



# **Requirements for redundant setup of components in a path**

## **ONTAP FlexArray**

NetApp  
February 11, 2024

This PDF was generated from [https://docs.netapp.com/us-en/ontap-flexarray/install/concept\\_when\\_to\\_check\\_for\\_redundant\\_paths\\_to\\_array\\_luns.html](https://docs.netapp.com/us-en/ontap-flexarray/install/concept_when_to_check_for_redundant_paths_to_array_luns.html) on February 11, 2024. Always check docs.netapp.com for the latest.

# Table of Contents

- Requirements for redundant setup of components in a path . . . . . 1
  - ONTAP systems redundancy requirements . . . . . 1
  - FC switch redundancy requirements . . . . . 1
  - Storage array redundancy requirements . . . . . 1
  - When to check for redundant paths to array LUNs . . . . . 1

# Requirements for redundant setup of components in a path

ONTAP systems must connect to the storage array through a redundant Fibre Channel (FC) network. Two FC networks are required to protect against a connection failing and so that fabric ports or switches can be taken offline for upgrades and replacements without impacting the ONTAP systems.

## ONTAP systems redundancy requirements

- You must attach each connection to a different FC initiator port in the port pair on the ONTAP systems.
- Each FC initiator port in the same FC initiator port pair must be on a different bus.

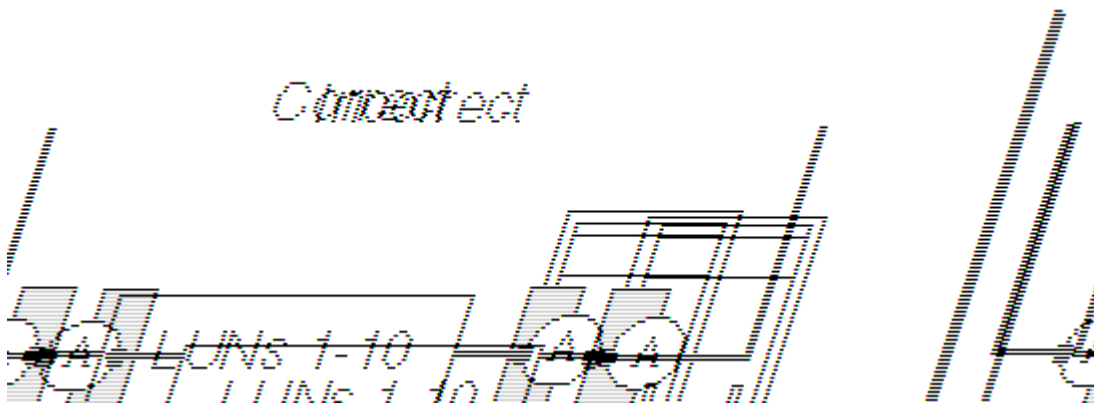
## FC switch redundancy requirements

- You must use redundant switches.

## Storage array redundancy requirements

Be sure that the ports on the storage array that you select to access a given LUN are from different components, so as to avoid a single point of failure, for example, from alternate controllers, clusters, or enclosures. The reason is that you do not want all access to an array LUN to be lost if one component fails.

The following illustration shows correct and incorrect storage array port selection for redundancy. The path setup in the example on the left is correct because the paths to the array LUN are redundant—each connection is to a port on a different controller on the storage array.



## When to check for redundant paths to array LUNs

You need to check for redundant paths to an array LUN after installation and during fabric maintenance activities.

You should recheck for path redundancy when performing the following activities:

- Initial installation

- Fabric maintenance, for example:
  - Before, during, and after an infrastructure upgrade
  - Before and after taking a switch out of service for maintenance

Be sure that the paths were configured as redundant paths before you remove a switch between the ONTAP systems and the storage array so that access to the array LUNs is not interrupted.

- Before and after maintaining hardware on a storage array

For example, you should recheck for path redundancy when maintaining the hardware component on which host adapters and ports are located. (The name of this component varies on different storage array models).

## 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.