iSCSI configurations

ONTAP 9

NetApp
June 04, 2024

This PDF was generated from https://docs.netapp.com/us-en/ontap/san-config/configure-iscsi-san-hosts-ha-pairs-reference.html on June 04, 2024. Always check docs.netapp.com for the latest.

Table of Contents

iSCSI configurations 1
Ways to configure iSCSI SAN hosts 1
Benefits of using VLANs in iSCSI configurations 2

iSCSI configurations

Ways to configure iSCSI SAN hosts

You should set up your iSCSI configuration with high-availability (HA) pairs that attach directly to your iSCSI SAN hosts or that connect to your hosts through one or more IP switches.

HA pairs are defined as the reporting nodes for the Active/Optimized and the Active/Unoptimized paths that will be used by the hosts to access the LUNs. Multiple hosts, using different operating systems, such as Windows, Linux, or UNIX, can access the storage at the same time. Hosts require that a supported multipathing solution that supports ALUA be installed and configured. Supported operating systems and multipathing solutions can be verified on the NetApp Interoperability Matrix Tool.

In a multi-network configuration, there are two or more switches connecting the hosts to the storage system. Multi-network configurations are recommended because they are fully redundant. In a single-network configuration, there is one switch connecting the hosts to the storage system. Single-network configurations are not fully redundant.

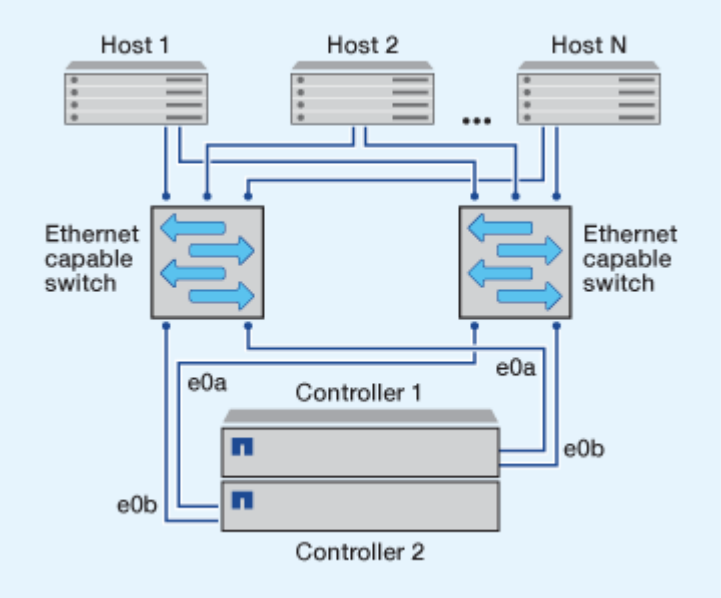
Single-node configurations are not recommended because they do not provide the redundancy needed to support fault tolerance and nondisruptive operations.

Related information

- Learn how Selective LUN mapping (SLM) limits the paths that are utilized to access the LUNs owned by an HA pair.
- Learn about SAN LIFs.
- Learn about the benefits of VLANs in iSCSI.

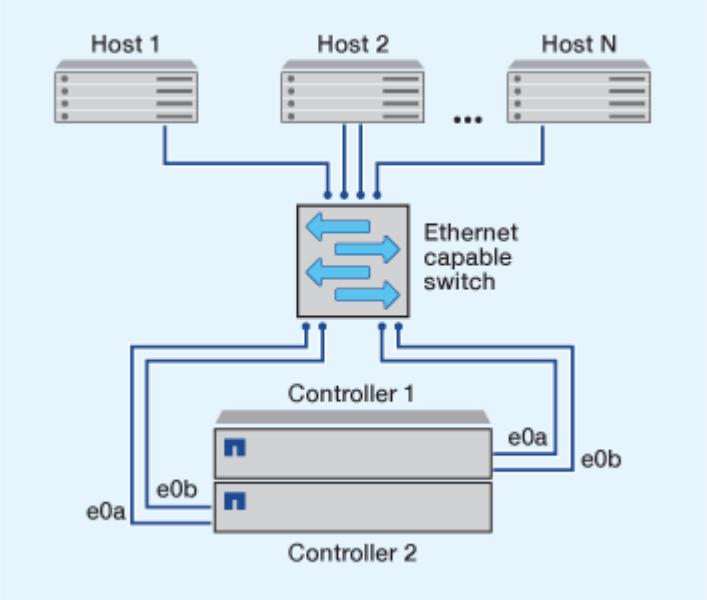
Multi-network iSCSI configurations

In multi-network HA pair configurations, two or more switches connect the HA pair to one or more hosts. Because there are multiple switches, this configuration is fully redundant.



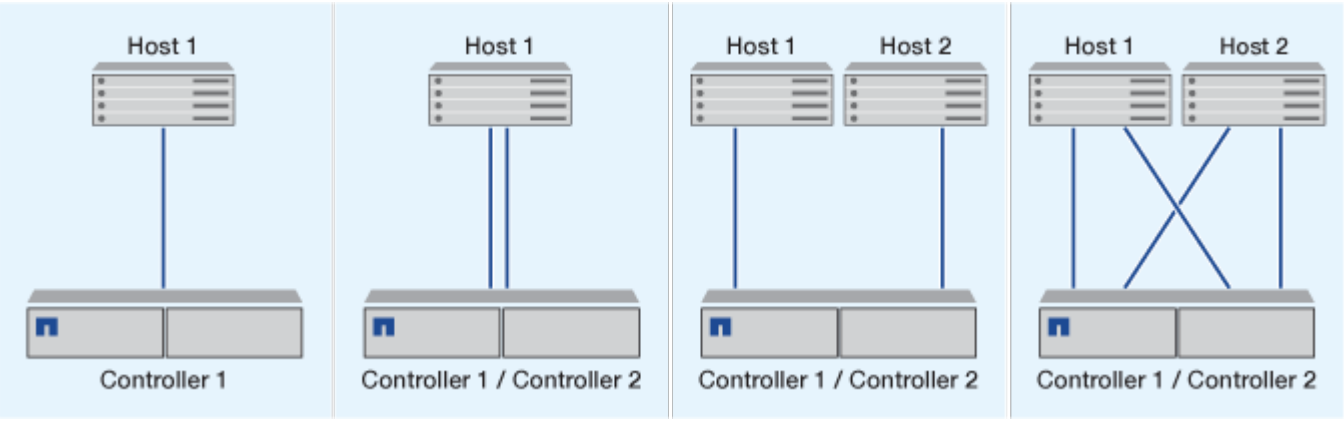
Single-network iSCSI configurations

In single-network HA pair configurations, one switch connects the HA pair to one or more hosts. Because there is a single switch, this configuration is not fully redundant.



Direct-attachment iSCSI configuration

In a direct-attached configuration, one or more hosts are directly connected to the controllers.



Benefits of using VLANs in iSCSI configurations

A VLAN consists of a group of switch ports grouped together into a broadcast domain. A VLAN can be on a single switch or it can span multiple switch chassis. Static and dynamic VLANs enable you to increase security, isolate problems, and limit available paths within your IP network infrastructure.

When you implement VLANs in large IP network infrastructures, you derive the following benefits:

- Increased security.

  VLANs enable you to leverage existing infrastructure while still providing enhanced security because they

limit access between different nodes of an Ethernet network or an IP SAN.

- Improved Ethernet network and IP SAN reliability by isolating problems.
- Reduction of problem resolution time by limiting the problem space.
- Reduction of the number of available paths to a particular iSCSI target port.
- Reduction of the maximum number of paths used by a host.

  Having too many paths slows reconnect times. If a host does not have a multipathing solution, you can use VLANs to allow only one path.

Dynamic VLANs

Dynamic VLANs are MAC address-based. You can define a VLAN by specifying the MAC address of the members you want to include.

Dynamic VLANs provide flexibility and do not require mapping to the physical ports where the device is physically connected to the switch. You can move a cable from one port to another without reconfiguring the VLAN.

Static VLANs

Static VLANs are port-based. The switch and switch port are used to define the VLAN and its members.

Static VLANs offer improved security because it is not possible to breach VLANs using media access control (MAC) spoofing. However, if someone has physical access to the switch, replacing a cable and reconfiguring the network address can allow access.

In some environments, it is easier to create and manage static VLANs than dynamic VLANs. This is because static VLANs require only the switch and port identifier to be specified, instead of the 48-bit MAC address. In addition, you can label switch port ranges with the VLAN identifier.

Copyright information

Copyright © 2024 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.

LIMITED RIGHTS LEGEND: Use, duplication, or disclosure by the government is subject to restrictions as set forth in subparagraph (b)(3) of the Rights in Technical Data -Noncommercial Items at DFARS 252.227-7013 (FEB 2014) and FAR 52.227-19 (DEC 2007).

Data contained herein pertains to a commercial product and/or commercial service (as defined in FAR 2.101) and is proprietary to NetApp, Inc. All NetApp technical data and computer software provided under this Agreement is commercial in nature and developed solely at private expense. The U.S. Government has a non-exclusive, non-transferrable, nonsublicensable, worldwide, limited irrevocable license to use the Data only in connection with and in support of the U.S. Government contract under which the Data was delivered. Except as provided herein, the Data may not be used, disclosed, reproduced, modified, performed, or displayed without the prior written approval of NetApp, Inc. United States Government license rights for the Department of Defense are limited to those rights identified in DFARS clause 252.227-7015(b) (FEB 2014).

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.