iSCSI configurations

ONTAP 9

NetApp
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iSCSI configurations

Configure iSCSI networks with ONTAP systems

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.

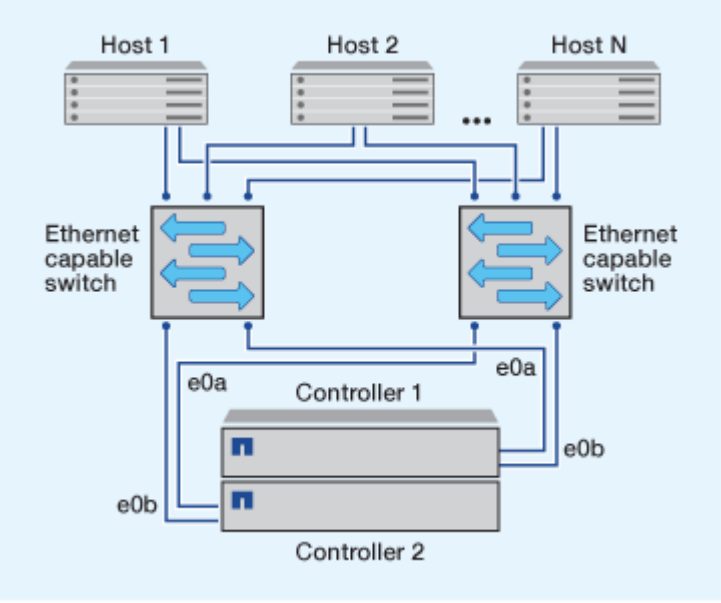
Single-node configurations are not recommended because they do not provide the redundancy needed to support fault tolerance and nondisruptive operations.

Related information

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

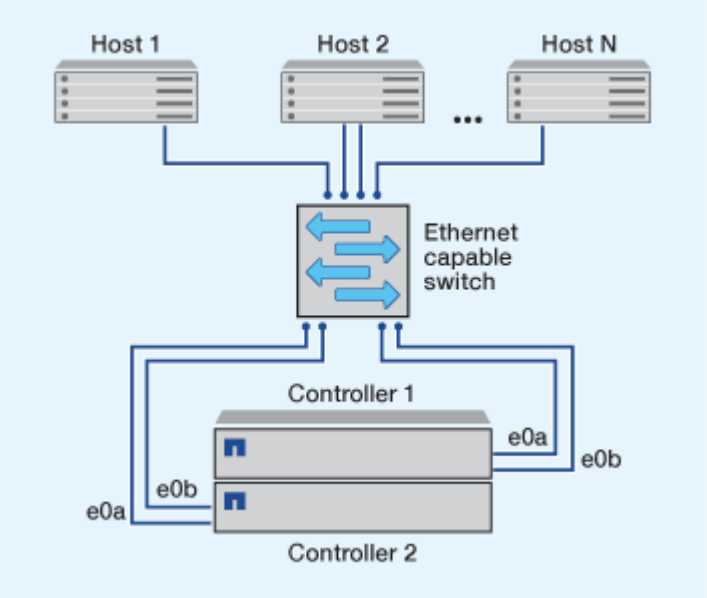
Multi-network iSCSI configurations

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.



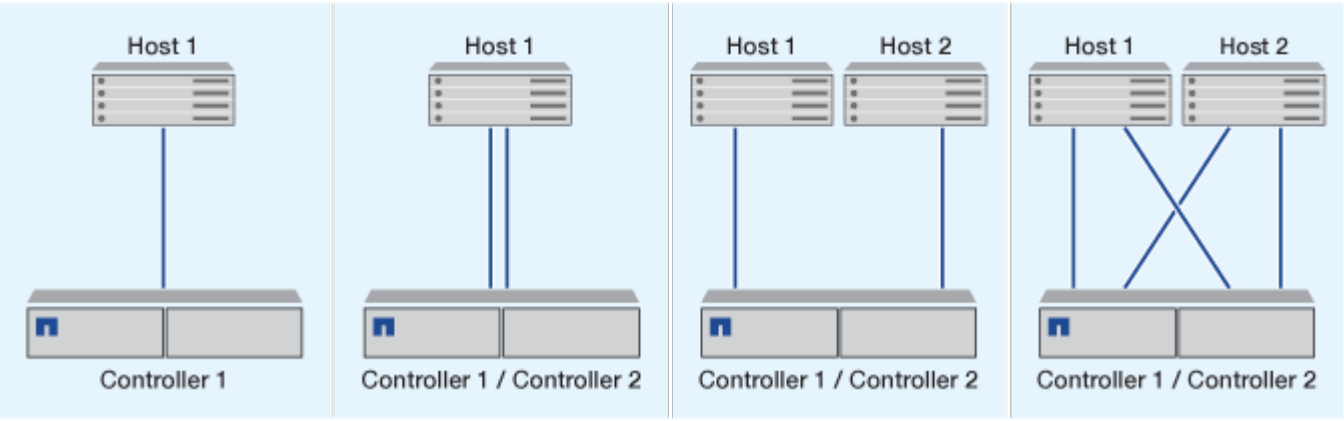
Single-network iSCSI configurations

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 with ONTAP systems 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.

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