

Summary

This article describes how to upgrade CS200 and CS400 series Nimble Storage arrays from 1 GigE to 10 GigE connectivity.

Procedures are outlined for each major Nimble OS release. Each Nimble OS release contains separate preparation guidelines on the upgrade, however the hardware replacement procedure is the same.

Considerations

This procedure can be performed non-disruptively if the 10 GigE switches and LAN are on the same subnet as the existing 1 GigE network on eth3 and eth4. Perform any management network reconfiguration prior to beginning the 10 GigE upgrade to insure that eth1 or eth2 is used for Management.

Alternatively, a valid alternative if the new 10 GigE infrastructure cannot be on the same subnet as existing 1 GigE is to reassign host data traffic to the eth2 data NIC, and ensure eth1 is configured for management. Be aware there may be a performance impact with this approach, since a single target NIC is affectively replacing up to 4x1 GigE.

Nimble OS 1.4.x OR 2.1.3.0 and above

A controller failover is adequate to facilitate integration of the new 10 GigE interfaces into the OS networking configuration.

Nimble OS 2.0.x

Upgrade to Nimble OS 2.1.4 or higher is required.

Before proceeding, identify the version of Nimble OS you are running by navigating to 'Administration' → 'Software' in the Nimble web interface. The 'current' Nimble OS version is displayed:

GROUP SOFTWARE VERSION		
Current	2.0.6.0-57272-opt	Currently installed software version

To update the array

Administration -> Software -> Download (select Nimble OS 2.1.X or higher) -> update

Procedure

Nimble OS 1.4.x / Nimble OS 2.1.3.0+ (**manual connectivity mode**)

Since 10 GigE model array configurations come equipped with 2x 10 GigE PCI expansion cards with two ports per card and the 'G' model upgrade requires both PCI cards to be removed and replaced with 1x 10 GigE NIC containing two SFP+ ports, interfaces eth5 and eth6 will be lost, and the configuration for eth3 and eth4 transferred to tg1 and tg2 upon initial boot.

- a. If physical or virtual Windows hosts with iSCSI Initiator connected volumes are in use, the iSCSI sessions to IP addresses eth 5 and eth6 on the array will need to be disconnected via the MS iscsi initiator, or Nimble Connection Manager.
ESXi host will need the iSCSI sessions for all volumes disabled which connect to eth5 and 6. This can be done manually, or with the use of the DATA ip addresses for ESXi discovery for interfaces eth 3 and eth4, and then a reboot of the ESXi server. Using the Data IP addresses is only recommended for the NIC change process afterwards they can be removed, and the discovery address used again.
Linux / Solaris host are more forgiving, and will compensate on their own for the path loss, no action is required before replacing the NICs in the controller, and failing over.
- b. In 'Monitor' → 'Connections', verify no further connections to the IP addresses for eth5 and eth6 are in use.
- c. In 'Administration' → 'Network Configuration', change data interfaces eth5 and eth6 to '**Not Configured**'.

Proceed with the **Hardware Replacement** section.

Nimble OS 2.1.3.0+ (automatic connectivity mode)

Since 1 GigE model array configurations come equipped with 2x 1 GigE PCI expansion cards with two ports per card and the 'G' model upgrade requires both PCI cards to be removed and replaced with 1x 10 GigE NIC containing two SFP+ ports, interfaces eth5 and eth6 will be lost, and the configuration for eth3 and eth4 transferred to tg1 and tg2 upon initial boot.

- a. As such, the data IP addresses for eth5 and eth6 will no longer be used and will need to be unconfigured. Since iSCSI automatic connectivity mode only presents the subnet discovery IPs to the host iSCSI initiator, no changes are needed on the host side since paths are controller automatically by the Nimble DSM.
 - Be aware that if a different subnet is used for eth5 and eth6, it may be desirable to reconfigure eth4 to the second subnet. If zoning is configured, considerations for this will need to be made.
- b. In 'Administration' → 'Network Configuration', change data interfaces eth5 and eth6 to '**Not Configured**'.
- c. No rescan is required – Nimble Connection Manager will automatically establish the optical number of paths to the new data targets.

Proceed with the **Hardware Replacement** section.

Hardware Replacement

1. Halt the standby controller.

- a) Log into the array via the CLI.
- b) Type `ctrlr --list` to determine the standby controller.
- c) At the prompt, type `halt --controller <standby controller>` where the controller must be either A or B (case sensitive).

2. Physically remove the controller that you just halted.

- a) Remove all network cables from the controller, noting from which ports the cables were removed.
- b) Unscrew the keeper to release the controller handle.
- c) Grasping the controller by the handle, pull the controller firmly to remove it from the chassis bay. Use firm, steady pressure.

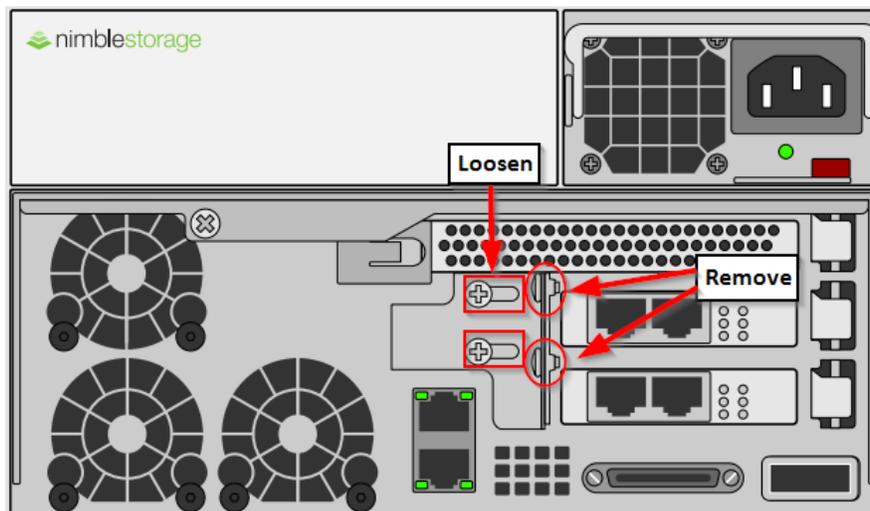
Important: To avoid a short circuit of the controller, be sure to place it on a non-conductive, flat surface.

3. Remove the NVRAM card.

To make replacement of the NIC easier, remove the NVRAM card from the controller. Remove the two screws on the side of the controller releases the NVRAM for removal.

4. Remove the 2x 1 GigE NICs

- a) Loosen two screws and remove them, as shown.



b) Slide the holder (previously loosened) to allow easier access.

Remove both PCI expansion cards (NICs).

5. Prepare the replacement NIC

a) Open the package containing the 10 GigE NIC and remove it from the packaging.

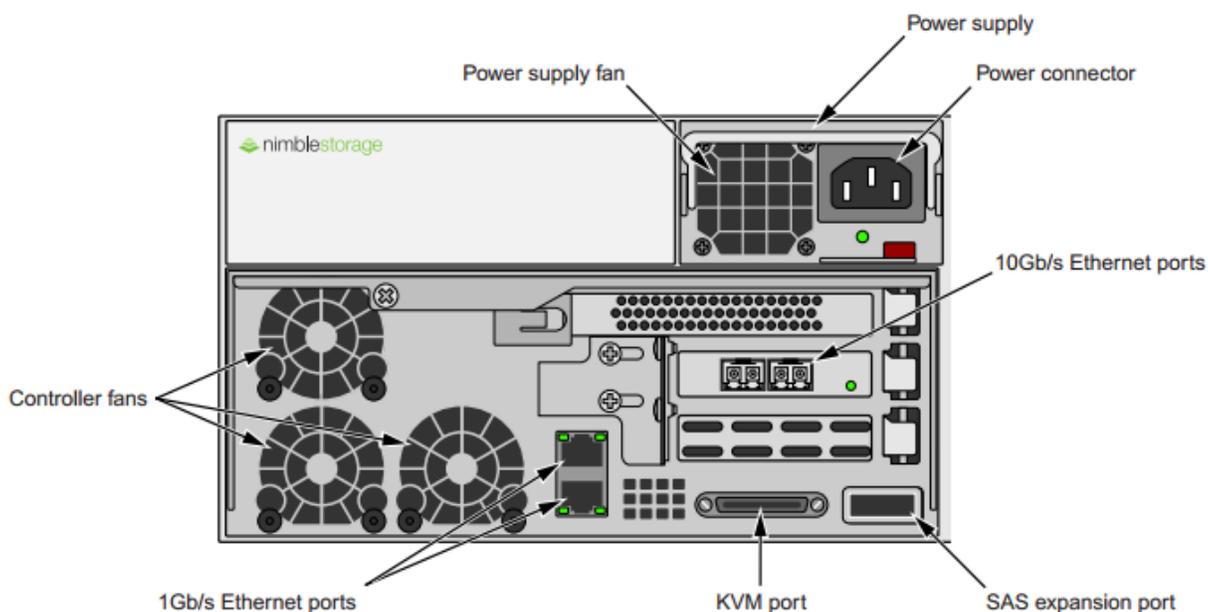
b) Removing two screws, remove the full-height bracket from the 10 GigE card and attach the included half-height bracket.

6. Install the new 10 GigE NIC

a) Place and hold the blank slot cover on the lower slot.

b) Place the 10 GigE NIC in the middle slot

c) Secure it at the bracket with the 4 screws described in Step 5. The replacement should look like the following:



7. Replace the NVRAM card

8. Replace and test the controller

- a) Slide the controller back into the array. If the controller does not power up automatically, tap the Power button on the front of the array.
- b) After the standby controller is fully running, log into the array or into the controller's diagnostic IP address and type `ctrlr --info <standby_controller>` to verify that it is in the standby state. Do not continue unless the controller with the newly replaced 10 GigE NIC card is acting as the standby controller.

Optionally, the card can be tested at this point before failover by contacting Nimble Storage Support, who will perform a failover precheck or arping tests to ensure the standby controller can reach the active controller over the network.

9. Replace the NICs in the second controller

- a) Failover the controller and proceed with replacing the NICS on the now standby controller.

Be aware that IP addresses are only assigned to the 10GbE card after the initial failover, where eth3 and eth4 IP addresses will be inherited by tg1 and tg2. It is not possible to assign IP addresses to the 10GbE NIC before this point.

10. Verify the success of the upgrade.

- a) Check network connectivity. The subnets that were on eth3 and eth4 before the upgrade should now be on tg1 and tg2.
- b) To check the connectivity, the commands `subnet --list`, `nic --list`, and `ip --list` should show the new configuration after the replacement procedure is complete on both controllers. You can also log into the GUI and choose **Manage > Array > Edit Network Interface** (Nimble OS 1.4.x) or to verify the changes.

NOTE: When the hardware replacement section is complete, and both controllers are now using 10G, an iSCSI rescan is required on all systems to reflect the new available IP, as we have removed eth5 and eth6.

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