VMware NSX-T Data Center: Design

Duration: 5 Days **Course Code: VMNSX-TDCD** **Version: 3.2**

Overview:

This five-day VMware NSX-T Data Center 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.

Product Alignment: VMware NSX-T Data Center 3.2

Target Audience:

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

Objectives:

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

Prerequisites:

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• VMware NSX-T Data Center: Install, Configure, Manage (VMNSX-TDICM)

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:

o Switching and routing technologies (L2-L3)

o Network and application delivery services (L4-L7)

o Firewalling (L4-L7)

o vSphere environments

The VMware Certified Professional – Network Virtualization certification is recommended

Content:

1 Course Introduction

- Introduction and course logistics
- Course objectives

2 NSX 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

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

4 NSX Edge 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
- Identify Geneve tunneling design considerations
- Identify BUM replication mode design considerations

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

7 NSX Security Design

- 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

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

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

- 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

5 NSX Logical Switching 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

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 stretched security use cases in Federation
- Compare Federation disaster recovery designs

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

Further Information:

For More information, or to book your course, please call us on 0800/84.009

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