

VMware Certified Implementation Expert 6 – Network Virtualization Exam

Exam Preparation Guide

Exam Code: 3V0-643

Exam Preparation Guide Version 1.0

14 July 2015



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.

Blueprint Author:

Jeff Hall
Jon Hall
Josh Andrews

Contributors:

Max Ardica
Donovan Durand
Dillon Doxey
William Grismore
John Hays
John Krueger
Ben Lin
Michael Moore
Paul Mancuso
Chris McCain
Nauman Mustafa
Rob Nendel
Elver Sena

Table of Contents

1. The Exam.....	3
1.1 Purpose of Exam	3
1.2 Intended Audience.....	3
2. Objectives covered in the VCAP6-NV Exam (3V0-643):.....	3
2.1 Introduction	3
2.2 Objectives	3
Section 1 – Prepare VMware NSX Infrastructure	4
Section 2 – Create and Manage VMware NSX Virtual Networks	5
Section 3 – Deploy and Manage NSX Network Services.....	6
Section 4 – Secure a vSphere Data Center with VMware NSX	8
Section 5 – Perform Operational Management of a VMware NSX Implementation	8
Section 6 – Configure Cross vCenter Networking and Security.....	10
Section 7 – Utilize API and CLI Commands to Manage an NSX Deployment.....	11
3. Additional Resources	13
3.1 VCAP6-NV Community.....	13
3.2 Test Driving a VMware NSX environment	13

1. The Exam

1.1 Purpose of Exam

The VMware Certified Implementation Expert 6 – Network Virtualization (VCIX6-NV) Exam tests potential certification candidates on their skills and abilities installing, configuring and administering VMware NSX® environments.

1.2 Intended Audience

This exam will test potential candidates on their skills and abilities in the installation, configuration, administration, and troubleshooting of a VMware NSX environment. Candidate should be capable of installing and configuring VMware NSX and related components as well as utilizing the NSX Manager to create, manage, and deploy a virtual networking environment. Candidates should be knowledgeable about optimizing and troubleshooting all components of the NSX environment. Successful candidates will most likely have previous experience working with vSphere infrastructures, including configuration and management tasks, typically at least one year. Finally, the candidate should possess an understanding of Windows desktop administration, including Active Directory, group policy, DNS, and DHCP.

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

Section 3 – Deploy and Manage 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:
 - o Create/edit a DHCP IP Pool
 - o Create/edit DHCP Static Binding
 - o 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 – Monitor an NSX Implementation

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 CLI
- NSX Controller

Objective 5.2 – Troubleshoot Common NSX Component Issues

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 Service Composer

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 – Utilize API and CLI Commands to Manage an NSX Deployment

Objective 7.1 – Administer and Execute calls using the NSX vSphere API

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 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>

3.2 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