

VMware NSX : Design (V4)

Course Outline

1. Course Introduction

- **Introduction and Course Logistics:** Overview of participants, course structure, and logistical details.
- **Course Objectives:** Define the key learning outcomes and skills participants will acquire by the end of the course.

2. NSX Design Concepts

- **Identify Design Terms:** Familiarization with essential NSX design terminology.
- **Describe Framework and Project Methodology:** Overview of the framework and methodologies utilized in NSX design projects.
- **Describe the Role of VMware Cloud Foundation™ in NSX Design:** Understanding how VMware Cloud Foundation integrates with NSX design.
- **Identify Customers' Requirements, Assumptions, Constraints, and Risks:** Techniques for gathering and analyzing customer requirements.
- **Explain the Conceptual Design:** Overview of conceptual design principles in NSX.
- **Explain the Logical Design:** Understanding the components and considerations of logical design.
- **Explain the Physical Design:** Overview of physical design elements in NSX.

3. NSX Architecture and Components

- **Recognize the Main Elements in the NSX Architecture:** Identification of core NSX architecture components.
- **Describe the NSX Management Cluster and the Management Plane:** Overview of the management cluster and its functions.
- **Identify the Functions and Components of Management, Control, and Data Planes:** Understanding the roles of different planes in NSX architecture.
- **Describe the NSX Manager Sizing Options:** Guidelines for sizing NSX Manager based on deployment needs.
- **Recognize the Justification and Implication of NSX Manager Cluster Design Decisions:** Analyzing design decisions for NSX Manager clustering.
- **Identify the NSX Management Cluster Design Options:** Exploring various design options for management clusters.

4. NSX Edge Design

- **Explain the Leading Practices for Edge Design:** Best practices for designing NSX Edge environments.
- **Describe the NSX Edge VM Reference Designs:** Overview of virtual machine reference designs for NSX Edge.
- **Describe the Bare-Metal NSX Edge Reference Designs:** Understanding bare-metal design approaches for NSX Edge.
- **Explain the Leading Practices for Edge Cluster Design:** Best practices for structuring edge clusters.

- **Explain the Effect of Stateful Services Placement:** Impact of service placement on edge performance.
- **Explain the Growth Patterns for Edge Clusters:** Understanding how edge clusters can scale.
- **Identify Design Considerations When Using L2 Bridging Services:** Key factors to consider when implementing L2 bridging.

5. NSX Logical Switching Design

- **Describe Concepts and Terminology in Logical Switching:** Overview of logical switching fundamentals.
- **Identify Segment and Transport Zone Design Considerations:** Design considerations for segments and transport zones.
- **Identify Virtual Switch Design Considerations:** Key aspects of designing virtual switches.
- **Identify Uplink Profile and Transport Node Profile Design Considerations:** Guidelines for uplink and transport node profiles.
- **Identify Geneve Tunneling Design Considerations:** Understanding Geneve tunneling in NSX.
- **Identify BUM Replication Mode Design Considerations:** Considerations for Broadcast, Unknown unicast, and Multicast (BUM) replication.

6. NSX Logical Routing Design

- **Explain the Function and Features of Logical Routing:** Overview of logical routing functionalities.
- **Describe the NSX Single-Tier and Multitier Routing Architectures:** Understanding routing architectures in NSX.
- **Identify Guidelines When Selecting a Routing Topology:** Best practices for choosing routing topologies.
- **Describe the BGP and OSPF Routing Protocol Configuration Options:** Configuration options for routing protocols in NSX.
- **Explain Gateway High Availability Modes of Operation and Failure Detection Mechanisms:** Understanding high availability for routing gateways.
- **Identify How Multitier Architectures Provide Control Over Stateful Service Location:** Impact of multitier architectures on service location.
- **Identify EVPN Requirements and Design Considerations:** Key considerations for Ethernet VPN in NSX.
- **Identify VRF Lite Requirements and Considerations:** Overview of VRF Lite design considerations.
- **Identify the Typical NSX Scalable Architectures:** Understanding scalable architectures within NSX environments.

7. NSX Security Design

- **Identify Different Security Features Available in NSX:** Overview of security features offered by NSX.
- **Describe the Advantages of an NSX Distributed Firewall:** Understanding the benefits of a distributed firewall.
- **Describe the Use of NSX Gateway Firewall as a Perimeter Firewall and as an**

Intertenant Firewall: Applications of the NSX Gateway Firewall.

- **Determine a Security Policy Methodology:** Strategies for developing effective security policies.
- **Recognize the NSX Security Best Practices:** Overview of best practices for NSX security.

8. NSX Network Services

- **Identify the Stateful Services Available in Different Edge Cluster High Availability Modes:** Overview of stateful services and their availability.
- **Describe Failover Detection Mechanisms:** Understanding mechanisms for failover detection.
- **Compare NSX NAT Solutions:** Analysis of different NAT solutions in NSX.
- **Explain How to Select DHCP and DNS Services:** Guidelines for selecting appropriate DHCP and DNS services.
- **Compare Policy-Based and Route-Based IPSec VPN:** Differences between policy-based and route-based VPN configurations.
- **Describe an L2 VPN Topology That Can Be Used to Interconnect Data Centers:** Overview of L2 VPN topologies for data center connectivity.
- **Explain the Design Considerations for Integrating VMware NSX® Advanced Load Balancer™ with NSX:** Key factors in integrating load balancing with NSX.

9. Physical Infrastructure Design

- **Identify the Components of a Switch Fabric Design:** Understanding the elements involved in switch fabric design.
- **Assess Layer 2 and Layer 3 Switch Fabric Design Implications:** Overview of design considerations for Layer 2 and Layer 3 fabrics.
- **Review Guidelines When Designing Top-of-Rack Switches:** Best practices for top-of-rack switch design.
- **Review Options for Connecting Transport Hosts to the Switch Fabric:** Techniques for connecting transport hosts.
- **Describe Typical Designs for VMware ESXi™ Compute Hypervisors with Two pNICs:** Overview of designs for ESXi with two physical NICs.
- **Describe Typical Designs for ESXi Compute Hypervisors with Four or More pNICs:** Best practices for ESXi hypervisors with multiple physical NICs.
- **Differentiate Dedicated and Collapsed Cluster Approaches to SDDC Design:** Understanding different approaches to Software-Defined Data Center (SDDC) design.

10. NSX Multilocation Design

- **Explain Scale Considerations in an NSX Multisite Design:** Overview of scalability in multisite NSX deployments.
- **Describe the Main Components of the NSX Federation Architecture:** Understanding NSX Federation architecture components.
- **Describe the Stretched Networking Capability in Federation:** Overview of stretched networking in NSX Federation.
- **Describe Stretched Security Use Cases in Federation:** Applications of security in stretched networks.

- **Compare the Federation Disaster Recovery Designs:** Analysis of disaster recovery designs in NSX Federation.

11. NSX Optimization and DPU-Based Acceleration

- **Describe Geneve Offload:** Understanding Geneve offload functionalities.
- **Describe the Benefits of Receive Side Scaling and Geneve Rx Filters:** Overview of benefits related to scaling and filtering.
- **Explain the Benefits of SSL Offload:** Advantages of SSL offloading in NSX.
- **Describe the Effect of Multi-TEP, MTU Size, and NIC Speed on Throughput:** Factors affecting throughput performance.
- **Explain the Available Enhanced Datapath Modes and Use Cases:** Overview of enhanced datapath modes in NSX.
- **List the Key Performance Factors for Compute Nodes and NSX Edge Nodes:** Identifying critical performance factors in NSX environments.
- **Describe DPU-Based Acceleration:** Overview of Data Processing Unit (DPU) acceleration.
- **Define the NSX Features Supported by DPUs:** Understanding NSX features compatible with DPUs.
- **Describe the Hardware and Networking Configurations Supported with DPUs:** Overview of configurations for DPU integration.