



Network configuration

HCI

Michael Wallis
September 23, 2020

This PDF was generated from https://docs.netapp.com/us-en/hci/docs/hci_prereqs_network_configuration.html on October 12, 2020. Always check docs.netapp.com for the latest.

Table of Contents

- Network configuration 1
 - Required network segments 1
 - Network configuration and cabling options 2

Network configuration

NetApp HCI can utilize multiple different network cabling and VLAN configurations. It is important to plan your network configuration to ensure a successful deployment.

Required network segments

NetApp HCI requires a minimum of three network segments: management, storage, and virtualization traffic (which includes virtual machines and VMware vMotion traffic). You can also separate virtual machine and vMotion traffic. These network segments usually exist as logically separated VLANs in the NetApp HCI network infrastructure.

How compute and storage nodes connect to these networks depends on how you design the network and cable the nodes. The sample network illustrations in this guide assume the following networks:

Network name	VLAN ID
Management	100
Storage	105
vMotion	107
Virtual machines	200, 201

For automatic discovery and configuration of your NetApp HCI nodes in the NetApp Deployment Engine, you must have a network segment that is available as an untagged or native VLAN on all switch ports that are used for the SFP+/SFP28 interfaces on the nodes. This will provide layer 2 communication between all nodes for discovery and deployment. Without a native VLAN, you must configure the SFP+/SFP28 interfaces of all nodes manually with a VLAN and IPv4 address to be discoverable. In the network configuration examples in this document, the management network (VLAN ID 100) is used for this purpose.

The NetApp Deployment Engine enables you to quickly configure networks for compute and storage nodes during the initial deployment. You can place certain built-in management components such as vCenter and the management node on their own network segment. These network segments require routing to allow vCenter and the management node to communicate with storage and compute management networks. In most deployments those components use the same management network (VLAN ID 100 in this example).



You configure virtual machine networks using vCenter. The default virtual machine network (port group "VM_Network") in NetApp HCI deployments is configured without a VLAN ID. If you plan to use multiple tagged virtual machine networks (VLAN IDs 200 and 201 in the preceding example), ensure you include them in the initial network planning.

Network configuration and cabling options

You can use a two-cable network configuration for the H410C compute nodes, simplifying cable routing. This configuration uses two SFP+/SFP28 interfaces plus an optional (but recommended) RJ45 interface for IPMI communication. These nodes can also use a six-cable configuration with two RJ45 and four SFP28/SFP+ interfaces.

The H410S and H610S storage nodes support a network topology that uses four network ports (ports A through D).

Compute nodes support three network topologies, depending on the hardware platform:

Configuration option	Cabling for H410C nodes	Cabling for H610C nodes	Cabling for H615C nodes
Option A	Two cables using ports D and E	Two cables using ports C and D	Two cables using ports A and B
Option B	Six cables using ports A through F	Not available	Not available
Option C	Similar to option B, but with native VLANs (or "access ports") on the switch for the management, storage, and vMotion networks		

Nodes that do not have the correct number of connected cables cannot participate in the deployment. For example, you cannot deploy a compute node in a six-cable configuration if it only has ports D and E connected.



You can adjust the NetApp HCI network configuration after deployment to meet infrastructure needs. However, when you expand NetApp HCI resources, remember that new nodes must have the same cable configuration as the existing compute and storage nodes.

Network configuration options

- [Network configuration option A](#)
- [Network configuration option B](#)
- [Network configuration option C](#)

Find more information

- [NetApp HCI Resources page](#)
- [NetApp HCI Documentation Center](#)

Copyright Information

Copyright © 2020 NetApp, Inc. All rights reserved. Printed in the U.S. No part of this document covered by copyright may be reproduced in any form or by any means-graphic, electronic, or mechanical, including photocopying, recording, taping, or storage in an electronic retrieval system-without prior written permission of the copyright owner.

Software derived from copyrighted NetApp material is subject to the following license and disclaimer:

THIS SOFTWARE IS PROVIDED BY NETAPP “AS IS” AND WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL NETAPP BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

NetApp reserves the right to change any products described herein at any time, and without notice. NetApp assumes no responsibility or liability arising from the use of products described herein, except as expressly agreed to in writing by NetApp. The use or purchase of this product does not convey a license under any patent rights, trademark rights, or any other intellectual property rights of NetApp.

The product described in this manual may be protected by one or more U.S. patents, foreign patents, or pending applications.

RESTRICTED RIGHTS LEGEND: Use, duplication, or disclosure by the government is subject to restrictions as set forth in subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause at DFARS 252.277-7103 (October 1988) and FAR 52-227-19 (June 1987).

Trademark Information

NETAPP, the NETAPP logo, and the marks listed at <http://www.netapp.com/TM> are trademarks of NetApp, Inc. Other company and product names may be trademarks of their respective owners.