The purpose of this document is to share with the Customer a summary of the integrated system requirements so that they can plan and coordinate resources in preparation for a functional evaluation of the PKS platform on VMware infrastructure.

# Hardware Requirements

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Cluster | No. of Hosts | CPU Cores Per Host | Memory Per Host | NICs Per Host | Shared Datastore |
| PKS Cluster (Minimum) | 3 | 24 (Intel CPU Only) | 96 | 2x 10GbE | 2.5 TB |

Note: Increasing the number of hosts will ease the per host resource requirements and expand the resource pool for deploying additional or larger Kubernetes clusters, applications, other integrations, etc.

# Software Requirements

Note: For the most current information, visit the [VMware Product Interoperability Matrices](https://www.vmware.com/resources/compatibility/sim/interop_matrix.php#interop&356=&2=&1=&175=&116=&88=) and [PKS Release Notes](https://docs.pivotal.io/runtimes/pks/1-1/release-notes.html)

|  |  |  |  |
| --- | --- | --- | --- |
| Product | Supported Version | Required /Optional | Download Location |
| VMware ESXI Hypervisor | 6.5 U1,6.5 U2 | 6.7.0, 6.7 U1 | Required | [VMware Product Downloads](https://my.vmware.com/web/vmware/downloads) |
| VMware vCenter | 6.5 U1,6.5 U2 | 6.7.0, 6.7 U1 | Required |
| VMware vRealize Log Insight | 4.7.1 | Optional |
| VMware vRealize Operations | 7.0 | Optional |
| FOR DOWNLOAD ONLY: |  |  |
| VMware NSX-T | 2.3.1 | Required |
| VMware Harbor Container Registry for PCF/PKS | 1.7.2 Build 2 | Optional | [Pivotal Network](https://network.pivotal.io/) |
| Pivotal Cloud Foundry Operations Manager | 2.4.\* or 2.3.\* | Required |
| Pivotal Container Service (PKS) | 1.3.2 Build 3 | Required |
| Stemcell(s) for PCF/PKS/Harbor | 170.15 vSphere | Required |

# Network Requirements - Physical Network Configuration – Layer 2/3

Provision the following L2/L3 networks in the physical switched infrastructure and extend access to all vSphere ESXi hosts participating in the PKS evaluation. Each host requires a minimum of two physical NICs; both should be preconfigured and tested but only one will connect with the vSphere vDS/vSS while the other remains unallocated until the time of the NSX installation.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| VLAN | Host vmnic(s) Tags | Virtual Switch | MTU | Min.CIDR | Routable |
| Management Network\* | NIC 1 | vDS or vSS | 1500 | /28 | Yes |
| vMotion Network\*\* | NIC 1 | vDS or vSS | 1500 | /29 | No |
| Storage Network | NIC 1 | vDS or vSS | 1500 | /29 | No |
| Corporate / External Network | NIC 1 | vDS or vSS | 1500 | /29 | Yes \*\*\*\* |
| Tunnel Network | NIC 1  NIC 2 | vDS or vSS  NSX vSwitch | **1600\*\*\*** | /29 | No |

\* If the ESXi hosts’ mgmt vmkNIC and other core components such as vCenter, operate on separate networks, the two networks must be routable.

\*\* As opposed to a separate network, vMotion can operate on a common network with ESXi hosts’ mgmt vmkNIC

\*\*\* The physical switched infrastructure must honor an end-to-end MTU of **1600** bytes for any potential paths between all ESXi hosts’ NICs connected to the Tunnel Network. This is a hard system requirement, mandatory for system installation.

\*\*\*\*This network will be used to form an IP routing exchange between the NSX virtual router and physical infrastructure gateway routers. Two options for establishing the routing adjacency include: static routes or BGP. This is a hard system requirement, mandatory for system installation.

# Virtual Network Routing Requirements

PKS Management, Kubernetes Clusters, Ingress/Load-Balancing, and Apps operate on NSX virtual networks. For Operators, Developers, and Consumers to access the system and interact with the deployed applications, these networks must be exposed to external networks such as the corporate network.

|  |  |  |
| --- | --- | --- |
| Network | Min. CIDR | Routable |
| PKS Management and Kubernetes Virtual Networks’ Summary Address\*\*\*\* | /26 | PKS requires an IP network allocation from the Customer that is routable outside of the environment. The network does not require an IP gateway in the physical infrastructure; instead, to access the network, the physical infrastructure either needs to direct a static route to the NSX virtual router IP or establish a BGP neighbor relationship with the NSX virtual router IP for accepting the route advertisement. The IP for the NSX router should be designated from the Corporate / External Network (see table above). |

\*\*\*\*Although the NSX virtual router uplinks to the Corporate/External Network, this network cannot share a common IP segment within the same netmask; therefore, independent of all other networks described in the preceding table.

These requirements assume that deploying PKS in a NAT-based model is acceptable for the Customer evaluation. If a direct routing model is preferred, please discuss the requirements with a VMware/Pivotal PKS Systems Engineer.

# Enterprise Service Requirements

**DNS –**Many PKS systemcomponents require Unique Resource Records and access to domain name servers for forward and reverse resolution.

**NTP** - Many PKS system management components require access to a stable, common network time source; time skew < 10 seconds

**Firewall –** Unfiltered traffic between the networks above is HIGHLY RECOMMENDED for the evaluation. Firewall requirements are available.

**AD/LDAP** (Optional) – Service bind account, User/Group DNs, Server(s) FQDN, and port required for authentication with external identity providers

**Administrator and Test Terminals –**The VMware/Pivotal PKS Systems Engineer will require access to a connected Linux machine for platform installation, configuration, and test verification.