

7.12 Virtual Domain (equivalent to Distributed Switch/FCF)

7.12.1 Virtual Domain_ID acquisition

The Domain_ID for the Virtual Domain is an administratively configured value or requested from the fabric by the Principal Controlling Switch

If the Virtual Domain_ID (VD_ID) is administratively configured, then after obtaining a Domain_ID from the fabric, the Principal Controlling Switch shall transmit an RDI SW_ILS request (see FC-SW-6) with the Requested Switch_Name field set to the Virtual Domain Switch_Name and the Requested Domain_ID field set to the administratively configured VD_ID value. If the response to the RDI SW_ILS request is an SW_ACC and the Granted Domain_ID field is set to the administratively configured VD_ID value, then the Principal Controlling Switch shall transmit a VDD SW_ILS request (see 7.12.2.3) to each peer Controlling Switch. If the response to the RDI SW_ILS request is an SW_ACC and the Granted Domain_ID field is not set to the administratively configured VD_ID value, then the Principal Controlling Switch shall transmit a VDD SW_ILS request to each peer Controlling Switch with the administratively configured VD_ID, and isolate from the FC fabric. In addition, each peer Controlling Switch shall isolate from the FC fabric, and the Virtual Domain shall continue to operate independent of the fabric.

NOTE: Do we need an “Isolate from FC fabric” flag in the VDD request?

If the Virtual Domain_ID (VD_ID) is not administratively configured, then after obtaining a Domain_ID from the fabric, the Principal Controlling Switch shall transmit an RDI SW_ILS request with the Requested Switch_Name field set to the Virtual Domain Switch_Name and the Requested Domain_ID field set to zero. If the response to the RDI SW_ILS request is an SW_ACC, then the Principal Controlling Switch shall transmit a VDD SW_ILS request to each peer Controlling Switch. If the response to the RDI SW_ILS request is an SW_RJT then the Principal Controlling Switch shall assign a Virtual Domain_ID and transmit a VDD SW_ILS request to each peer Controlling Switch. In addition, each peer Controlling Switch shall isolate from the fabric, and the Virtual Domain shall continue to operate independent of the fabric.

Upon successful completion of the VDD SW_ILS requests, the Principal Controlling Switch shall transmit an LSU SW_ILS with a link state record describing the Virtual Domain.

In addition, each Controlling Switch shall list the Virtual Domain_ID as a directly attached Domain_ID in their link state record. An example FSPF topology is specified in figure 8, where C is the Virtual Domain_ID and A and B are the Domain_IDs of the two Controlling Switches.

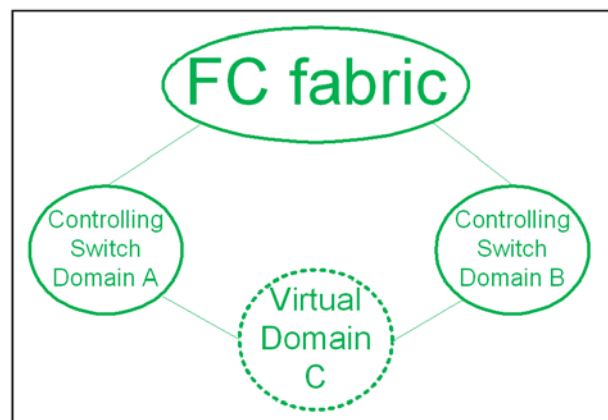


Figure 2 – Virtual Domain FSPF topology example

Table 54 – Virtual Domain SW_ILSs and descriptor order (Continued)

Virtual Domain SW_ILS	Command code/ subcommand code ^a	Expected Descriptors and Order
VN_Port Unreachability Notification	XXh/02h	1) Header 2) Name_Identifier 3) Address Identifier
FDCF/FCF Reachability Notification	XXh/03h	1) Header 2) Name_Identifier 3) Link Cost
FDCF/FCF Unreachability Notification	XXh/04h	1) Header 2) Name_Identifier
Address Identifier Route Distribution	XXh/05h	1) Header 2) Controlling Switch/FCF Path(s) 3) Address Identifier Range(s) 4) Reachable Domain_ID(s)
Address Identifier and Zoning ACL Distribution	XXh/06h	1) Header 2) Flags 3) Address Identifier 4) Name_Identifier 5) Name_Identifier 6) FLOGI/NPIV FDISC 7) Peering Entry(s)
Active Zoning ACL Distribution	XXh/07h	1) Header 2) Peering Entry(s)
Distributed Switch/FCF Membership Distribution	XXh/08h	1) Header 2) Name_Identifier(s) 3) Integrity Check
a)		

7.12.2.2 Virtual Domain SW_ILS descriptors

7.12.2.2.1 Overview

Virtual Domain SW_ILS descriptors are specified in table 55.

Table 55 – Virtual Domain SW_ILS descriptors

Type	Descriptor	Reference
0	Reserved	
1	Header	
2	Domain_ID	
3	Name_Identifier	
4	Address identifier	
10	Reject	

7.12.2.2.2 Header descriptor

The Header descriptor is used in operations as specified in table 54.

The Header descriptor format shall be as specified in table 56.

Table 56 – Header descriptor format

Word	Bit 3	3	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	0	9	8	7	6	5	4	3	2	1	0
0	Type = 01h				Length = 05h								Reserved																		
1	(MSB)																														
2	Originating Switch_Name															(LSB)															
3	(MSB)																														
4	Destination Switch_Name															(LSB)															

Originating Switch_Name: the Switch_Name of the device that originated the request.

Destination Switch_Name: the Switch_Name of the destination device for the request.

7.12.2.2.3 Domain_ID descriptor

The Domain_ID descriptor is used as specified in table 54.

The Domain_ID descriptor format shall be as specified in table 57.

Table 57 – Domain_ID descriptor format

Word	Bit 3	3	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	0	9	8	7	6	5	4	3	2	1	0
0	Type = 02h				Length = 01h								Reserved								Domain_ID										

Domain_ID: shall be set to a valid Domain_ID value (see FC-SW-6).

7.12.2.2.4 Name_Identifier descriptor

The Name_Identifier descriptor is used in operations as specified in table 54.

The Name_Identifier descriptor format shall be as specified in table 58.

Table 58 – Name_Identifier descriptor format

Bit	3	3	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	0	9	8	7	6	5	4	3	2	1	0
Word	1	0	9	8	7	6	5	4	3	2	1	0	9	8	7	6	5	4	3	2	1	0	9	8	7	6	5	4	3	2	1	0
0	Type = 03h								Length = 03h								Reserved								Name ID Type							
1	(MSB)																															
2	Name_Identifier																(LSB)															

Name ID Type: the type of device the Name_Identifier is associated with (i.e., Controlling Switch, N_Port, FCDF/FDF, Virtual Domain).

Table 59 – Name identifier types

Value	Description
0	Reserved
1	Controlling Switch
2	FCDF/FDF
3	Virtual Domain
4	N_Port

Name_Identifier: the Name_Identifier (see FC-FS-3) associated with the device.

7.12.2.2.5 Address identifier descriptor

The Address identifier descriptor is used as specified in table 54.

The Address identifier descriptor format shall be as specified in table 60.

Table 60 – Address identifier descriptor format

Bit	3	3	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	0	9	8	7	6	5	4	3	2	1	0								
Word	1	0	9	8	7	6	5	4	3	2	1	0	9	8	7	6	5	4	3	2	1	0	9	8	7	6	5	4	3	2	1	0								
0	Type = 04h								Length = 02h								Reserved																							
1	Reserved								(MSB)								Address identifier																(LSB)							

Address identifier: shall be set to a valid address identifier (see FC-FS-3).

Request payload: The format of the VDB request payload is shown in table 64.

Table 65 – VDB request payload

Word	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
0-1	Common																															
2-6	Header descriptor																															
7	Principal Controlling Switch Domain_ID descriptor																															
8-n	Domain_ID descriptor(s)																															

7.12.3 Virtual Domain redundancy protocol

7.12.3.1 Principal Controlling Switch selection

See slides for now...

NOTE: Reception of VDB SW_ILS implies redundancy protocol.

7.12.3.2 Timers and constants

Virtual Domain timers and constants are specified in 66.

Table 66 – Virtual Domain timers and constants

Timer/Constant	Value	Description
VD_S_TOV	TBD	Virtual Domain stability timeout