Considerations for using TDM/WDM equipment with fabric-attached MetroCluster configurations

ONTAP MetroCluster

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The Hardware Universe tool provides some notes about the requirements that Time Division Multiplexing (TDM) or Wavelength Division Multiplexing (WDM) equipment must meet to work with a fabric-attached MetroCluster configuration. These notes also include information about various configurations, which can help you to determine when to use in-order delivery (IOD) of frames or out-of-order delivery (OOD) of frames.

An example of such requirements is that the TDM/WDM equipment must support the link aggregation (trunking) feature with routing policies. The order of delivery (IOD or OOD) of frames is maintained within a switch, and is determined by the routing policy that is in effect.

NetApp Hardware Universe

The following table provides the routing policies for configurations containing Brocade switches and Cisco switches:

Switches	Configuring MetroCluster configurations for IOD	Configuring MetroCluster configurations for OOD
Brocade	• AptPolicy must be set to 1 • DLS must be set to off • IOD must be set to on	• AptPolicy must be set to 3 • DLS must be set to on • IOD must be set to off
Cisco	Policies for the FCVI-designated VSAN: • Load balancing policy: srcid and dstid • IOD must be set to on Policies for the storage-designated VSAN: • Load balancing policy: srcid, dstid, and oxid • VSAN must not have the in-order-guarantee option set	Not applicable

When to use IOD

It is best to use IOD if it is supported by the links. The following configurations support IOD:

- A single ISL
- The ISL and the link (and the link equipment, such as TDM/WDM, if used) supports configuration for IOD.
- A single trunk, and the ISLs and the links (and the link equipment, such as TDM/WDM, if used) support

configuration for IOD.

When to use OOD

- You can use OOD for all configurations that do not support IOD.
- You can use OOD for configurations that do not support the trunking feature.

Using encryption devices

When using dedicated encryption devices on the ISL or encryption on WDM devices in the MetroCluster configuration, you must meet the following requirements:

- The external encryption devices or WDM equipment has been self certified by the vendor with the FC switch in question.

  The self certification should cover the operating mode (such as trunking and encryption).

- The added latency due to encryption should be no more than 10 microseconds.