# Switch zoning in a MetroCluster configuration with array LUNs

ONTAP MetroCluster

NetApp
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# Switch zoning in a MetroCluster configuration with array LUNs

Configuring switch zoning enables you to define which array LUNs can be viewed by a specific ONTAP system in the MetroCluster configuration.

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Example of switch zoning in a four-node MetroCluster configuration with array LUNs

Example of switch zoning in an eight-node MetroCluster configuration with array LUNs

# Requirements for switch zoning in a MetroCluster configuration with array LUNs

When using switch zoning in a MetroCluster configuration with array LUNs, you must ensure that certain basic requirements are followed.

The requirements for switch zoning in a MetroCluster configuration with array LUNs are as follows:

- The MetroCluster configuration must follow the single-initiator to single-target zoning scheme.

  Single-initiator to single-target zoning limits each zone to a single FC initiator port and a single target port.

- The FC-VI ports must be zoned end-to-end across the fabric.
- Sharing of multiple initiator ports with a single target port can cause performance issues.

  Similarly, sharing of multiple target ports with a single initiator port can cause performance issues.

- You must have performed a basic configuration of the FC switches used in the MetroCluster configuration.

  Configuring the Cisco or Brocade FC switches manually

## Shared initiator and shared target support for MetroCluster configuration with array LUNs

Being able to share a given FC initiator port or target ports is useful for organizations that want to minimize the number of initiator or target ports used. For example, an organization that expects low I/O usage over an FC initiator port or target ports might prefer to share FC initiator port or target ports instead of dedicating each FC initiator port to a single target port.

However sharing of initiator or target ports can adversely affect performance.

How to support Shared Initiator and Shared Target configuration with Array LUNs in a MetroCluster environment

**Related information**

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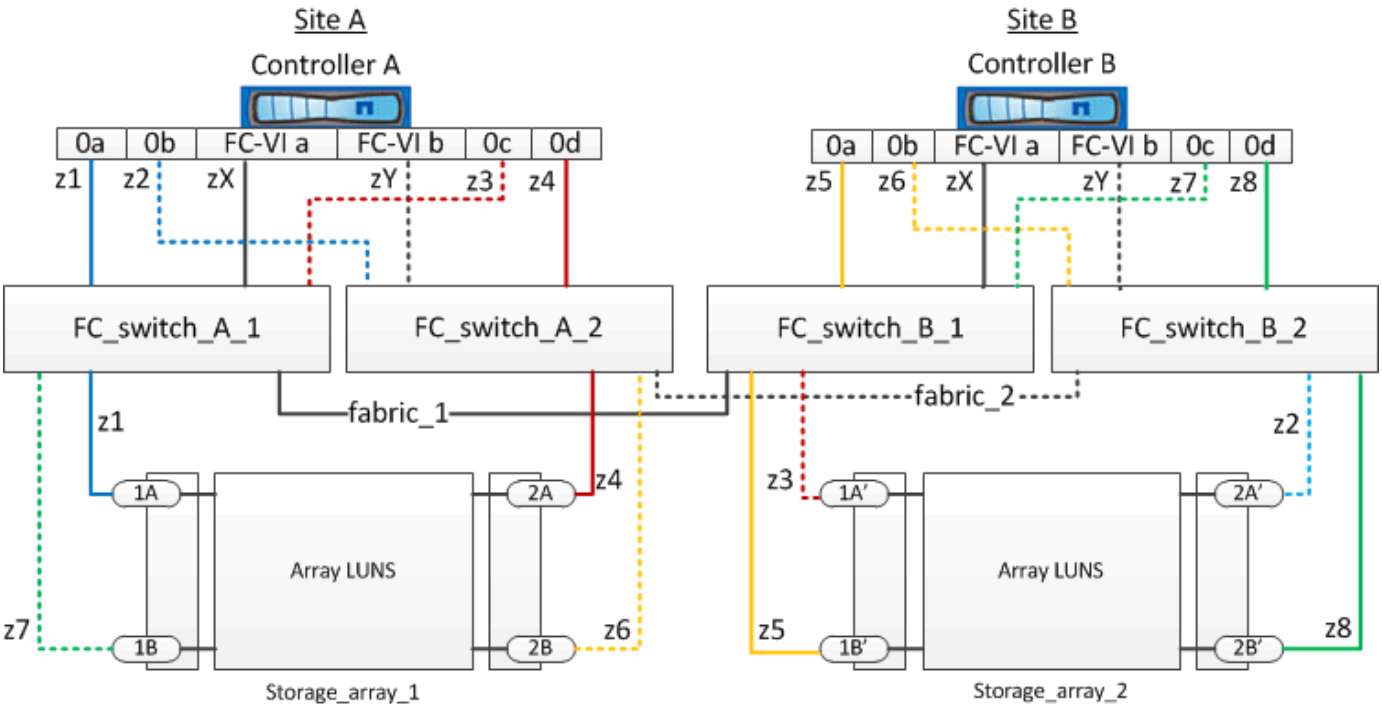
# Example of switch zoning in a two-node MetroCluster configuration with array LUNs

Switch zoning defines paths between connected nodes. Configuring the zoning enables you to define which array LUNs can be viewed by specific ONTAP systems.

You can use the following example as a reference when determining zoning for a two-node fabric-attached MetroCluster configuration with array LUNs:




The example shows single-initiator to single-target zoning for the MetroCluster configurations. The lines in the example represent zones rather than connections; each line is labeled with its zone number.

In the example, array LUNs are allocated on each storage array. LUNs of equal size are provisioned on the storage arrays at both sites, which is a SyncMirror requirement. Each ONTAP system has two paths to array LUNs. The ports on the storage array are redundant.

The redundant array port pairs for both the sites are as follows:

- Storage array at Site A:
  - Ports 1A and 2A
  - Ports 1B and 2B
- Storage array at Site B:
  - Ports 1A' and 2A'
  - Ports 1B' and 2B'

The redundant port pairs on each storage array form alternate paths. Therefore, both the ports of the port pairs can access the LUNs on the respective storage arrays.

The following table shows the zones for the illustrations:

| Zone | ONTAP controller and initiator port | Storage array port |
|---|---|---|
| **FC_switch_A_1** | | |
| z1 | Controller A: Port 0a | Port 1A |
| z3 | Controller A: Port 0c | Port 1A' |
| **FC_switch_A_2** | | |
| z2 | Controller A: Port 0b | Port 2A' |
| z4 | Controller A: Port 0d | Port 2A |
| **FC_switch_B_1** | | |
| z5 | Controller B: Port 0a | Port 1B' |
| z7 | Controller B: Port 0c | Port 1B |
| **FC_switch_B_2** | | |
| z6 | Controller B: Port 0b | Port 2B |
| z8 | Controller B: Port 0d | Port 2B' |

The following table shows the zones for the FC-VI connections:

| Zone | ONTAP controller and initiator port | Switch |
|---|---|---|
| **Site A** | | |
| zX | Controller A: Port FC-VI a | FC_switch_A_1 |
| zY | Controller A: Port FC-VI b | FC_switch_A_2 |
| **Site B** | | |
| zX | Controller B: Port FC-VI a | FC_switch_B_1 |

| Zone | ONTAP controller and initiator port | Switch |
|---|---|---|
| zY | Controller B: Port FC-VI b | FC_switch_B_2 |

**Related information**

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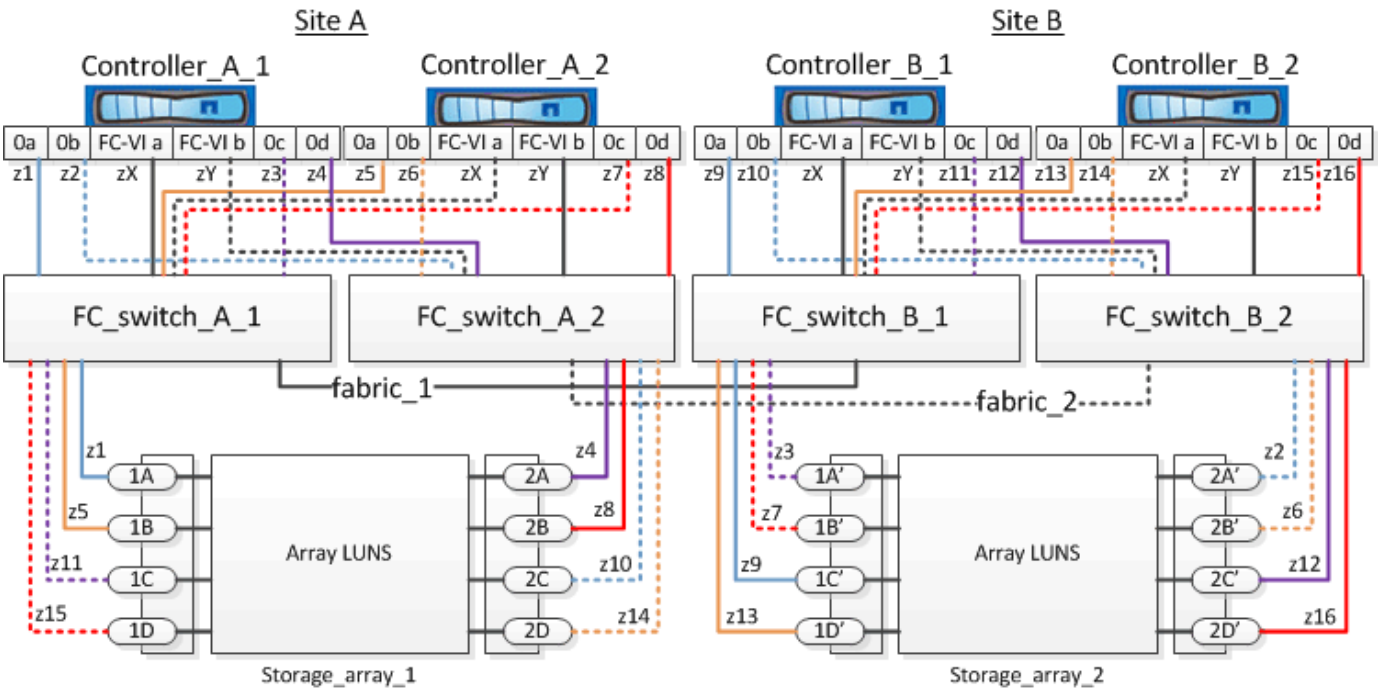
# Example of switch zoning in a four-node MetroCluster configuration with array LUNs

Switch zoning defines paths between connected nodes. Configuring the zoning enables you to define which array LUNs can be viewed by a specific ONTAP systems.

You can use the following example as a reference when determining zoning for a four-node MetroCluster configuration with array LUNs. The example shows single-initiator to single-target zoning for a MetroCluster configuration. The lines in the following example represent zones rather than connections; each line is labeled with its zone number:




In the illustration, array LUNs are allocated on each storage array for the MetroCluster configuration. LUNs of equal size are provisioned on the storage arrays at both sites, which is a SyncMirror requirement. Each ONTAP system has two paths to array LUNs. The ports on the storage array are redundant.

In the illustration, the redundant array port pairs for both the sites are as follows:

- Storage array at Site A:

    - Ports 1A and 2A
    - Ports 1B and 2B
    - Ports 1C and 2C
    - Ports 1D and 2D
- Storage array at Site B:
    - Ports 1A' and 2A'
    - Ports 1B' and 2B'
    - Ports 1C' and 2C'
    - Ports 1D' and 2D'

The redundant port pairs on each storage array form alternate paths. Therefore, both the ports of the port pairs can access the LUNs on the respective storage arrays.

The following tables shows the zones for this example:

## FC_switch_A_1

| Zone | ONTAP controller and initiator port | Storage array port |
|---|---|---|
| z1 | Controller_A_1: Port 0a | Port 1A |
| z3 | Controller_A_1: Port 0c | Port 1A' |
| z5 | Controller_A_2: Port 0a | Port 1B |
| z7 | Controller_A_2: Port 0c | Port 1B' |

## FC_switch_A_2

| Zone | ONTAP controller and initiator port | Storage array port |
|---|---|---|
| z2 | Controller_A_1: Port 0b | Port 2A' |
| z4 | Controller_A_1: Port 0d | Port 2A |
| z6 | Controller_A_2: Port 0b | Port 2B' |
| z8 | Controller_A_2: Port 0d | Port 2B |

## FC_switch_B_1

| Zone | ONTAP controller and initiator port | Storage array port |
|---|---|---|
| z9 | Controller_B_1: Port 0a | Port 1C' |
| z11 | Controller_B_1: Port 0c | Port 1C |
| z13 | Controller_B_2: Port 0a | Port 1D' |
| z15 | Controller_B_2: Port 0c | Port 1D |

## FC_switch_B_2

| Zone | ONTAP controller and initiator port | Storage array port |
|---|---|---|
| z10 | Controller_B_1: Port 0b | Port 2C |
| z12 | Controller_B_1: Port 0d | Port 2C' |
| z14 | Controller_B_2: Port 0b | Port 2D |
| z16 | Controller_B_2: Port 0d | Port 2D' |

## Zones for the FC-VI connections at Site A

| Zone | ONTAP controller and FC initiator port | Switch |
|---|---|---|
| zX | Controller_A_1: Port FC-VI a | FC_switch_A_1 |
| zY | Controller_A_1: Port FC-VI b | FC_switch_A_2 |
| zX | Controller_A_2: Port FC-VI a | FC_switch_A_1 |
| zY | Controller_A_2: Port FC-VI b | FC_switch_A_2 |

## Zones for the FC-VI connections at Site B

| Zone | ONTAP controller and FC initiator port | Switch |
|---|---|---|
| zX | Controller_B_1: Port FC-VI a | FC_switch_B_1 |
| zY | Controller_B_1: Port FC-VI b | FC_switch_B_2 |

| Zone | ONTAP controller and FC initiator port | Switch |
|---|---|---|
| zX | Controller_B_2: Port FC-VI a | FC_switch_B_1 |
| zY | Controller_B_2: Port FC-VI b | FC_switch_B_2 |

**Related information**

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Example of switch zoning in a two-node MetroCluster configuration with array LUNs

Example of switch zoning in an eight-node MetroCluster configuration with array LUNs

# Example of switch zoning in an eight-node MetroCluster configuration with array LUNs

Switch zoning defines paths between connected nodes. Configuring the zoning enables you to define which array LUNs can be viewed by specific ONTAP systems.

An eight-node MetroCluster configuration consists of two four-node DR groups. The first DR group consists of the following nodes:

- controller_A_1
- controller_A_2
- controller_B_1
- controller_B_2

The second DR group consists of the following nodes:

- controller_A_3
- controller_A_4
- controller_B_3
- controller_B_4

To configure the switch zoning, you can use the zoning examples for a four-node MetroCluster configuration for the first DR group.

Example of switch zoning in a four-node MetroCluster configuration with array LUNs

To configure zoning for the second DR group, follow the same examples and requirements for the FC initiator ports and array LUNs belonging to the controllers in the second DR group.

**Related information**

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Example of switch zoning in a four-node MetroCluster configuration with array LUNs