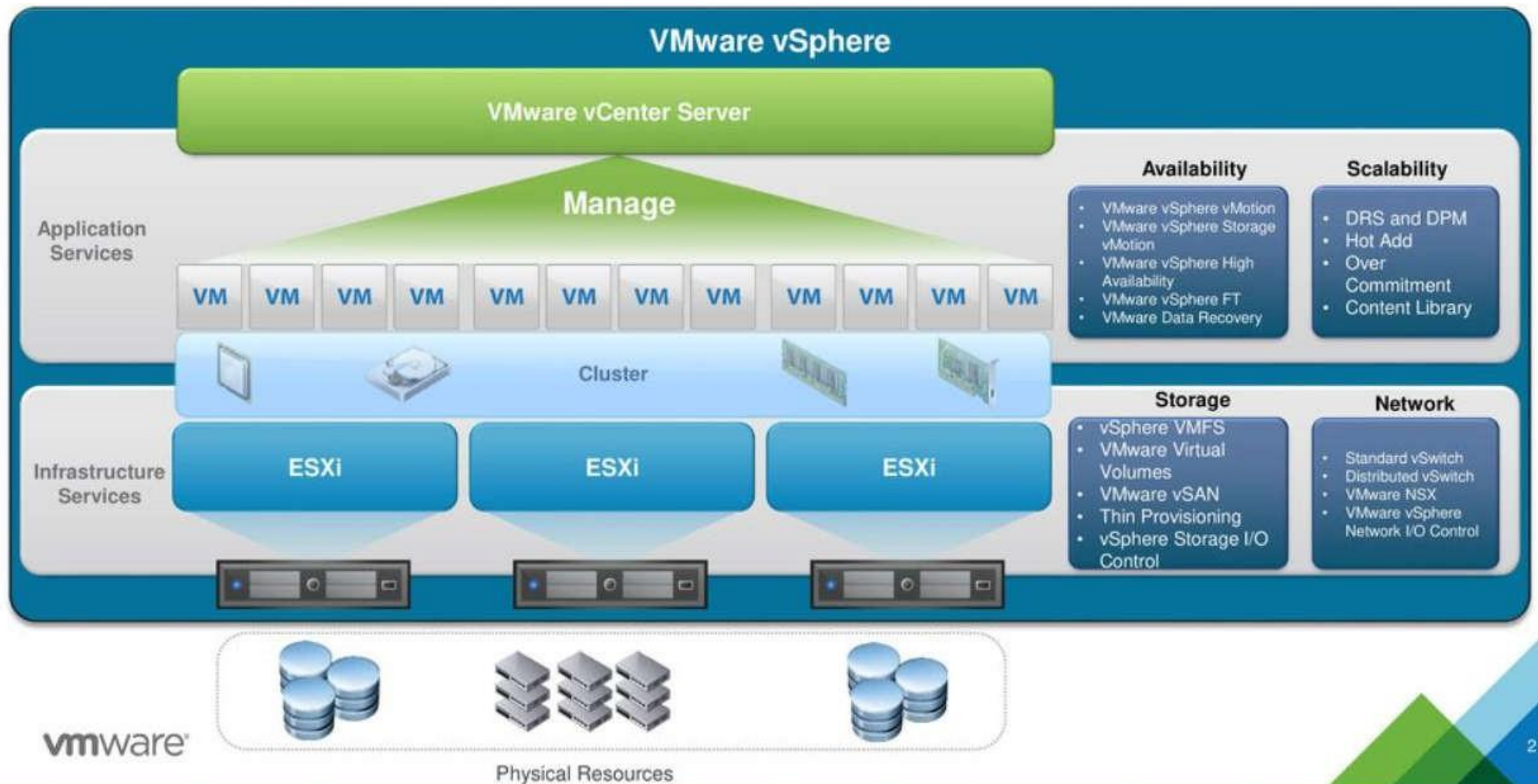
vSphere Cluster Concept
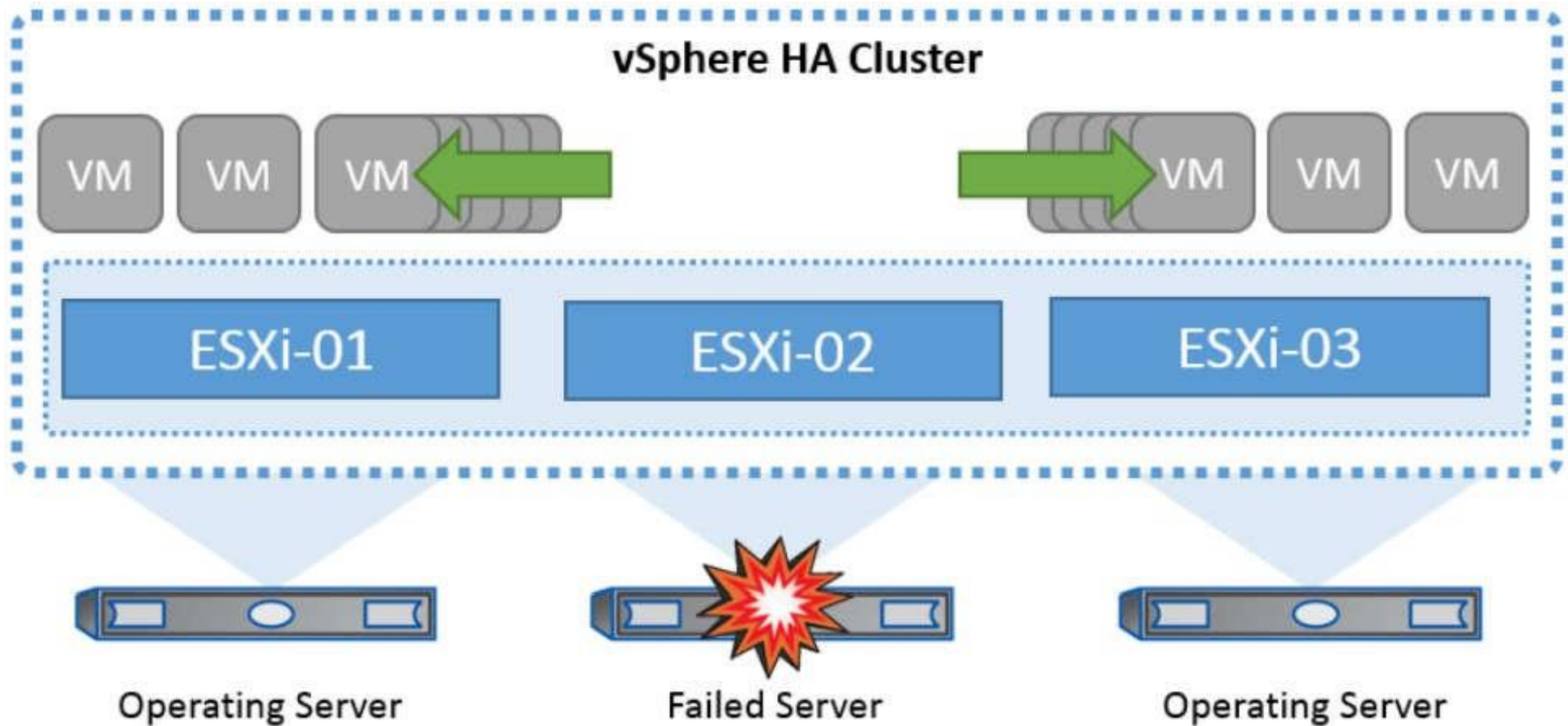
vSphere vMotion Concept
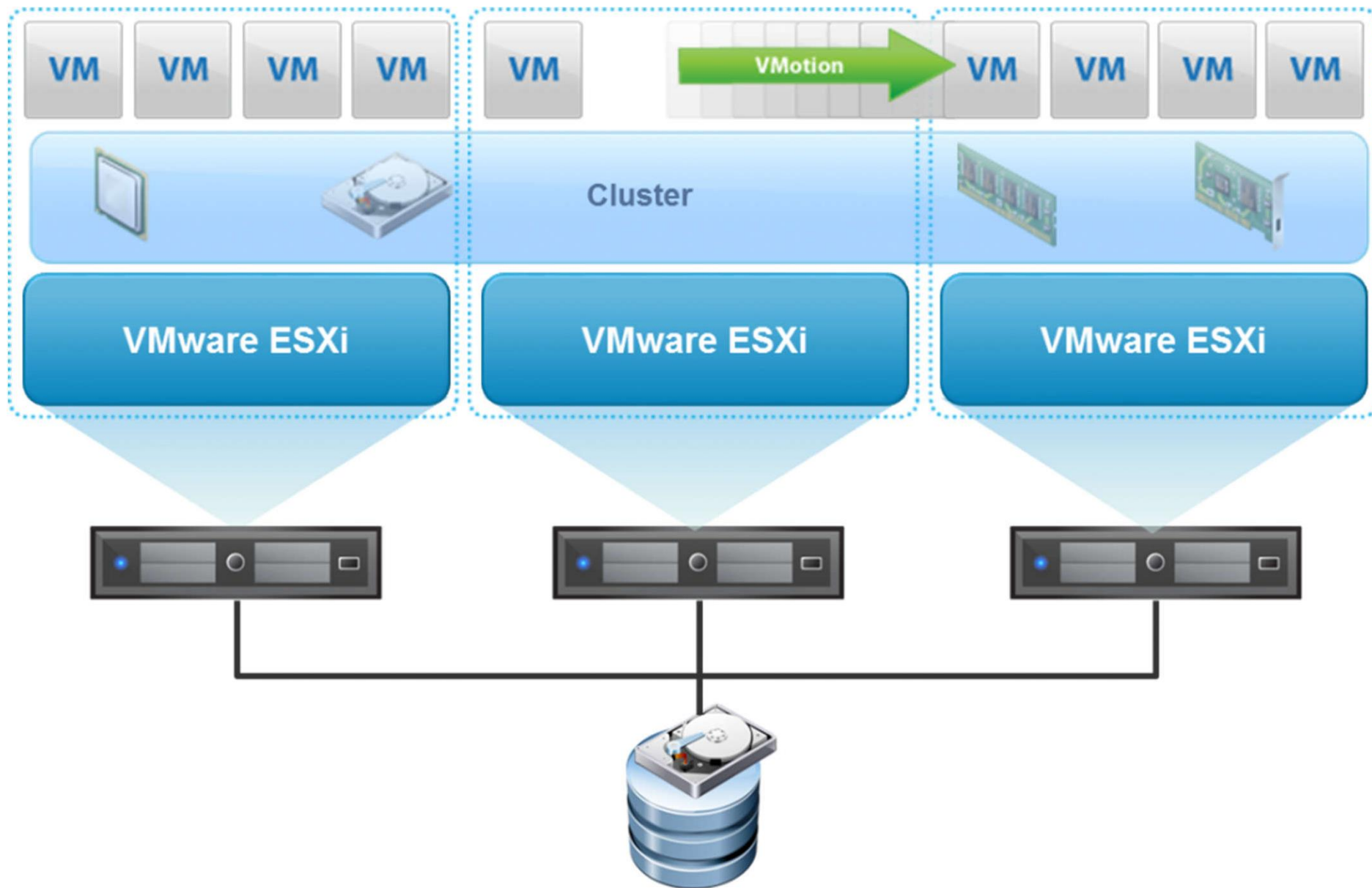
vSphere Storage vMotion Concept

VMware Life Cycle Management

Simplified Lifecycle Management

Desired State

Desired state-based patching, upgrade, and configuration

vCenter Update Planner

Recommendation engine identifies compatibility problems

Software updates

JSON- and REST-based automation

Firmware updates

Centrally managed from vSphere

What We Cover in This Course

- **Module 01:** Introduction to Virtualization
- **Module 02:** vSphere and Software Define Datacenter (SDDC)
- **Module 03:** Virtual Machine Introduction
- **Module 04:** Working with vCenter Server
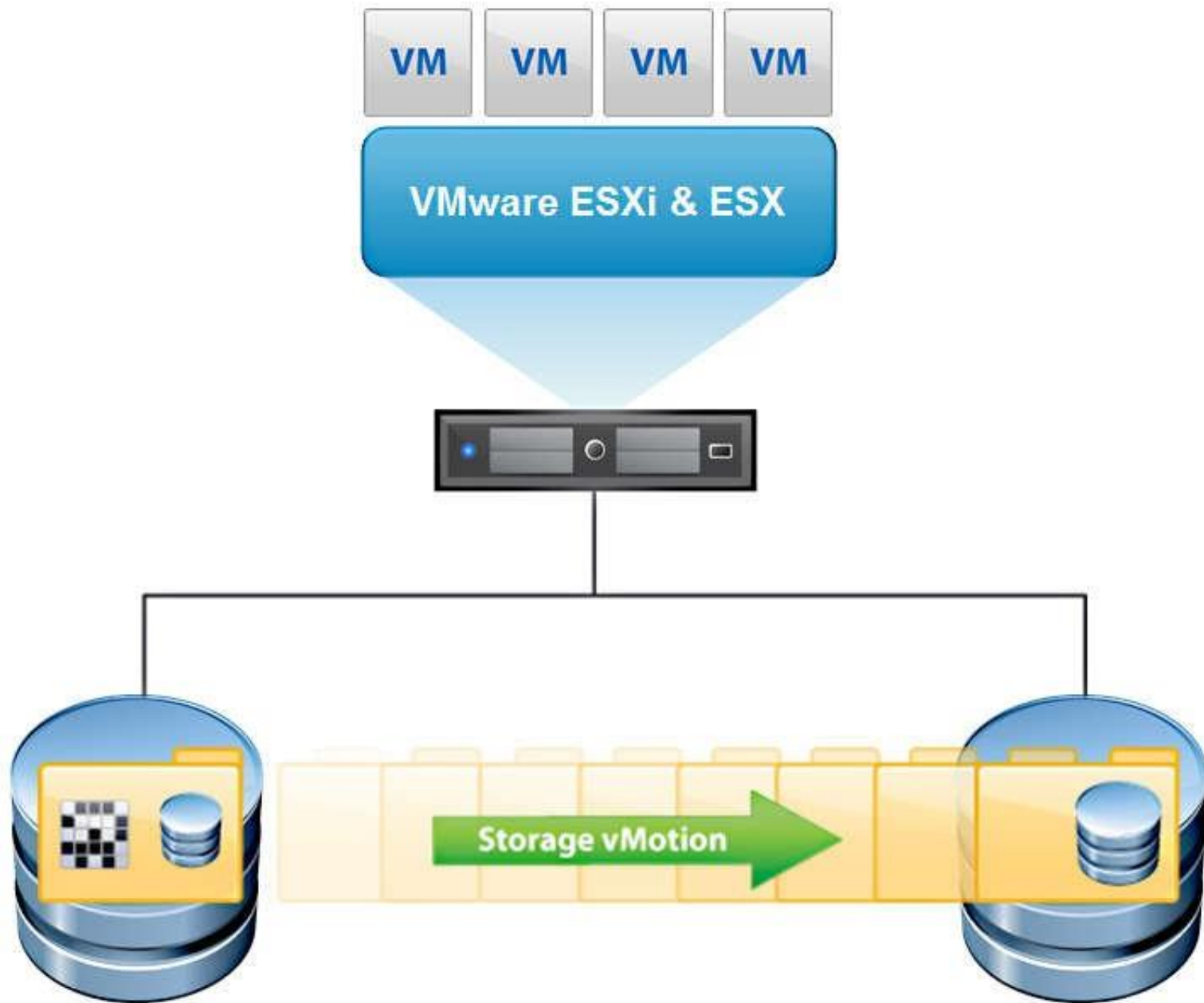- **Module 05:** Configuring and Managing Virtual Network
- **Module 06:** Configuring and Managing Virtual Storage
- **Module 07:** Virtual Machine Management
- **Module 08:** Resource Management and Monitoring
- **Module 09:** vSphere Cluster Configuration
- **Module 10:** vSphere Life Cycle Management

Who Is This Course For ?

System Administrator	**System Engineer**	**Cloud Engineer**
Network Engineer	**Datacenter Admin**	**IT Professionals**

What You Should Know ?

Networking Basic (IP, Switching, Routing, NAT)

Windows Operating System

Linux Operating System

Datacenter Equipment (Server, Storage, Network)

Server Hardware (HP/DELL/IBM)

IT Infrastructure (Router, Switch, Storage, Connectivity)

VMware Certification Overview

Enterprise Architect	**VCDX** VMware Certified Design Expert	
Senior Administrator Solution Architect	**VCAP** VMware Certified Advanced Professional	Design Deploy
Administrator Developer	**VCP** VMware Certified Professional	
Operator	**VCTA** VMware Certified Technical Associate	

| Application
Modernization | Data Center
Virtualization | Cloud Management
and Automation | Network
Virtualization | Security | Digital
Workspace |

VMware Certification Overview

	App Modernization	Multi-Cloud	Virtual Cloud Network	Digital Workspace	Intrinsic Security
Strategic Priorities	App Modernization	Multi-Cloud	Virtual Cloud Network	Digital Workspace	Intrinsic Security
Key Offerings	Tanzu	VMware Cloud Foundation	NSX	Workspace ONE	Carbon Black Cloud
	PKS	VMware Cloud AWS	SD-WAN by VeloCloud	Horizon	Service Defined Firewall
	Bitnami	vSphere, vSAN, NSX, vRealize	NSX Advanced Load Balancer		Workspace Security
	Wavefront	CloudHealth	vRealize Network Insight		Secure State
	Pivotal Labs	Cloud Provider Platform	Service Defined Firewall		
		SD-WAN by VeloCloud	Uhana by VMware		
		vCloud NFV			

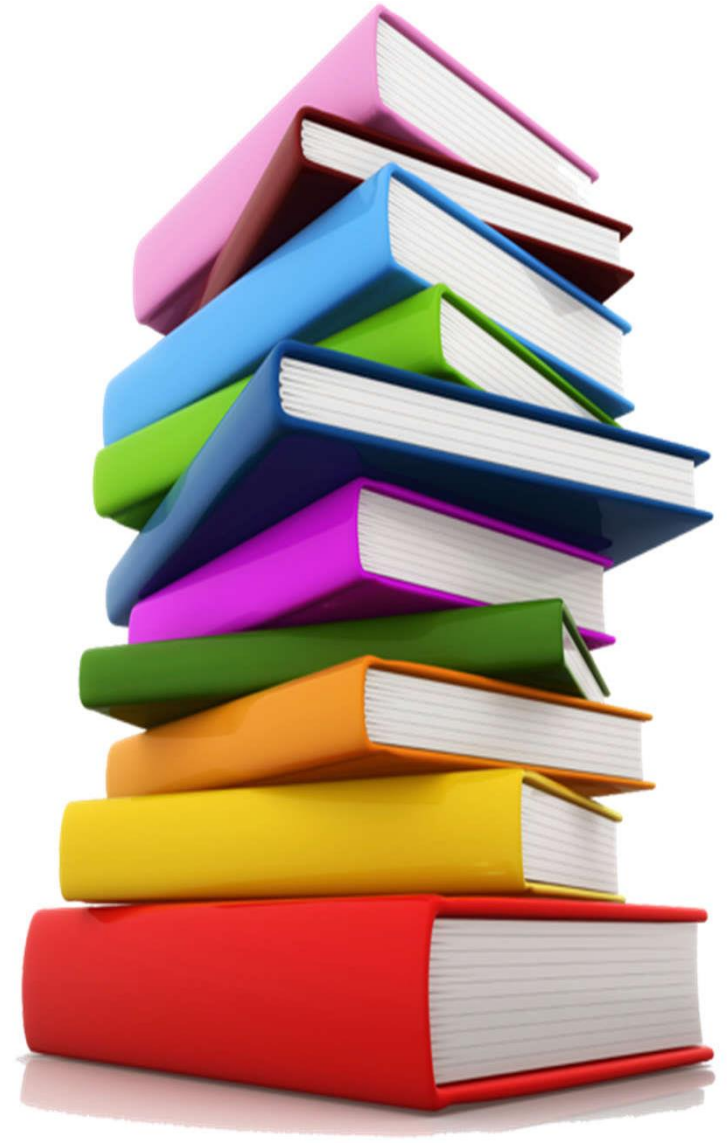# Data Center Virtualization Path
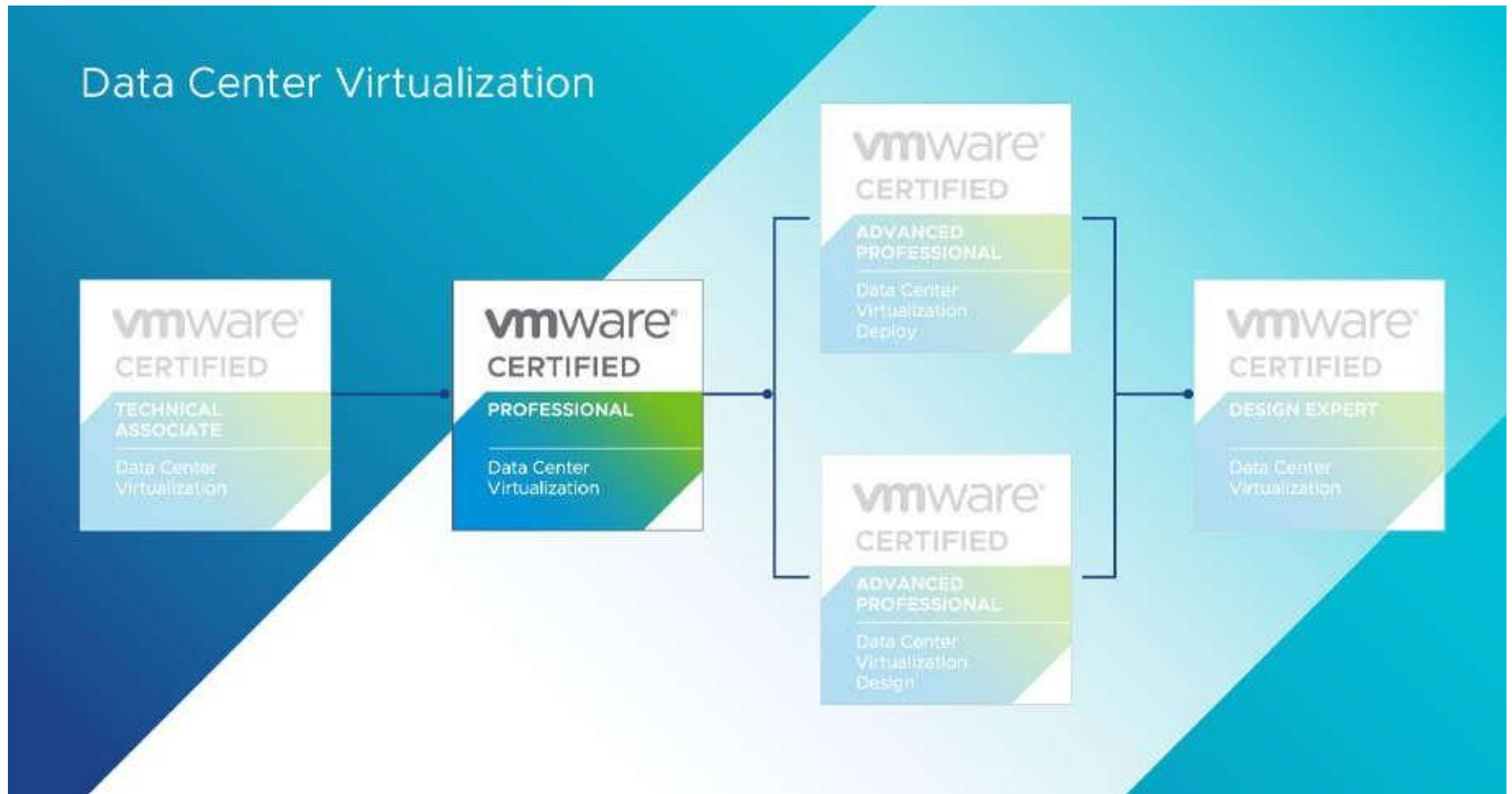
vSphere Lab Setup
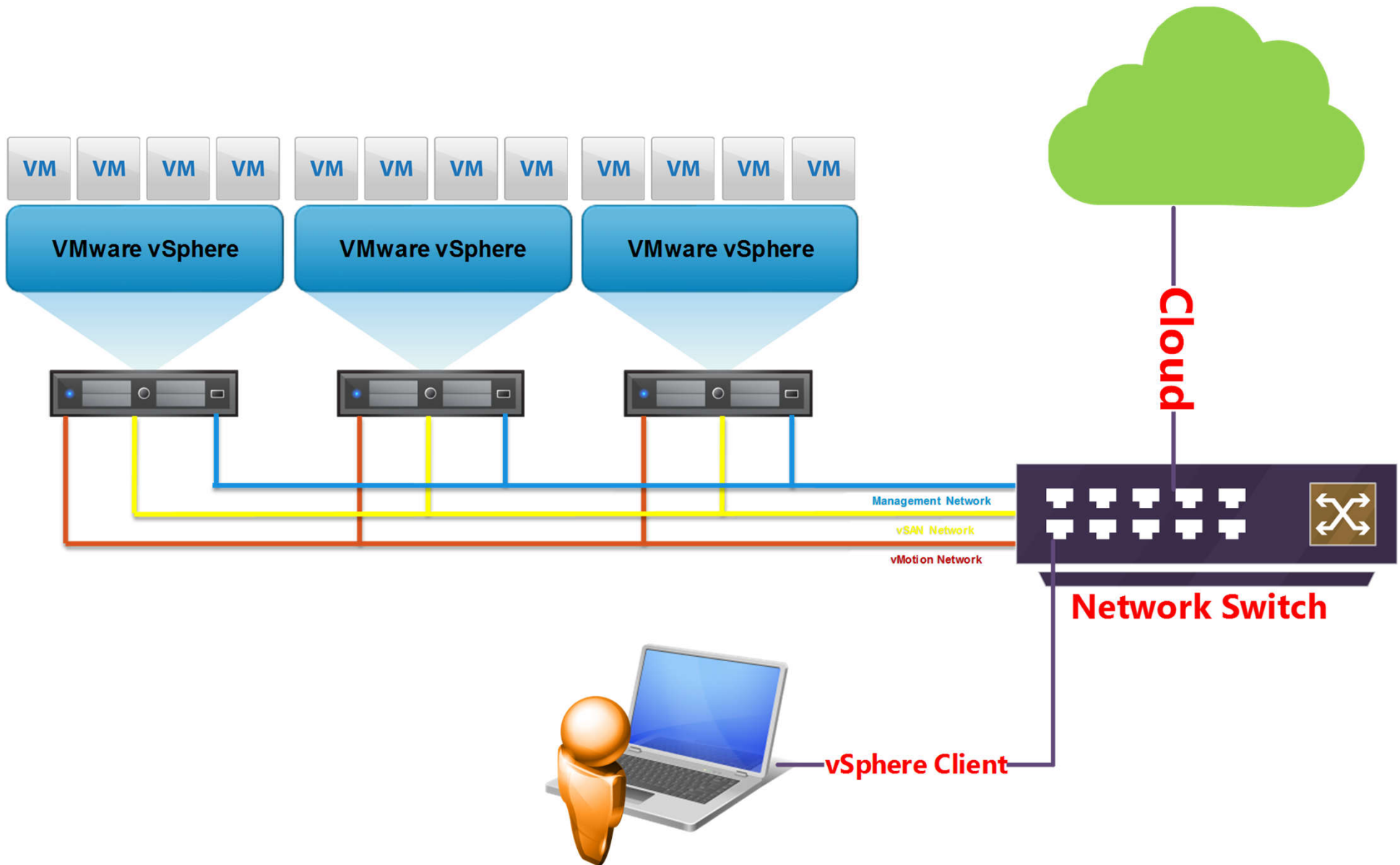
Learning Materials

- ❑ Class record (Zoom)
- ❑ PowerPoint Presentation
- ❑ VMware Course Manual
- ❑ Website/YouTube Link
- ❑ Lab Manual (Class Notes)

Questions, Comments, Concerns ?

Thank you