

# VERP-NTDCD VMWARE NSX-T DATA CENTER: DESIGN



DURATION	LEVEL	TECHNOLOGY	DELIVERY METHOD	TRAINING CREDITS
5 Days	Intermediate	VMware	ILT / VILT	NA

## INTRODUCTION

This five-day course provides comprehensive training on considerations and practices to design a VMware NSX-T™ Data Center environment as part of a software-defined data center strategy. This course prepares the student with the skills to lead the design of NSX-T Data Center offered in release 3.2, including design principles, processes, and frameworks. The student gains a deeper understanding of the NSX-T Data Center architecture and how it can be used to create solutions to address the customer's business needs.

## AUDIENCE PROFILE

Network and security architects and consultants who design the enterprise and data center networks and VMware NSX® environments

## PREREQUISITES

Before taking this course, you must complete the following course:

- VMware NSX-T Data Center: Install, Configure, Manage [V3.2]

You should also have the understanding or knowledge of these technologies:

- Good understanding of TCP/IP services and protocols
- Knowledge and working experience of computer networking and security, including:
- Switching and routing technologies (L2-L3)
- Network and application delivery services (L4-L7)
- Firewalling (L4-L7)
- vSphere environments

The VMware Certified Professional – Network Virtualization certification is recommended.

## COURSE OBJECTIVES

After completing this course, delegates will be able to:

- Describe and apply a design framework
- Apply a design process for gathering requirements, constraints, assumptions, and risks
- Design a VMware vSphere® virtual data center to support NSX-T Data Center requirements
- Create a VMware NSX® Manager™ cluster design
- Create a VMware NSX® Edge™ cluster design to support traffic and service requirements in NSX-T Data Center
- Design logical switching and routing
- Recognize NSX-T Data Center security best practices
- Design logical network services
- Design a physical network to support network virtualization in a software-defined data center
- Create a design to support the NSX-T Data Center infrastructure across multiple sites
- Describe the factors that drive performance in NSX-T Data Center

## MODULES

### Module 1: Course Introduction

- Introduction and course logistics
- Course objectives

### Module 2: Design Concepts

- Identify design terms
- Describe framework and project methodology

- Describe VMware Validated Design™
- Identify customers' requirements, assumptions, constraints, and risks
- Explain the conceptual design
- Explain the logical design
- Explain the physical design

### Module 3: NSX Architecture and Components

- Recognize the main elements in the NSX-T Data Center architecture
- Describe the NSX management cluster and the management plane

- Identify the functions and components of management, control, and data planes
- Describe the NSX Manager sizing options
- Recognize the justification and implication of NSX manager cluster design decisions
- Identify the NSX management cluster design options

#### Module 4: NSX Edge Design

- Explain the leading practices for edge design
- Describe the NSX Edge VM reference designs
- Describe the bare-metal NSX Edge reference designs
- Explain the leading practices for edge cluster design
- Explain the effect of stateful services placement
- Explain the growth patterns for edge clusters
- Identify design considerations when using L2 bridging services

#### Module 5: NSX Logical Switching Design

- Describe concepts and terminology in logical switching
- Identify segment and transport zone design considerations
- Identify virtual switch design considerations
- Identify uplink profile, VMware vSphere® Network I/O Control profile, and transport node profile design considerations
- Identify Geneve tunneling design considerations
- Identify BUM replication mode design considerations

#### Module 6: NSX Logical Routing Design

- Explain the function and features of logical routing
- Describe NSX-T Data Center single-tier and multitier routing architectures
- Identify guidelines when selecting a routing topology

- Describe the BGP and OSPF routing protocol configuration options
- Explain gateway high availability modes of operation and failure detection mechanisms
- Identify how multitier architectures provide control over stateful service location
- Identify VRF Lite requirements and considerations
- Identify the typical NSX scalable architectures

#### Module 7: NSX Security Design

- Identify different security features available in NSX-T Data Center
- Describe the advantages of an NSX Distributed Firewall
- Describe the use of NSX Gateway Firewall as a perimeter firewall and as an intertenant firewall
- Determine a security policy methodology
- Recognize the NSX-T Data Center security best practices

#### Module 8: NSX Network Services

- Identify the stateful services available in different edge cluster high availability modes
- Describe failover detection mechanisms
- Explain the design considerations for integrating VMware NSX® Advanced Load Balancer™ with NSX-T Data Center
- Describe stateful and stateless NSX-T Data Center NAT
- Identify benefits of NSX-T Data Center DHCP
- Identify benefits of metadata proxy
- Describe IPSec VPN and L2 VPN

#### Module 9: Physical Infrastructure Design

- Identify the components of a switch fabric design

- Assess Layer 2 and Layer 3 switch fabric design implications
- Review guidelines when designing top-of-rack switches
- Review options for connecting transport hosts to the switch fabric
- Describe typical designs for VMware ESXi™ compute hypervisors with two pNICs
- Describe typical designs for ESXi compute hypervisors with four or more pNICs
- Describe a typical design for a KVM compute hypervisor with two pNICs
- Differentiate dedicated and collapsed cluster approaches to SDDC design

#### Module 10: NSX Multilocation Design

- Explain scale considerations in an NSX-T Data Center multisite design
- Describe the main components of the NSX Federation architecture
- Describe the stretched networking capability in Federation
- Describe stretched security use cases in Federation
- Compare Federation disaster recovery designs

#### Module 11: NSX Optimization

- Describe Geneve Offload
- Describe the benefits of Receive Side Scaling and Geneve Rx Filters
- Explain the benefits of SSL Offload
- Describe the effect of Multi-TEP, MTU size, and NIC speed on throughput
- Explain the available N-VDS enhanced datapath modes and use cases
- List the key performance factors for compute nodes and NSX Edge nodes

## ASSOCIATED CERTIFICATIONS & EXAM

This course prepares delegates to write the VMware Professional NSX-T Data Center 3.0 (3V0-41.20) exam.