

# VMware vSphere: Install, Configure, Manage

## Course Overview

This five-day course features intensive hands-on training that focuses on installing, configuring, and managing VMware vSphere® 6.7, which includes VMware ESXi™ 6.7 and VMware vCenter Server® 6.7. This course prepares you to administer a vSphere infrastructure for an organization of any size.

This course is the foundation for most of the other VMware technologies in the software-defined data center.

## Course Objectives

By the end of the course, you should be able to meet the following objectives:

- Describe the software-defined data center
- Explain the vSphere components and their function in the infrastructure
- Add ESXi hosts to a VMware vCenter® Server Appliance™ instance
- Manage vCenter Server Appliance
- Use a local content library as an ISO store, and deploy a virtual machine
- Describe vCenter Server architecture
- Use vCenter Server to manage an ESXi host
- Configure and manage vSphere infrastructure with VMware Host Client™ and VMware vSphere® Client™
- Describe virtual networks with vSphere standard switches
- Configure standard switch policies
- Use vCenter Server to manage various types of host storage: VMware vSphere® VMFS, NFS, iSCSI, and RDM
- Examine the features and functions of Fibre Channel and VMware vSAN™
- Manage virtual machines, templates, clones, and snapshots
- Migrate virtual machines with VMware vSphere® vMotion®
- Migrate virtual machine storage with VMware vSphere® Storage vMotion®
- Monitor resource usage, and manage resource pools
- Discuss the VMware vSphere® High Availability (vSphere HA) cluster architecture
- Configure vSphere HA
- Manage vSphere HA and VMware vSphere® Fault Tolerance
- Use VMware vSphere® Replication™ and VMware vSphere® Data Protection™ to replicate virtual machines and perform data recovery
- Use VMware vSphere® Distributed Resource Scheduler™ clusters to improve host scalability
- Use VMware vSphere® Update Manager™ to apply patches and perform basic troubleshooting of ESXi hosts, virtual machines, and vCenter Server operations
- Identify troubleshooting methodology to logically diagnose faults and improve troubleshooting efficiency

## Target Audience

- System administrators
- System engineers

## Prerequisites

This course has the following prerequisites:

- System administration experience on Microsoft Windows or Linux operating systems

## Certifications

This course prepares you for the following certification:

- [VMware Certified Professional 6.5 – Data Center Virtualization \(VCP6.5-DCV\)](#)

## Course Delivery Options

- Classroom
- Live Online
- [Onsite](#)

## Product Alignment

- ESXi 6.7
- vCenter Server 6.7

## Course Modules

### 1 Course Introduction

- Introductions and course logistics
- Course objectives
- Describe the content of the course
- Gain a complete picture of the VMware certification system
- Familiarize yourself with the benefits of the VMware Education Learning Zone
- Identify additional resources

### 2 Introduction to vSphere and the Software-Defined Data Center

- Describe how vSphere fits into the software-defined data center and the cloud infrastructure
- Explain how vSphere interacts with CPUs, memory, networks, and storage
- Use vSphere Client to access and manage your vCenter Server system and ESXi host
- Compare virtual machine hardware version 14 to other versions
- Identify the virtual network adapters, and describe the enhanced VMXNET3
- Compare the types of virtual disk provisioning
- Install and configure ESXi host settings
- Identify the advantages of ESXi Quick Boot

### 3 Creating Virtual Machines

- Create, provision, and remove a virtual machine
- Explain the importance of VMware Tools™
- Describe how to import a virtual appliance OVF template

### 4 vCenter Server

- Describe the vCenter Server architecture
- Discuss how ESXi hosts communicate with vCenter Server
- Access and configure vCenter Server Appliance
- Use vSphere Client to manage the vCenter Server inventory
- Add data center, organizational objects, and hosts to vCenter Server
- Create custom inventory tags
- Describe the rules for applying permissions
- Create a custom role in vCenter Server
- Create a vCenter Server Appliance backup schedule
- Restore vCenter Server Appliance from a backup
- Monitor vCenter Server Appliance

### 5 Configuring and Managing Virtual Networks

- Describe, create, and manage standard switches
- Configure virtual switch security, traffic-shaping and load-balancing policies
- Compare vSphere distributed switches and standard switches
- Describe the virtual switch connection types

- Describe the new TCP/IP stack architecture
- Use VLANs with standard switches

### 6 Configuring and Managing Virtual Storage

- Identify storage protocols and storage device types
- Discuss ESXi hosts using iSCSI, NFS, and Fibre Channel storage
- Create and manage VMware vSphere® VMFS and NFS datastores
- Explain how multipathing works with iSCSI, NFS, and Fibre Channel storage
- Identify the advantages of VMware vSAN™

### 7 Virtual Machine Management

- Use templates and cloning to deploy new virtual machines
- Modify and manage virtual machines
- Create an instant clone of a virtual machine
- Identify the types of content libraries and how to deploy and use them
- Add a hot-pluggable device
- Dynamically increase the size of a virtual disk
- Use customization specification files to customize a new virtual machine
- Perform vSphere vMotion and vSphere Storage vMotion migrations
- Create and manage virtual machine snapshots

### 8 Resource Management and Monitoring

- Discuss CPU and memory concepts in a virtualized environment
- Describe what overcommitment of a resource means
- Identify additional technologies that improve memory usage
- Configure and manage resource pools
- Describe methods for optimizing CPU and memory usage
- Use various tools to monitor resource usage
- Create and use alarms to report certain conditions or events

### 9 vSphere HA, vSphere Fault Tolerance, and Protecting Data

- Explain the vSphere HA architecture
- Configure and manage a vSphere HA cluster
- Use vSphere HA advanced parameters
- Enforce infrastructural or intra-app dependencies during failover
- Describe vSphere HA heartbeat networks and datastore heartbeats
- Examine the features and functions of vSphere Fault Tolerance
- Enable vSphere Fault Tolerance on virtual machines

## VMware vSphere: Install, Configure, Manage

- Support vSphere Fault Tolerance interoperability with vSAN
- Examine enhanced consolidation of vSphere Fault Tolerance virtual machines
- Examine the features and functions of vSphere Replication

### 10 vSphere DRS

- Describe the functions of a vSphere DRS cluster
- Create a vSphere DRS cluster
- View information about a vSphere DRS cluster
- Configure virtual machine affinity, DRS groups, and VM-host affinity rules
- Remove a host from a vSphere DRS cluster

### 11 vSphere Update Manager

- Describe the architecture, components, and capabilities of vSphere Update Manager
- Use vSphere Update Manager to manage the patching of ESXi, virtual machines, and vApps
- Examine the features and functions of vSphere Update Manager EAM integration
- Integrate vSphere Update Manager with vSphere DRS

### 12 vSphere Troubleshooting

- Apply a troubleshooting methodology to logically diagnose faults and improve troubleshooting efficiency
- Review troubleshooting tools
- Find important log files
- Use vSphere Syslog Collector

## Contact

If you have questions or need help registering for this course, click [here](#).



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# VMware NSX: Install, Configure, Manage

## Course Overview

This five-day, comprehensive, fast-paced training course presents VMware NSX® as a part of the software-defined data center. You will learn how to use logical switching in NSX to virtualize your switching environment. The course also details logical routing to enable you to dynamically route between different virtual environments. You will also learn how to use gateway services, firewall configurations, and security services to help secure and optimize your NSX environment.

Access to a software-defined data center environment is provided through hands-on labs to reinforce the skills and concepts presented in the course.

## Course Objectives

By the end of the course, you should be able to meet the following objectives:

- Configure and deploy NSX components for management and control
- Describe basic NSX layer 2 networking
- Configure, deploy, and use logical switch networks
- Configure and deploy NSX distributed router appliances to establish east-west connectivity
- Configure and deploy VMware NSX® Edge™ services gateway appliances to establish north-south connectivity
- Configure NSX L2 bridging
- Configure and use all main features of the NSX Edge services gateway
- Configure NSX Edge firewall rules to restrict network traffic
- Configure NSX distributed firewall rules to restrict network traffic
- Configure Service Composer policies
- Configure an identity-aware firewall
- Describe NSX data security
- Use the cross-vCenter NSX feature

## Target Audience

- Experienced system or network administrators

## Prerequisites

- Understanding of enterprise switching and routing
- Knowledge of TCP/IP services
- Experience with firewalls and firewall rule sets
- Understanding of concepts presented in the [VMware Data Center Virtualization Fundamentals](#) course
- Understanding of the concepts presented in the [VMware Introduction to Network Virtualization with NSX](#) course

## Certifications

This course prepares you for the following certification:

- [VMware Certified Professional 6 – Network Virtualization \(VCP6-NV\)](#)

## Course Delivery Options

- Classroom
- Live Online
- [Onsite](#)

## Product Alignment

- NSX 6.4

## Course Modules

### 1 Course Introduction

- Introductions and course logistics
- Review course objectives

### 2 Introduction to vSphere Networking

- Describe VMware vSphere® networking components
- Describe vSphere standard switches
- Describe vSphere distributed switches

### 3 Introduction to NSX

- Describe the benefits of NSX
- Identify NSX key use cases

### 4 NSX Architecture

- Describe the NSX architecture
- Describe the cloud management, management, control, and data planes of NSX
- Identify the component interactions
- Describe the VMware NSX® Controller™ cluster and its functions
- Explain the NSX Controller workload distribution

### 5 NSX Infrastructure Preparation

- Explain the steps required for an NSX installation
- Describe what is involved in planning an NSX deployment
- Describe the NSX Controller cluster and deployment
- Describe NSX Controller cluster high availability and load distribution
- Explain how to deploy and configure the NSX Controller cluster
- Explain the workflow involved in host preparation

### 6 NSX Logical Switch Networks

- Explain transport zones, VXLANs, and VXLAN tunnel end points (VTEPs)
- Describe the procedure for preparing the infrastructure for virtual networking
- Describe the configuration of vSphere distributed switches for VXLAN
- Identify the components involved in NSX logical switching
- Define VLANs for VXLAN

### 7 NSX Logical Routing

- Explain the east-west and north-south routing concepts
- Define the NSX distributed logical router
- Explain the logical router, interfaces, and interface addresses
- Describe the management and control plane interaction
- Describe logical router deployment models and two-tier routing for east-west traffic
- Explain the common topologies of an NSX Edge services gateway

### 8 Advanced NSX Logical Routing

- Describe how routers connect remote networks
- Explain route redistribution methods
- Describe less-than-or-equal (LE) and greater-than-or-equal (GE) configurations
- Describe routing event notification enhancements
- Configure equal-cost multipath (ECMP) routing
- Describe high availability for NSX Edge service gateways

### 9 NSX L2 Bridging

- Explain L2 bridging use cases
- Describe software and hardware L2 bridging between VXLAN and VLANs
- Discuss L2 bridging packet flows

### 10 NSX Edge Services

- Describe the NSX Edge Services
- Explain how Network Address Translation (NAT) works
- Explain NAT64
- Explain the function of load balancing
- Explain one-armed and inline load-balancing architectures
- Explain the DHCP and DNS services for NSX Edge

### 11 NSX Edge VPN Services

- Describe the NSX Edge VPN services
- Describe the VPN use cases
- Configure a L2 VPN on an NSX Edge instance
- Configure an NSX Edge instance for IPsec VPN services
- Explain NSX Edge SSL VPN-Plus services
- Configure NSX Edge SSL VPN-Plus server settings

## 12 NSX Security Services

- Describe the policy enforcement of the distributed firewall
- Describe virtualization context-awareness
- Explain custom network and security containers
- Describe the architecture of an NSX Edge firewall
- Explain DHCP snooping
- Explain ARP snooping

## 13 NSX Advanced Security Services

- Describe NSX SpoofGuard
- Identify how tags enable dynamic security service chains
- Explain Service Composer groups, policies, and tags
- Describe the Identity Firewall architecture
- Explain Application Rule Manager
- Explain how to create a monitoring session

## 14 NSX Introspection Services

- Describe the types of introspection services
- Describe the installation and configuration of Guest and Network Introspection
- Summarize Guest and Network Introspection alarms, events, and audit messages

## 15 Cross-vCenter NSX

- Describe cross-vCenter features and use cases
- Identify VMware NSX® Manager™ roles and NSX Controller cluster placement
- Deploy universal logical networks
- Explain the design considerations for cross-vCenter NSX

## Contact

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