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**Cisco HyperFlex (HX)   
Pre-Deployment Checklist**

**Version 0.1  
November 2016**

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# Pre-Deployment Checklist

## Software Requirement

Servers that are shipped from factory, have the appropriate software versions pre-installed. Customer version supplied by CISCO specifically for deployment is **ESXi 6.0 U 1/U 2 .**

## Firmware Version

Check to make sure UCSM Firmware Version is supported by HyperFlex Version **3.1(2C).**

## Hardware Requirement

* Up to 10 Rack Units of contiguous space for HX220 / HX240 servers. Although there is no requirement for contiguous rack space it will make installation easier. For details please refer to: http://www.cisco.com/c/en/us/td/docs/unified\_computing/ucs/c/hw/C220M4/install/C220M4/install.html#pgfId-1291778
* The system will require 2 C13/C14 Power connections connected to 15AMP circuit per device in the cluster. At a minimum, there will be 3 HX nodes and 2 fabric interconnects (FI), and can grow to 8 HX nodes, 2 FI’s and 1 5108 blade chassis.
* Up to 2 – 4 x uplink connections for UCS Fabric Interconnects
* For a HX 220 Cluster:
  + 2 RU for the UCS 6248 FI or 4 RU for the UCS 6296 FI
  + HX 220c Nodes are 1 RU each. For a 3 nodes cluster, 3RU are required, for a 4 nodes cluster 4 RU is required
  + If a Top of rack switch is included in the install, and additional space will be needed for the switch. (at least 2 RU)
* For a HX 240 Cluster:
  + 2 RU for the UCS 6248 FI or 4 RU for the UCS 6296 FI
  + HX 240c Nodes are 2 RU each. For a 3 nodes cluster, 6RU are required, for a 4 nodes cluster 8 RU is required
  + If a Top of rack switch is included in the install, and additional space will be needed for the switch. (at least 2 RU)
* Each FI will require either 2x10 Gb optical connections in to an existing network or 2x10Gb Twinax cables. Each HX node will require two (2) twinax cables for connectivity (10 Gb Optics can be used)
* A sample connectivity diagram is below





## vCenter Requirements

* vCenter 6.0 U1/U2 (for factory prepared systems)
* Administrator account that has privileges at the root-level and password
* vSphere Enterprise or Enterprise Plus License Keys

## **Network Requirements**

A minimum of four networks on different subnets/VLAN are required. Best practice to have all VLANs unique.

* One for ESX/HX management traffic
* One for HX storage data traffic. Note: MTU is configured for jumbo frames (9000+) and should not be a routable network.
* One for vMotion Traffic. Note: MTU is configured for jumbo frames (9000+)
* One for VM Network Traffic

**HX Management Network:**

* Handles the Hypervisor management and HX management traffic
* Is connected to the vCenter server
* Must be routable

**HX Data Storage Network:**

* Handles the HX data traffic
* Does not need to be routable and can be on a private network

**Upstream Switch:**

* MTU 9216 must be configured for uplink ports
* Uplink port must be configured as trunk mode

If your network is behind a firewall, in addition to the standard VMware recommended ports for ESXi and vCenter, ensure that the following firewall ports are open:

|  |  |  |
| --- | --- | --- |
| Port Number | Protocol | Direction |
| 80 | HTTP / TCP | Inbound |
| 443 | HTTPS / TCP | Inbound |
| 2068 | KVM / TCP | Inbound |
| 22 | SSH / TCP | Inbound / Outbound |
| 110 (secure POP port is TCP; 995) | POP3 /TCP | Inbound / Outbound |
| 143 (secure IMAP port is TCP;993) | IMAP4 /TCP | Inbound / Outbound |
| 25 | SMTP / TCP | Outbound |
| 53 (external lookups) | DNS / TCP / UDP | Outbound |
| 123 | NTP / UDP | Outbound |
| 161 | SNMP Poll | Inbound |
| 162 | SNMP Trap | Outbound |

## **VLAN Requirements**

\*\* VLANs need to be pre-configured on network switch

|  |  |  |  |
| --- | --- | --- | --- |
| VLAN Type | VLAN ID | VLAN Name | Description |
| VLAN ESXi and HyperFlex Management Traffic | 7 |  | Used for Management traffic between ESX, HX, and vCenter. Must be routable. |
| VLAN HyperFlex Storage Traffic | 957 |  | Used for storage traffic and requires layer 2 |
| VLAN VMotion | 956 |  | VMotion VLAN if used |
| VLAN VM Network | 31,30 |  | VM/Application network |

NOTE: All customer VLANs need to be documented. All VLANs will be configured as native on the Fabric Interconnect (FI) during the installation.

|  |  |
| --- | --- |
| Installer Appliance |  |
|  |  |
| IP address for installer appliance | 192.168.115.155 |

NOTE: The installer IP address the installer appliance must run on an ESXi host or VMplayer/ VMware workstation that is not part of the cluster being installed. Also, the HX installer VM IP address should be reachable to UCSM, ESXi, and vCenter IP to which HX hosts are added.

## Installer Appliance

|  |  |
| --- | --- |
| HX Installer Configuration |  |
| Name | HX\_Installer |
| Default Gateway | 192.168.115.254 |
| DNS | 172.17.9.21 |
| IP Address | 192.168.115.155 |
| Subnet Mask | 255.255.252.0 |

**Note :** The installer IP address must be reachable from the management subnet that is used by the hypervisor and the storage controller VMs. The installer appliance must run on the ESXi host or on a VM Player/VMware workstation that is **not** a part of the cluster to be installed. Also, the HX Installer VM IP address should be reachable to UCSM, ESXi and vCenter IP to which HX Hosts are added.

## Fabric Interconnect IP Checklist

Cisco UCS Fabric Interconnect Requirements

|  |  |
| --- | --- |
| VLAN Type | Description |
| Uplink Switch Model | Provide switch type and connection type (SFP+ Twinax/ Optic) |
| Fabric Interconnect Cluster IP address | 192.168.115.173 |
| FI-A IP Address & hostname | 192.168.115.174 |
| FI-B IP Address & hostname | 192.168.115.175 |
| KVM IP Pool range | 192.168.115.156-159 |
| MAC Address Pool | 00:00:00:MAC address pool checked |
| HyperFlex Cluster & Org name | UCSFIHyperFlex |
| User ID | admin |
| Password |  |

## Hypervisor Requirements

Data and Management networks should be on different subnets. IP address cannot be changed after the storage cluster is created.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Management Network IP Addresses  (must be routable) | | | Data Network IP Addresses  (does not have to be routable) | |
| Hostname | Hypervisor | Storage Controller | Hypervisor | Storage Controller |
| CDCUHX\_Server1 | 192.168.115.167 | 192.168.115.194 | 10.10.0.10 | 10.10.0.14 |
| CDCUHX\_Server2 | 192.168.115.168 | 192.168.115.195 | 10.10.0.11 | 10.10.0.15 |
| CDCUHX\_Server3 | 192.168.115.169 | 192.168.115.171 | 10.10.0.12 | 10.10.0.16 |
| CDCUHX\_Server4 | 192.168.115.170 | 192.168.115.172 | 10.10.0.13 | 10.10.0.17 |
|  |  |  |  |  |
|  | Subnet Mask | 255.255.252.0 | Subnet Mask | 255.255.255.0 |
|  | Default Gateway | 192.168.115.254 | Default Gateway | 10.10.0.1 |

|  |  |
| --- | --- |
| VMotion Network |  |
| 10.10.1.10 |  |
| 10.10.1.11 |  |
| 10.10.1.12 |  |
| 10.10.1.13 |  |
|  |  |
|  |  |
| Subnet mask: 255.255.255.0 | Gateway: 10.10.1.1 |

|  |  |
| --- | --- |
| Storage Cluster |  |
| Storage Cluster Name | HXSTORE\_00 |
| Storage Cluster Management IP  (must be routable) | 192.168.115.193 |
| Storage Cluster Data IP  (does not have to be routable) | 10.10.0.18 |
| Replication Factor (2 0r 3) | 3 |

|  |  |
| --- | --- |
| vCenter Configuration |  |
| vCenter Server  (default ports are required) | 192.168.115.196 |
| Admin User Name |  |
| Admin Password |  |
| Datacenter Name | HXPOCVC |
| Cluster Name | HXFLEXCLSTRPOC |
| Single Sign On (SSO) URL  (required if SSO is not installed on vCenter Server) | https:// 192.168.115.196:9443 |

|  |  |
| --- | --- |
| Network Services |  |
| DNS Server(s) | 172.17.102.230 |
| NTP Server(s) | 172.17.112.242 |
| Time Zone | Asia\Kolkata |

## **Auto Support Requirement – SMTP**

SMTP server details are needed to enable Auto Support.

|  |  |
| --- | --- |
| Auto Support |  |
| SMTP Server | NA |
| Mail Sender | NA |

Note: Emails will be sent from IP addresses listed under “Management Network - > Storage Controller” column.

## Performance Benchmark Utility Deployment Information

The Performance Benchmark Utility is a virtual appliance used to test network and storage cluster performance. When testing is initiated, it deploys a temporary benchmark VM on each node of the storage cluster. When testing is complete, it deletes the benchmark VMs.

The Performance Benchmark Utility requires a single IP address for management. The IP address should be in the same management network as the storage controller.

|  |  |
| --- | --- |
| Performance Benchmark |  |
| Performance Benchmark Utility Virtual Appliance IP Address | 192.168.115.192 |