



Network and switch requirements

HCI

Michael Wallis
May 19, 2020

This PDF was generated from https://docs.netapp.com/us-en/hci/docs/hci_prereqs_network_switch.html on June 25, 2020. Always check docs.netapp.com for the latest.

Table of Contents

Network and switch requirements. 1

Network and switch requirements

The switches you use for NetApp HCI require specific configuration to ensure a successful deployment. See your switch documentation for specific instructions on implementing each of the following requirements for your environment.

A NetApp HCI deployment requires at least three network segments, one for each of the following types of traffic:

- Management
- VMware vMotion
- Storage/Data

Depending on the NetApp H-Series compute and storage node models and the planned cabling configuration, you can physically separate these networks using separate switches or logically separate them using VLANs. For most deployments, however, you need to logically separate these networks (and any other additional virtual machine networks) using VLANs.

Compute and storage nodes need to be able to communicate before, during, and after deployment. If you are implementing separate management networks for storage and compute nodes, ensure that these management networks have network routes between them. These networks must have gateways assigned, and there must be a route between the gateways. Ensure that each new node has a gateway assigned to facilitate communication between nodes and management networks.

NetApp HCI has the following switch requirements:

- All switch ports connected to NetApp HCI nodes must be configured as spanning tree edge ports.
 - On Cisco switches, depending on the switch model, software version and port type, you can do this with one of the following commands:
 - `spanning-tree port type edge`
 - `spanning-tree port type edge trunk`
 - `spanning-tree portfast`
 - `spanning-tree portfast trunk`
 - On Mellanox switches, you can do this with the `spanning-tree port type edge` command.
- NetApp HCI nodes have redundant ports for all network functions except out-of-band management. For the best resiliency, divide these ports across two switches with redundant uplinks to either a traditional hierarchical architecture or a layer 2 spine-and-leaf architecture.
- The switches handling storage, virtual machine, and vMotion traffic must support speeds of at least 10GbE per port (up to 25GbE per port is supported).
- The switches handling management traffic must support speeds of at least 1GbE per port.

- You must configure jumbo frames on the switch ports handling storage and vMotion traffic. Hosts must be able to send 9000 byte packets end-to-end for a successful installation.
- Round-trip network latency between all storage and compute nodes should not exceed 2ms.

All NetApp HCI nodes provide additional out-of-band management capabilities via a dedicated management port. NetApp H300S, H300E, H500S, H500E, H700S, H700E and H410C nodes also allow for IPMI access via Port A. As a best practice, you should ease remote management of NetApp HCI by configuring out-of-band management for all nodes in your environment.



The management network of the management node needs a configuration that includes a gateway address to be able to communicate with NetApp Cloud Services. Enabling NetApp cloud services will fail if a valid gateway address is not in place.

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.