vmware®

Networking & Security Business Unit

NSX

NSX for vSphere

Requirements Checklist

for
<Customer>

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1. Overview

This document details the requirements for a PoC evaluation of the VMware NSX platform to provide network and security virtualization in a vSphere environment. The primary goal of the PoC is to gain hands on familiarity with the capabilities of NSX and understand how the product can be leveraged to address business and technical requirements. In addition customers will engage with VMware to agree on a set of use cases for the NSX PoC.

The scope of the PoC will be based on these jointly defined use cases. Preparation of the environment based on the information in this document is essential for a successful NSX evaluation.

2.   General Requirements

During any onsite work, the following items should be available:

- Conference room

- Whiteboard for knowledge transfer

- Projector for training sessions

- If required due to security requirements, a desktop or laptop with accessible to the evaluation environment

3.   NSX vSphere Topologies

The NSX PoC evaluation will demonstrate the following physical network and compute topology:
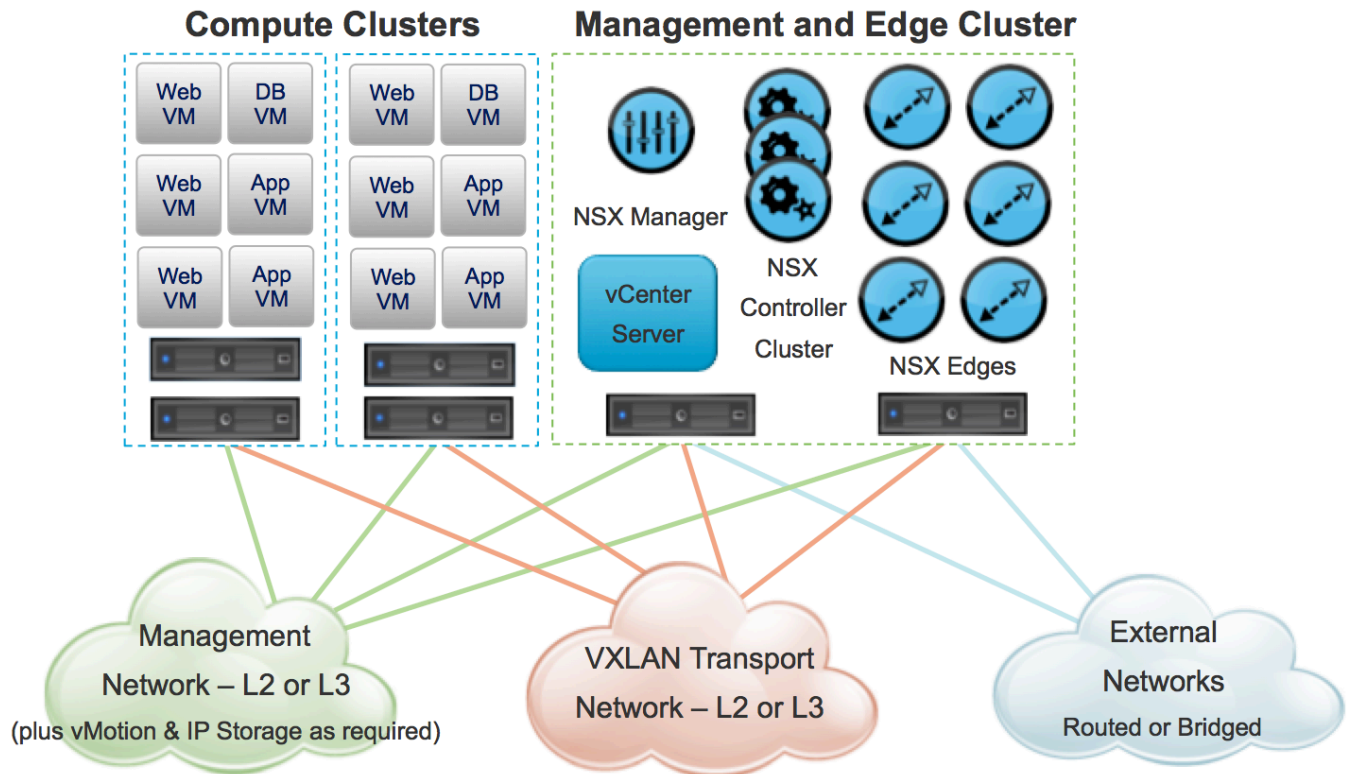
Figure 1 – VMware NSX Physical Topology

Both Layer 3 or Layer 2 transport networks are fully supported by NSX, however to most effectively demonstrate the flexibility and scalability of network virtualization a L3 topology with different routed networks for the Compute and Management/Edge Clusters is recommended.

It is also recommended that Management & Edge Clusters are separated if sufficient hardware is available, as this aligns with the best practices for deployment of NSX.

The logical network topology will depend on the environment and workloads plus the features being evaluated, although a typical example based on the capabilities of NSX and the classical N-Tier application model is displayed below:
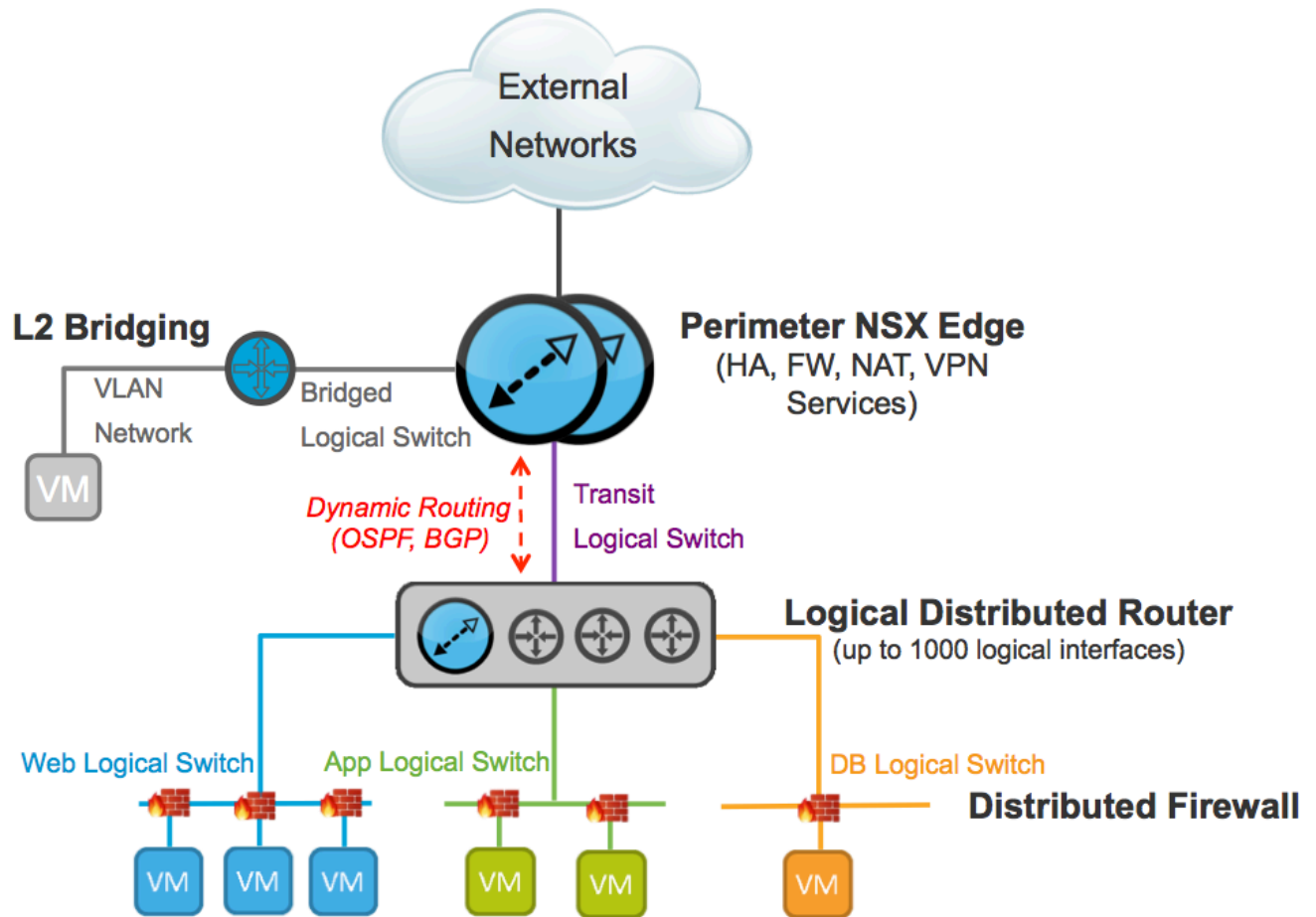

Figure 2 – VMware NSX Logical Topology

Another common application deployment model is to collapse all 3 tiers onto a common Logical Switch and use the NSX Distributed Firewall to manage segmentation and security between VMs.

ECMP, L2VPN and other NSX features may involve changes to the topology depicted above.

4. Hardware Requirements

Table 1. NSX Hardware Requirements

	Requirement	Comments
☐	A minimum of one physical server for a Management & Edge Cluster that meets the following specifications: • Server hardware is listed on the VMware HCL [1] for vSphere 5.5 • 2x Quad Core x86_64 compatible CPUs with a speed of 2Ghz or greater, plus Hardware assisted virtualization support (total of 8 physical cores) • 32GB of RAM or greater • 2x Physical NICs (ideally 4 if 1Gbe NICs are used) • 2x HBAs if FC-SAN is used • Either 5GB of Local Disk/Dedicated boot from SAN LUN or supported ESXi embedded device (USB/SD). Local Disk is not required if vSphere Auto Deploy is used. If additional management VMs are required (AD/DNS, NTP Syslog etc) these will increase the CPU & Memory requirements. Multiple physical servers may be used to meet the minimum hardware specifications. If sufficient hardware resources are available two Clusters of ESXi hosts can be used for separate Management and Edge clusters. This aligns with a production deployment where the Management Cluster is used to run supporting workloads, but not prepared for NSX Network Virtualization. Also if performance or availability will be tested during the evaluation, the NSX Controller Cluster requires 3 nodes, to comply with the best practice of running each node on a separate server. This means the Management & Edge Cluster will require 3 physical servers.	
☐	A minimum of 2 physical servers for Compute Clusters. To demonstrate the capabilities of network virtualization, VMware recommends allocating 4 servers in two vSphere clusters to the NSX PoC evaluation for Compute Clusters (or more). Sizing of these servers is entirely dependent on the customer workloads used during PoC testing, but the following specifications can be used as a baseline: 2x Quad Core 16GB of RAM per server.	

[1] Refer to http://www.vmware.com/go/hcl for the latest VMware HCL information

☐	Nested ESXi Hypervisors are not supported
☐	If L2 Bridging to a physical server will be one of the use cases that is evaluated, an additional server is required. Note that L2 Bridging can also be evaluated using a virtual machine connected to a VLAN tagged Portgroup to reduce hardware requirements.
☐	300GB of shared storage for Management VMs [2]
☐	200GB or greater of shared storage for Customer Workload VMs [3]

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[2] Storage requirements are reduced if thin provisioning is used

[3] Sizing of storage requirements for customer workloads is entirely dependent on the applications, so this is an estimate only

5. Software Requirements

Table 2. NSX Software Requirements

	Requirement	Comments
☐	Customer has access to the VMware NSX support portal and has agreed to the relevant VMware Software Agreements and NDA	
☐	Available Perpetual or VSPP vSphere 5.5 licenses (alternatively 60 day evaluations can be used during a PoC).	
☐	The following vSphere 5.5 build versions will be used • ESXi 5.5 U2 Build **2068190 or later** • vCenter Server 5.5.0 U2 Build **2105955 or later** • vCenter Server Appliance 5.5.0 U2 GA Build **2063318 or later** Note: By default the vCenter Server Virtual Appliance will be used for all NSX PoCs	
☐	NSX for vSphere build version: • NSX for vSphere 6.1.1 Build **2179522** Note: NSX Manager is delivered as a Virtual Appliance	
☐	Management host with supported OS & browser combination (as per the product documentation)	
☐	Provide one or more sample VM(s) to be used during the NSX proof of concept. Typically this will be a 2/3-tier application to demonstrate the required networking and security use cases. If customer provided VMs are not available VMware can provide a sample 3-tier application.	

Note that 3rd party partner integrations are generally out of scope, unless otherwise agreed to as part of the use cases. These integrated solutions can be evaluated independently from the NSX for vSphere PoC.

VMware vSphere software components should be installed and operational prior to commencing the NSX PoC evaluation. Document the vSphere system details in the following tables:

Table 3. vCenter Server

vCenter Server Name	Version	IP Address
	5.5	

Table 4. ESXi Hosts

ESXi Hostname	Version	Cluster Name	Datastores	Management IP Address
	5.5			
	5.5			
	5.5			
	5.5			
	5.5			
	5.5			

Table 5. NSX for vSphere Components

NSX Component	Version	IP Address
NSX Manager	6.1	
NSX Controller Node 1	6.1	
NSX Controller Node 2	6.1	
NSX Controller Node 3	6.1	
NSX Logical Router Control VMs	6.1	
NSX Edge Services Gateways	6.1	

Table 6. Management VM Sizing

VM	vCPU	Memory	Storage	Quantity
vCenter Server Appliance	2	8 Gb	125 Gb	1
NSX Manager	4	12 Gb	60 Gb	1
NSX Controller	4	4 Gb	25 Gb	Typically 3 if evaluating scale out
NSX Edge (Logical Router Control VM size is compact)	1 (compact) 2 (large) 4 (quad-large) 6 (x-large)	512 Mb (compact) 1 Gb (large) 1 Gb (quad-large 8 Gb (x-large)	512 Mb 512 Mb 512 Mb 4.5 Gb	Dependant on testing requirements/use cases

6.   Network Requirements

Table 7. NSX Network Requirements

	Requirement	Comments
☐	VLANs for: • ESXi Management • VM Management • VXLAN Transport • Routed Datacenter networks used for workloads in PoC evaluation. These can also be isolated if the PoC environment is not connected to external networks. • vMotion (if required) • IP Storage (if required) If a L2 network topology is used these VLANs can be shared across clusters. In a L3 topology VLANs are local to the Top of Rack switch.	
☐	IP address details for all networks used in the NSX PoC, including: - Management and VXLAN transport IPs for ESXi hosts - Static IPs or DHCP reservations on VM management network for vCenter Server, NSX Manager, NSX Controller - Range of IPs on external networks for customer workloads	
☐	MTU of 1600 or greater on VXLAN transport network(s)	
☐	Optional – for offloading replication of VXLAN frames to the physical network Layer 2 multicast (IGMP snooping & querier) can be configured on physical switches. This is <u>not</u> a requirement in VXLAN deployments with NSX.	
☐	Forward and Reverse DNS resolution for all Management VMs	
☐	NTP Service for time synchronization across Management VMs	
☐	If there is a firewall between management components, the required Ports and Protocols in Table 7 must be permitted. For PoC evaluations it is generally recommended not to implement filtering.	

Document the network parameters for the environment in the following table:

Table 8. Network Parameters

Purpose	VLAN ID	Subnet	Gateway
Management & Edge Cluster ESXi Management			
Management &Edge Cluster VM Management			
Management & Edge Cluster vMotion			n/a
Management & Edge Cluster IP Storage			n/a
Management & Edge Cluster VXLAN Transport			
Compute Cluster 1 ESXi Management			
Compute Cluster 1 vMotion			n/a
Compute Cluster 1 IP Storage			n/a
Compute Cluster 1 VXLAN Transport			
Compute Cluster 2 ESXi Management			
Compute Cluster 2 vMotion			n/a
Compute Cluster 2 IP Storage			n/a
Compute Cluster 2 VXLAN Transport			
Any Routed Datacenter networks used for External Access in the PoC evaluation. These can also be isolated if the PoC is not connected to external networks.			
VLAN for physical workloads to be bridged to a logical network in Compute Clusters			n/a

Table 9. NSX for vSphere Port & Protocol Requirements

Description	Port(s)	Protocol	Direction
NSX Manager Admin Interface	5480	TCP	Inbound
NSX Manager REST API	443	TCP	Inbound
NSX Manager SSH	22	TCP	Inbound
NSX Manager VIB access	80	TCP	Inbound
NSX Controller SSH	22	TCP	Inbound
NSX Controller REST API	443	TCP	Inbound
NSX Control Plane Protocol (UWA to Controller)	1234	TCP	Inbound
Message bus agent to NSX Manager (AMQP)	5671	TCP	Inbound
NSX Manager vSphere Web Access to vCenter Server	443, 902	TCP	Outbound
NSX Manager to ESXi host	443, 902	TCP	Outbound
VXLAN encapsulation between VTEPs (ESXi hosts on transport network)	8472	UDP	Both
DNS client	53	TCP & UDP	Outbound
NTP client	123	TCP & UDP	Outbound
Syslog (Optional)	514	UDP or TCP	Outbound
ESXi VIB status (to vCenter Server)	80	TCP	Inbound

- This only covers the NSX specific ports and protocols. Refer to the vSphere documentation for ESXi & vCenter Server requirements
- Firewall should also permit established connections between client and server

7. Resource Requirements

During a typical NSX for vSphere Proof of Concept, the following customer resources will need to be available during the evaluation. In many cases, multiple roles may be provided by the same individual.

Table 10. Customer Resources

	Job Role	Name
☐	vSphere Administrator	
☐	Storage Administrator	
☐	Network Administrator	
☐	Security Administrator	
☐	Cloud/Server Architect	
☐	Network/Security Architect	
☐	Project Executive Stakeholders	
☐	Project Lead/Manager	

Table 11. VMware Networking & Security Resources (Optional)

	Job Role	Name
☐	Account Manager	
☐	Systems Engineer	
☐	Post Sales Contact	

8. Sample Timeline

A sample timeline for an NSX for vSphere Proof of Concept is provided below. Based on resource availability, complexity of use cases and infrastructure readiness, these timelines can often be reduced (or in large environments may need to be increased).

Table 12. Timelines

NSX PoC Timelines
Week 1 – Kick Off & Preparation
☐ Kick off call with team to discuss the PoC requirements, scope and timeframes
☐ Identify key use cases
☐ Update test plan template based on these use cases
☐ Acquire required hardware / software resources
☐ Prepare the physical environment
☐ Install base vSphere software (ESXi and vCenter Server)
☐ Finalize deployment details
Week 2 – NSX Install & Wrap Up
☐ Install NSX
☐ Execute the tests as per agreed plan
☐ PoC wrap up meeting