

# VMware Certified Advanced Professional 6 – Network Virtualization Deployment Exam

## Exam Preparation Guide

Exam Code: 3V0-643

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### Disclaimer:

This blueprint is intended to provide information about the objectives covered by this exam, related resources, and recommended courses. The material contained within this blueprint is not intended to guarantee that a passing score will be achieved on the exam. VMware recommends that a candidate thoroughly understands the objectives indicated in this guide and utilizes the resources and courses recommended in this guide where needed to gain that understanding.

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## **1. The Exam**

### 1.1 Purpose of Exam

The VMware Certified Advanced Professional 6 – Network Virtualization Deployment Exam (3V0-643) tests candidates on their skills and abilities in implementation of a VMware NSX solution, including deployment, administration, optimization, and troubleshooting. A given solution may include any of these products and technologies:

- VMware NSX
- Cross-vCenter NSX
- Service Composer

### 1.2 Intended Audience

A typical candidate for the VCAP6-NV certification has two years of experience deploying VMware network virtualization solutions. They are typically infrastructure personnel, who are capable of deploying, optimizing and troubleshooting a VMware NSX 6.x solution running on vSphere 6.x architecture. The candidate possesses an understanding of basic network concepts including layer2 switching, layer3 routing, and other typical network services. The candidate is capable of deploying and administering all VMware NSX components. Successful candidates will also have previous experience working with vSphere infrastructures, including configuration and management tasks. Candidates are required to obtain a valid VMware Certified Professional 6 certification prior to attempting this certification.

## **2. Objectives covered in the VCAP6-NV Exam (3V0-643):**

### 2.1 Introduction

It is recommended that candidates have the knowledge and skills necessary to install, configure and administer a VMware NSX 6.x environment before taking the VCIX6-NV Exam. While there is no course requirement, VMware recommends that candidates complete an NSX specific, lab-intensive course such as the VMware NSX Troubleshooting and Operations [V6.2] course. It is recommended that the candidate utilize these courses and/or other materials where needed to provide background information on the objectives in the exam.

### 2.2 Objectives

Prior to taking this exam, candidates should understand each of the following objectives. Each objective is listed below; along with related tools the candidate should have experience with, and related documentation

that contains information relevant to the objective. All objectives may also be referenced in other product documentation not specifically highlighted below. The candidate should be familiar with all relevant product documentation or have an equivalent skillset.

## Section 1 – Prepare VMware NSX Infrastructure

### Objective 1.1 – Deploy VMware NSX Infrastructure components

#### Skills and Abilities

- Deploy the NSX Manager virtual appliance
- Integrate the NSX Manager with vCenter Server
  - Configure Single Sign On
  - Specify a Syslog Server
- Implement and Configure NSX Controllers
- Exclude virtual machines from firewall protection according to a deployment plan

#### Tools

- [NSX Installation Guide](#)
- [VMware NSX Brownfield Deployment Guide](#)
- [VMware NSX for vSphere \(NSX-V\) Network Virtualization Design Guide](#)
- NSX Manager
- vSphere Web Client
- NSX Controller CLI

### Objective 1.2 – Prepare Host Clusters for Network Virtualization

#### Skills and Abilities

- Prepare vSphere Distributed Switching for NSX
- Prepare a cluster for NSX
  - Add/Remove Hosts from cluster
- Configure the appropriate teaming policy for a given implementation
- Configure VXLAN Transport parameters according to a deployment plan

#### Tools

- [NSX Installation Guide](#)
- [NSX Administration Guide](#)
- vSphere Web Client

## Objective 1.3 – Configure and Manage Transport Zones

### Skills and Abilities

- Create Transport Zones according to a deployment plan
- Configure the control plane mode for a Transport Zone
- Add clusters to Transport Zones
- Remove clusters from Transport Zones

### Tools

- [NSX Installation Guide](#)
- [NSX Administration Guide](#)
- vSphere Web Client

## Section 2 – Create and Manage VMware NSX Virtual Networks

### Objective 2.1 – Create and Manage Logical Switches

#### Skills and Abilities

- Create/Delete Logical Switches
- Assign and configure IP addresses
- Connect a Logical Switch to an NSX Edge
- Deploy services on a Logical Switch
- Connect/Disconnect virtual machines to/from a Logical Switch
- Test Logical Switch connectivity

#### Tools

- [NSX Administration Guide](#)
- [NSX Command Line Interface Reference Guide](#)
- vSphere Web Client
- NSX Controller CLI
- NSX Edge CLI

## Objective 2.2 – Configure and Manage Layer 2 Bridging

### Skills and Abilities

- Add Layer 2 Bridging
- Connect Layer 2 Bridging to the appropriate distributed virtual port group

### Tools

- [NSX Administration Guide](#)
- vSphere Web Client
- NSX Edge CLI

## Objective 2.3 – Configure and Manage Routing

### Skills and Abilities

- Deploy the appropriate NSX Edge (ESG/LDR) device according to a deployment plan
- Configure centralized and distributed routing
- Configure default gateway parameters
- Configure static routes
- Select and configure appropriate dynamic routing protocol according to a deployment plan:
  - OSPF
  - BGP
  - IS-IS
- Configure route redistribution to support a multi-protocol environment

### Tools

- [NSX Installation Guide](#)
- [NSX Administration Guide](#)
- vSphere Web Client
- NSX Edge CLI

## Section 3 – Deploy and Manage VMware NSX Network Services

### Objective 3.1 – Configure and Manage Logical Load Balancing

#### Skills and Abilities

- Configure the appropriate Load Balancer model for a given application topology
- Configure SSL off-loading
- Configure a service monitor to define health check parameters for a specific type of network traffic
- Optimize a server pool to manage and share backend servers
- Configure an application profile and rules
- Configure virtual servers

#### Tools

- [NSX Administration Guide](#)
- vSphere Web Client

### Objective 3.2 – Configure and Manage Logical Virtual Private Networks (VPNs)

#### Skills and Abilities

- Configure IPSec VPN service to enable site to site communication
- Configure SSL VPN service to allow remote users to access private networks
- Configure L2 VPN service to stretch multiple logical networks across geographical sites

#### Tools

- [NSX Administration Guide](#)
- vSphere Web Client
- NSX Edge CLI

### Objective 3.3 – Configure and Manage Additional VMware NSX Edge Services

#### Skills and Abilities

- Configure DHCP services according to a deployment plan:
  - Create/edit a DHCP IP Pool
  - Create/edit DHCP Static Binding
  - Configure DHCP relay



- Configure DNS services
- Configure NAT services to provide access to services running on privately addressed virtual machines

#### Tools

- [NSX Administration Guide](#)
- vSphere Web Client
- NSX Edge CLI

### **Section 4 – Secure a vSphere Data Center with VMware NSX**

#### **Objective 4.1 – Configure and Manage Logical Firewall Services**

##### Skills and Abilities

- Configure Edge and Distributed Firewall rules according to a deployment plan:
  - Create/configure Firewall rule sections for specific departments
  - Create/configure Identity-based firewall (IDFW) for specific users/groups
- Configure SpoofGuard policies to enhance security
- Filter firewall rules to narrow a scope

#### Tools

- [NSX Administration Guide](#)
- vSphere Web Client

#### **Objective 4.2 – Configure and Manage Service Composer**

##### Skills and Abilities

- Create/configure Service Composer according to a deployment plan:
  - Configure Security Groups
  - Configure Security Policies
  - Configure Activity Monitoring for a Security Policy
- Create/edit/delete Security Tags
- Configure Network Introspection
- Configure Guest Introspection

## Tools

- [NSX Administration Guide](#)
- vSphere Web Client

## **Section 5 – Perform Operational Management of a VMware NSX Implementation**

### **Objective 5.1 – Backup and Restore Network Configurations**

#### Skills and Abilities

- Schedule/Backup/Restore NSX Manager data
- Export/Restore vSphere Distributed Switch configuration
- Export/Import Service Composer profiles
- Save/Export/Import/Load Distributed Firewall configurations

#### Tools

- [NSX Installation Guide](#)
- [NSX Administration Guide](#)
- vSphere Web Client
- NSX Manager
- NSX Controller

### **Objective 5.2 – Monitor a VMware NSX Implementation**

#### Skills and Abilities

- Configure logging for NSX components according to a deployment plan
- Monitor health of networking services
- Monitor health and status of infrastructure components:
  - vSphere
  - NSX Manager
  - Control Cluster
- Enable data collection for single/multiple virtual machines

#### Tools

- [NSX Administration Guide](#)
- vSphere Web Client

## Objective 5.3 – Configure and Manage Role Based Access Control

### Skills and Abilities

- Implement identity service support for Active Directory, NIS, and LDAP with Single Sign-On (SSO)
- Manage User rights:
  - Assign roles to user accounts
  - Change a user role
  - Delete/disable/enable a user account

### Tools

- [NSX Administration Guide](#)
- vSphere Web Client

## Section 6 – Configure Cross vCenter Networking and Security

### Objective 6.1 – Configure Cross vCenter VMware NSX infrastructure components

### Skills and Abilities

- Configure NSX manager roles (Primary, Secondary, Standalone, Transit) according to a deployment plan:
  - Assign Primary role to specified NSX Manager
  - Assign Secondary role to specified NSX Managers
- Deploy/configure Universal Controller Cluster
- Configure Universal segment ID pools
- Create/manage Universal transport zones

### Tools

- [NSX Cross-vCenter Installation Guide](#)
- [NSX Administration Guide](#)
- NSX Manager
- vSphere Web Client

## Objective 6.2 – Configure and Manage Universal Logical Network Objects

### Skills and Abilities

- Create/configure Universal Logical Switches
- Create/configure Universal Distributed Logical Routers
- Configure local egress

### Tools

- [NSX Cross-vCenter Installation Guide](#)
- [NSX Administration Guide](#)
- NSX Manager
- vSphere Web Client

## Objective 6.3 – Configure and Manage Universal Logical Security Objects

### Skills and Abilities

- Configure Universal MAC sets
- Configure Universal IP sets
- Configure Universal security groups
- Configure Universal firewall rules
- Configure Universal services and service groups

### Tools

- [NSX Cross-vCenter Installation Guide](#)
- [NSX Administration Guide](#)
- NSX Manager
- vSphere Web Client

## Section 7 – Perform Advanced VMware NSX Troubleshooting

### Objective 7.1 – Troubleshoot Common VMware NSX Installation/Configuration Issues

#### Skills and Abilities

- Troubleshoot NSX Manager services
- Download Technical Supports logs from NSX Manager
- Troubleshoot host preparation issues
- Troubleshoot NSX Controller cluster status, roles and connectivity
- Troubleshoot Logical Switch transport zone and NSX Edge mappings
- Troubleshoot Logical Router interface and route mappings
- Troubleshoot distributed and edge firewall implementations

#### Tools

- [NSX Administration Guide](#)
- NSX Manager
- vSphere Web Client

### Objective 7.2 – Troubleshoot VMware NSX Connectivity Issues

#### Skills and Abilities

- Monitor and analyze virtual machine traffic with Flow Monitoring
- Troubleshoot virtual machine connectivity
- Troubleshoot dynamic routing protocols

#### Tools

- [NSX Administration Guide](#)
- vSphere Web Client
- NSX Controller CLI
- NSX Edge CLI

## Objective 7.3 – Troubleshoot VMware NSX Edge Services Issues

### Skills and Abilities

- Troubleshoot VPN service issues
- Troubleshoot DHCP/DNS/NAT service issues
- Troubleshoot Logical Load Balancer implementation issues
- Download Technical Support logs from NSX Edge instances

### Tools

- [NSX Administration Guide](#)
- vSphere Web Client
- NSX Edge CLI

## Section 8 – Utilize API Commands to Manage a VMware NSX Deployment

### Objective 8.1 – Administer and Execute calls using the VMware NSX vSphere API

### Skills and Abilities

- Construct and execute an API call using correct syntax and formatting
- Programmatically configure system parameters including:
  - NSX controller syslog
  - Modify DLR declared dead time
- Analyze, modify, and successfully retrieve configuration data using an existing API call

### Tools

- [NSX API Guide](#)
- [NSX Command Line Interface Reference Guide](#)
- [NSX Administration Guide](#)
- [vSphere Command-Line Interface Concepts and Examples](#)
- vSphere Web Client

### **3. Additional Resources**

#### 3.1 Exam Simulation

VMware provides an interactive exam simulation for the VCAP6-NV Exam. The simulation uses a sample question and lab activity to demonstrate the exam environment.

The exam simulation will be located at: TBD

#### 3.2 VCAP6-NV Community

VMware provides an online community for VCAP/VCIX6 candidates. This community contains valuable information from other candidates and senior VCAPs/VCIXs, and is moderated by VMware certification staff.

The community is located at: <http://communities.vmware.com/community/vmtn/certedu/certification/vcix>

#### 3.3 Test Driving a VMware NSX environment

VMware provides Hands-On Labs for VMware NSX technologies. These labs provide an environment where you can work with the products covered in this exam. The labs can be accessed here:

<https://my.vmware.com/web/vmware/evalcenter?p=nsx-hol> .

Version	Change Notes	Date
1.0	Initial Prep Guide Creation	11/09/2015
1.1	Audited cognitive complexity information	11/10/2015
1.2	Updated naming and formatting	12/04/2015