Host support for multipathing

ONTAP 9

NetApp
February 22, 2022

Table of Contents

Host support for multipathing

Host support for multipathing overview

ONTAP always uses Asymmetric Logical Unit Access (ALUA) for both FC and iSCSI paths. Be sure to use host configurations that support ALUA for FC and iSCSi protocols.

Beginning with ONTAP 9.5 multipath HA pair failover/giveback is supported for NVMe configurations using Asynchronous Namespace Access (ANA). In ONTAP 9.4, NVMe only supports one path from host to target. The application host needs to manage path failover to its high availability (HA) partner.

For information about which specific host configurations support ALUA or ANA, see the NetApp Interoperability Matrix Tool and ONTAP SAN Host Configuration for your host operating system.

When host multipathing software is required

If there is more than one path from the storage virtual machine (SVM) logical interfaces (LIFs) to the fabric, multipathing software is required. Multipathing software is required on the host any time the host can access a LUN through more than one path.

The multipathing software presents a single disk to the operating system for all paths to a LUN. Without multipathing software, the operating system could treat each path as a separate disk, which can lead to data corruption.

Your solution is considered to have multiple paths if you have any of the following:

- A single initiator port in the host attaching to multiple SAN LIFs in the SVM
- Multiple initiator ports attaching to a single SAN LIF in the SVM
- Multiple initiator ports attaching to multiple SAN LIFs in the SVM

In single-fabric single-node configurations, multipathing software is not required if you only have a single path from the host to the node.

Multipathing software is recommended in HA configurations. In addition to Selective LUN Map, using FC switch zoning or portsets to limit the paths used to access LUNs is recommended.

Multipathing software is also known as MPIO (multipath I/O) software.

Recommended number of paths from host to nodes in cluster

You should not exceed more than eight paths from your host to each node in your cluster, paying attention to the total number of paths that can be supported for the host OS and the multipathing used on the host.

You should have a minimum of two paths per LUN connecting to each reporting node through Selective LUN Map (SLM) being used by the storage virtual machine (SVM) in your cluster. This eliminates single points of failure and enables the system to survive component failures.

If you have four or more nodes in your cluster or more than four target ports being used by the SVMs in any of your nodes, you can use the following methods to limit the number of paths that can be used to access LUNs on your nodes so that you do not exceed the recommended maximum of eight paths.

- SLM

  SLM reduces the number of paths from the host to LUN to only paths on the node owning the LUN and the owning node's HA partner. SLM is enabled by default.

- Portsets for iSCSI
- FC igroup mappings from your host
- FC switch zoning

Related information

SAN administration