vmware EDUCATION SERVICES

VMware vSphere Networking plus NSX-T Data Center: Install, Configure, Manage

Course Overview

This five-day, fast-paced course is designed to introduce basic and fundamental concepts associated with SDDC and vSphere Networking. This course also provides comprehensive training on how to install, configure, and manage a VMware NSX-T Data Center environment. Cover key NSX-T Data Center features and functionality offered in the NSX-T Data Center 3.0 release, including the overall infrastructure, logical switching, logical routing, networking and security services, micro-segmentation and firewalls, and more.

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:

- Describe the software-defined data center (SDDC)
- Explain the vSphere components and their function in the infrastructure
- Create virtual networks with vSphere standard & distributed switches
- Describe VMware Virtual Cloud Network and the NSX-T Data Center architecture
- Describe the NSX-T Data Center components and main functions
- Explain the NSX-T Data Center key features and benefits
- Deploy and configure NSX-T Data Center infrastructure
- Configure layer 2 logical switching and bridging
- Explain the tiered routing architecture and configure gateways
- Configure advanced services such as VPN and load balancing
- Describe the NSX-T Data Center security model with micro-segmentation
- Configure Distributed Firewall and Gateway Firewall to protect east-west and north-south traffic
- Explain advanced security enforcement with URL analysis, IDS, and partner service insertion
- Integrate VMware Identity Manager™ or LDAP with NSX-T Data Center and configure role-based access control
- Describe NSX-T Data Center Federation use-cases and architecture for switching, routing, and security.

Target Audience

- Experienced system administrators or network administrators

Prerequisites

• Good understanding of TCP/IP services and network security and working experience with firewalls • Working experience with enterprise switching and routing

Solid understanding of concepts presented in the following courses:

• VMware Data Center Virtualization Fundamentals
• VMware Introduction to Network Virtualization with NSX
• VMware Network Virtualization Fundamentals

Course Modules

1   Course Introduction

   • Introductions and course logistics
   • Course objectives

2   Introduction to vSphere and the Software-Defined Data Center

   • Explain basic virtualization concepts
   • Describe how vSphere fits into the software-defined data center and the cloud infrastructure
   • Recognize the user interfaces for accessing the vCenter Server system and ESXi hosts
   • Describe the ESXi host architecture
   • Use VMware Host Client™ to configure ESXi host settings
   • Use vSphere Client to manage the vCenter Server inventory

3   Configuring and Managing Virtual Networks

   • Create and manage standard switches
   • Describe the virtual switch connection types
   • Configure virtual switch security, traffic-shaping, and load-balancing policies
   • Compare vSphere distributed switches and standard switches
   • Configure and manage vSphere distributed switches
   • Describe how VMware vSphere® Network I/O Control enhances performance

4   VMware Virtual Cloud Network and NSX-T Data Center

   • Introduce VMware's Virtual Cloud Network vision
   • Discuss NSX-T Data Center solutions, use cases, and benefits
   • Explain NSX-T Data Center architecture and components

   • Describe VMware NSXTM product portfolio and features
   • Explain the management, control, data, and consumption planes and function

5   Deployment Preparing the NSX-T Data Center Infrastructure

   • Describe NSX Management Cluster
   • Deploy VMware NSX™ Manager™ nodes on VMware ESXi and KVM hypervisors
   • Navigate through the NSX Manager UI
   • Explain data-plane components such as N-VDS, transport nodes, transport zones, profiles, and more
   • Perform transport node preparation and establish the data center infrastructure
   • Verify transport node status and connectivity

6   NSX-T Data Center Logical Switching

   • Introduce key components and terminology in logical switching
   • Describe the function and types of L2 segments
   • Explain tunneling and the GENEVE encapsulation
   • Configure logical segments and attach hosts using NSX Manager UI
   • Describe the function and types of segment profiles
   • Create segment profiles and apply them to segments and ports
   • Explain the function of MAC, ARP, and TEP tables used in packet forwarding
   • Demonstrate L2 unicast packet flow
   • Explain ARP suppression and BUM traffic handling

7   NSX-T Data Center Logical Routing

   • Describe the logical routing function and use cases
   • Introduce the two-tier routing architecture, topologies, and components
   • Explain the Tier-0 and Tier-1 Gateway functions

- Describe the logical router components: Service Router and Distributed Router
- Discuss the architecture and function of VMware NSXTM EdgeTM nodes
- Discuss deployment options of NSX Edge nodes
- Configure NSX Edge nodes and create NSX Edge clusters
- Configure Tier-0 and Tier-1 Gateways
- Examine the single-tier and multitier packet flow
- Configure static routing and dynamic routing
- Enable ECMP on Tier-0 Gateway
- Describe NSX Edge HA, failure detection, and failback modes

8   NSX-T Data Center Bridging

- Describe the function of logical bridging
- Discuss the logical bridging use cases
- Compare routing and bridging solutions
- Explain the components of logical bridging
- Create bridge clusters and bridge profiles

9   NSX-T Data Center Security

- Introduce the NSX-T Data Center security approach and model
- Describe the micro-segmentation benefits and use cases
- Describe the Distributed Firewall architecture, components, and function
- Configure Distributed Firewall sections and rules
- Describe the Gateway Firewall architecture, components, and function
- Configure Gateway Firewall sections and rules
- Describe URL analysis and distributed intrusion system importance and use-cases.
- Describe the service insertion functionality for eastwest and north-south security
- Discuss the integration and benefits of partner security solutions with NSX-T Data Center

10   NSX-T Data Center Services

- Describe NSX-T Data Center services
- Explain and configure Network Address Translation (NAT) and NAT 64
- Explain and configure DNS and DHCP services
- Describe the load-balancing function, topologies, components, and use cases
- Configure L4-L7 load balancing
- Discuss the IPSec VPN and L2 VPN function and use cases
- Configure IPSec VPN and L2 VPN using NSX Manager UI

11   NSX-T Data Center Monitoring

- Explain the importance and functionality of VMware NSX® Intelligence™
- Navigate through the NSX Topology UI and identify the various key elements in the UI
- Discuss the importance and use-cases of alarms and events

12   NSX-T Data Center Operations and Tools

- Explain and validate the native troubleshooting tools (dashboards, traceflow, port mirroring) for the NSX-T
- Data Center environment
- Configure syslog, IPFIX, and log collections for the NSX-T Data Center environment

13   NSX-T Data Center User and Role Management

- Describe the function and benefits of VMware Identity Manager in NSX-T Data Center
- Integrate VMware Identity Manager with NSX-T Data Center
- Integrate LDAP with NSX-T Data Center
- Identify the various types of users, authentication policies, and permissions
- Use role-based access control to restrict user access
- Explain the built-in roles in VMware Identity Manager and role assignment to users

14   NSX-T Data Center Federation

- Introduce the NSX-T Data Center Federation key concepts, terminology, and use-cases.
- Explain the onboarding process of NSX-T Data Center Federation
- Describe the NSX-T Data Center Federation switching and routing functions.
- Describe the NSX-T Data Center Federation security concepts and routing functions