Post-deployment tasks

NetApp HCI

NetApp
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Depending on your choices during the deployment process, you need to complete some final tasks before your NetApp HCI system is ready for production use, such as updating firmware and drivers and making any needed final configuration changes.

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Find more information

- NetApp Element Plug-in for vCenter Server
- NetApp HCI Resources page

Supported networking changes

After you deploy NetApp HCI, you can make limited changes to the default networking configuration. However, you must meet certain requirements for smooth operation and correct network detection. Not meeting these requirements will cause unexpected behavior and might prevent you from expanding compute and storage resources.

After you deploy your system, you can make the following changes to the default network configuration in VMware vSphere as dictated by your network requirements:

- Change vSwitch names
- Change port group names
- Add and remove additional port groups
- Change the vmnic interface failover order for any additional port groups you have added

When scaling H300E, H500E, H700E, H410C, H610C, and H615C compute nodes, NetApp HCI expects the existing compute cluster on the node to meet the following requirements:

- A minimum of four vmk interfaces
- One management vmk interface
- One vmotion vmk interface
- Two vmks on the same subnet with iSCSI bindings to the software iSCSI initiator

Beginning with NetApp HCI 1.10, when you scale the cluster, NetApp HCI does not expect to meet the default node configurations.

After you change the default settings in VMware vSphere for one or more nodes in the existing compute cluster, the settings for the new node will align with the settings for the majority of the nodes in the cluster.

NetApp Deployment Engine default configurations

The NetApp Deployment Engine sets up default configurations for the compute hosts depending on the system and cable configuration.

H300E, H500E, H700E, and H410C compute nodes

The following is a six-interface configuration for H300E, H500E, H700E, and H410C nodes with VMware vSphere Distributed Switching (VDS). This configuration is only supported when used with VMware vSphere Distributed Switches, and requires VMware vSphere Enterprise Plus licensing.

Network function	vmkernel	vmnic (physical interface)
Management	vmk0	vmnic2 (Port A), vmnic3 (Port B)
iSCSI-A	vmk1	vmnic5 (Port E)
iSCSI-B	vmk2	vmnic1 (Port D)
vMotion	vmk3	vmnic4 (Port C), vmnic0 (Port F)

The following is a six-interface configuration with VMware vSphere Standard Switching (VSS). This configuration uses VMware vSphere Standard Switches (VSS).

Network function	vmkernel	vmnic (physical interface)
Management	vmk0	vmnic2 (Port A), vmnic3 (Port B)
iSCSI-A	vmk2	vmnic1 (Port E)
iSCSI-B	vmk3	vmnic5 (Port D)
vMotion	vmk1	vmnic4 (Port C), vmnic0 (Port F)

The following is a two-interface configuration. This configuration is only supported when used with VMware vSphere Distributed Switches (VDS), and requires VMware vSphere Enterprise Plus licensing.

Network function	vmkernel	vmnic (physical interface)
Management	vmk0	vmnic1 (Port D), vmnic5 (Port E)
iSCSI-A	vmk1	vmnic1 (Port E)
iSCSI-B	vmk2	vmnic5 (Port D)
vMotion	vmk3	vmnic1 (Port C), vmnic5 (Port F)

H610C compute nodes

This configuration for H610C nodes is only supported when used with VMware vSphere Distributed Switches

(VDS), and requires VMware vSphere Enterprise Plus licensing.

Ports A and B are unused on the H610C.

Network function	vmkernel	vmnic (physical interface)
Management	vmk0	vmnic2 (Port C), vmnic3 (Port D)
iSCSI-A	vmk1	vmnic3 (Port D)
iSCSI-B	vmk2	vmnic2 (Port C)
vMotion	vmk3	vmnic2 (Port C), vmnic3 (Port D)

H615C compute nodes

This configuration for H615C nodes is only supported when used with VMware vSphere Distributed Switches (VDS), and requires VMware vSphere Enterprise Plus licensing.

Network function	vmkernel	vmnic (physical interface)
Management	vmk0	vmnic0 (Port A), vmnic1 (Port B)
iSCSI-A	vmk1	vmnic0 (Port B)
iSCSI-B	vmk2	vmnic1 (Port A)
vMotion	vmk3	vmnic0 (Port A), vmnic1 (Port B)

Find more information

- NetApp Element Plug-in for vCenter Server
- NetApp HCI Resources page
- SolidFire and Element Software Documentation

Disable the `smartd` service on NetApp HCI compute nodes

By default, the `smartd` service periodically polls the drives in your compute nodes. You should disable this service on all compute nodes after you deploy NetApp HCI.

Steps

1. Using SSH or a local console session, log in to VMware ESXi on the compute node using root credentials.
2. Stop the running `smartd` service:

```
/etc/init.d/smartd stop
```

3. Prevent the `smartd` service from starting at boot:

```
chkconfig smartd off
```

4. Repeat these steps on the rest of the compute nodes in your installation.

Find more information

- Turn off the smartd service in VMware ESXi
- VMware KB article 2133286

Disable the "lacp-individual" command on configured switches

By default, the Mellanox switch `lacp-individual` command and the Cisco switch `lacp suspend-individual` command remain configured post deployment. This command is not required post installation; if it remains configured, it can cause volume access issues when troubleshooting or rebooting a switch. Post deployment, you should check each Mellanox switch and Cisco switch configuration and remove the `lacp-individual` or `lacp suspend-individual` command.

Steps

1. Using SSH, open a session to the switch.
2. Show the running configuration:

   ```
   show running-config
   ```

3. Check the switch configuration output for the `lacp-individual` or `lacp suspend-individual` command.

   > The `xxx-xxx` is your user supplied interface number(s). If required, you can access the interface number by displaying the Multi-chassis Link Aggregation Group interfaces: `show mlag interfaces`

   a. For a Mellanox switch, check if the output contains the following line:

      ```
      interface mlag-port-channel xxx-xxx lacp-individual enable force
      ```

   b. For a Cisco switch, check if the output contains the following line:

      ```
      interface mlag-port-channel xxx-xxx lacp suspend-individual enable force
      ```

4. If the command is present, remove it from the configuration.
   a. For a Mellanox switch:

      ```
      no interface mlag-port-channel xxx-xxx lacp-individual enable force
      ```

   b. For a Cisco switch:
      `no interface mlag-port-channel xxx-xxx lacp suspend-individual enable force`
5. Repeat these steps for each switch in your configuration.

Find more information

- Storage node goes down during troubleshooting

Keep VMware vSphere up to date

After deploying NetApp HCI, you should use VMware vSphere Lifecycle Manager to apply the latest security patches for the version of VMware vSphere used with NetApp HCI.

Use the Interoperability Matrix Tool to ensure that all versions of software are compatible. See the VMware vSphere Lifecycle Manager documentation for more information.

Find more information

- NetApp Element Plug-in for vCenter Server
- NetApp HCI Resources page
- SolidFire and Element Software Documentation

Install GPU drivers for GPU-enabled compute nodes

Compute nodes with NVIDIA graphics processing units (GPUs), like the H610C, need NVIDIA software drivers installed in VMware ESXi so that they can take advantage of the increased processing power. After deploying compute nodes with GPUs, you need to perform these steps on each GPU-enabled compute node to install the GPU drivers in ESXi.

Steps

1. Open a browser and browse to the NVIDIA licensing portal at the following URL:

   ```
   https://nvid.nvidia.com/dashboard/
   ```

2. Download one of the following driver packages to your computer, depending on your environment:

vSphere version	Driver package
vSphere 6.5	`NVIDIA-GRID-vSphere-6.5-410.92-410.91-412.16.zip`
vSphere 6.7	`NVIDIA-GRID-vSphere-6.7-410.92-410.91-412.16.zip`

3. Extract the driver package on your computer.

   The resulting .VIB file is the uncompressed driver file.

4. Copy the `.VIB` driver file from your computer to ESXi running on the compute node. The following example commands for each version assume that the driver is located in the `$HOME/NVIDIA/ESX6.x/` directory on the management host. The SCP utility is readily available in most Linux distributions, or available as a downloadable utility for all versions of Windows:

ESXi version	Description
ESXi 6.5	`scp $HOME/NVIDIA/ESX6.5/NVIDIA**.vib root@<ESXi_IP_ADDR>:/.`
ESXi 6.7	`scp $HOME/NVIDIA/ESX6.7/NVIDIA**.vib root@<ESXi_IP_ADDR>:/.`

5. Use the following steps to log in as root to the ESXi host and install the NVIDIA vGPU Manager in ESXi.
   a. Run the following command to log in to the ESXi host as the root user:

      ```
      ssh root@<ESXi_IP_ADDRESS>
      ```

   b. Run the following command to verify that no NVIDIA GPU drivers are currently installed:

      ```
      nvidia-smi
      ```

      This command should return the message `nvidia-smi: not found`.

   c. Run the following commands to enable maintenance mode on the host and install the NVIDIA vGPU Manager from the VIB file:

      ```
      esxcli system maintenanceMode set --enable true
      esxcli software vib install -v /NVIDIA**.vib
      ```

      You should see the message `Operation finished successfully`.

   d. Run the following command and verify that all eight GPU drivers are listed in the command output:

      ```
      nvidia-smi
      ```

   e. Run the following command to verify that the NVIDIA vGPU package was installed and loaded correctly:

      ```
      vmkload_mod -l | grep nvidia
      ```

      The command should return output similar to the following: `nvidia 816 13808`

   f. Run the following command to reboot the host:

      ```
      reboot -f
      ```

   g. Run the following command to exit maintenance mode:

```
esxcli system maintenanceMode set --enable false
```

6. Repeat steps 4-6 for any other newly deployed compute nodes with NVIDIA GPUs.
7. Perform the following tasks using the instructions in the NVIDIA documentation site:
   a. Install the NVIDIA license server.
   b. Configure the virtual machine guests for NVIDIA vGPU software.
   c. If you are using vGPU-enabled desktops in a virtual desktop infrastructure (VDI) context, configure VMware Horizon View for NVIDIA vGPU software.

Find more information

- NetApp HCI Resources page
- SolidFire and Element Software Documentation

Access NetApp Hybrid Cloud Control

NetApp Hybrid Cloud Control enables you to manage NetApp HCI. You can upgrade management services and other components of NetApp HCI and expand and monitor your installation. You log in to NetApp Hybrid Cloud Control by browsing to the IP address of the management node.

What you'll need

- **Cluster administrator permissions**: You have permissions as administrator on the storage cluster.
- **Management services**: You have upgraded your management services to at least version 2.1.326. NetApp Hybrid Cloud Control is not available in earlier service bundle versions. For information about the current service bundle version, see the Management Services Release Notes.

Steps

1. Open the IP address of the management node in a web browser. For example:

   ```
   https://<ManagementNodeIP>
   ```

2. Log in to NetApp Hybrid Cloud Control by providing the NetApp HCI storage cluster administrator credentials.

   The NetApp Hybrid Cloud Control interface appears.

If you logged in using insufficient permissions, you will see an "Unable to load" message throughout HCC resource pages and resources will not be available.

Find more information

- NetApp HCI Resources page
- SolidFire and Element Software Documentation

Reduce boot media wear on a NetApp HCI compute node

When you use flash memory or NVDIMM boot media with a NetApp HCI compute node, keeping the system logs on that media results in frequent writes to that media. This can eventually degrade the flash memory. Use the instructions in the following KB article to move host logging and the core dump file to a shared storage location, which can help prevent degradation of the boot media over time and help prevent full boot disk errors.

How to reduce wear on the boot drive of a NetApp HCI compute node

Find more information

- NetApp Element Plug-in for vCenter Server
- NetApp HCI Resources page

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