

The Pieces to Managing FCoE

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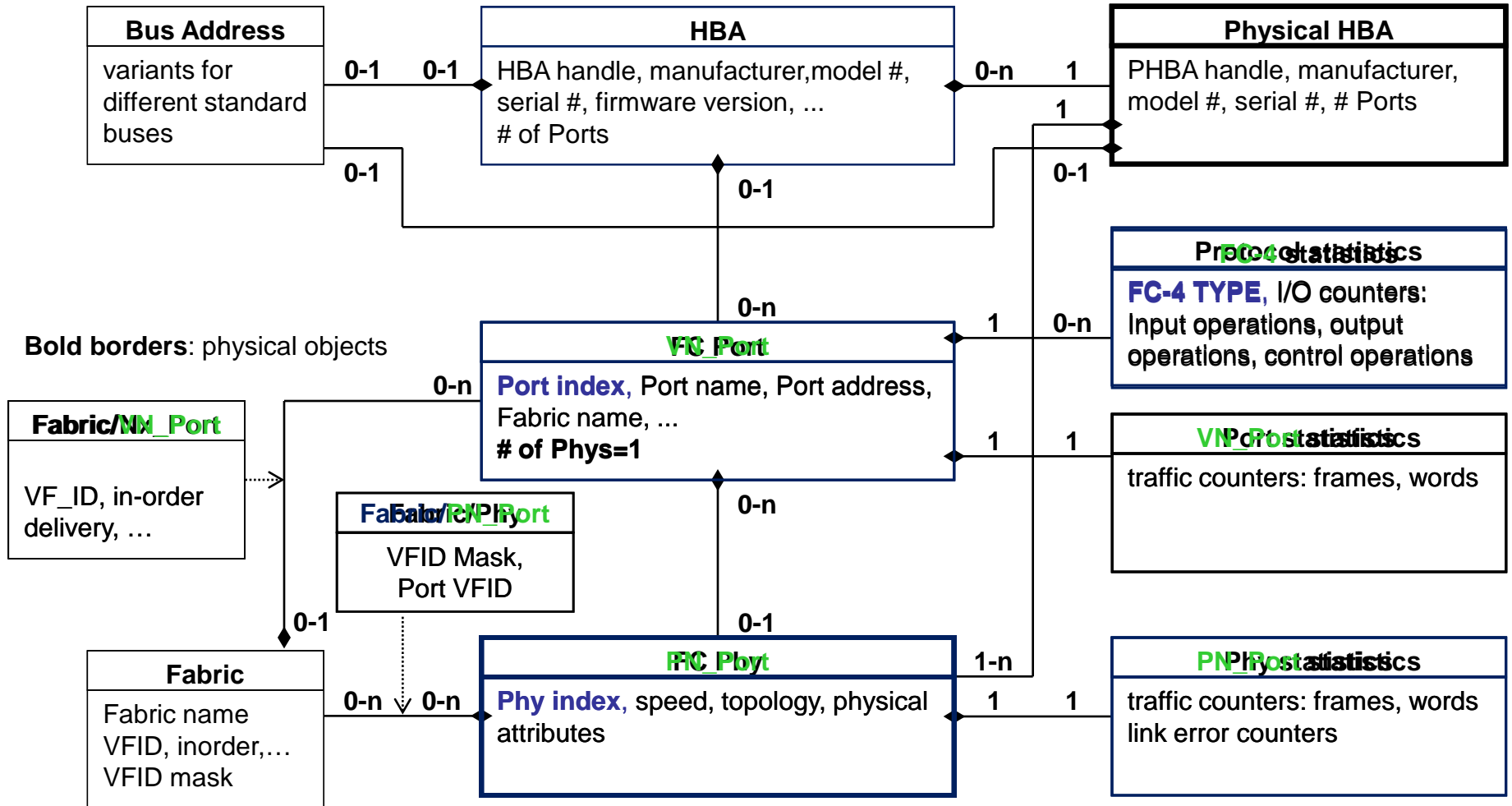
- This presentation will identify and provide an overview to the many implementation pieces a client and FCoE switch and CNA vendor may need to consider for managing an FCoE environment including discovery and configuration. These pieces may include standards from the SNIA, DMTF, and T11. The presentation will attempt to identify the possible gaps in these standards and how they may be addressed and will also examine whether a client can hook all these pieces together and if so how?

- ❑ What are the current and future management standards
- ❑ How do you hook the pieces together
- ❑ What are the gaps and how might they be addressed

- TII
 - SM-HBA II
 - FC-GS
- SNIA
 - SMI
- DMTF
 - FC HBA Diagnostics
 - SVPC Virtual Networks

SM-HBA-II

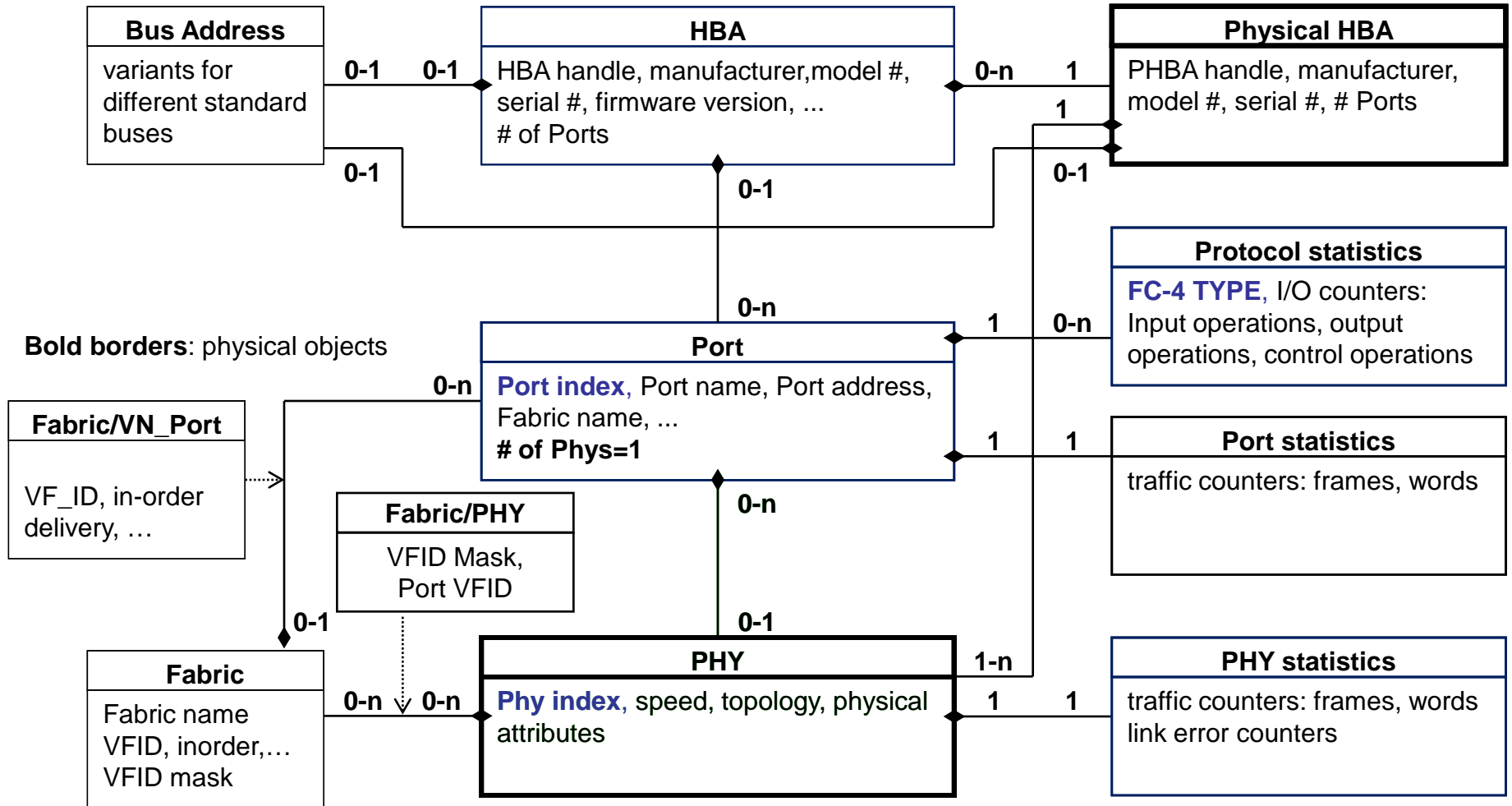
Terminology Translation



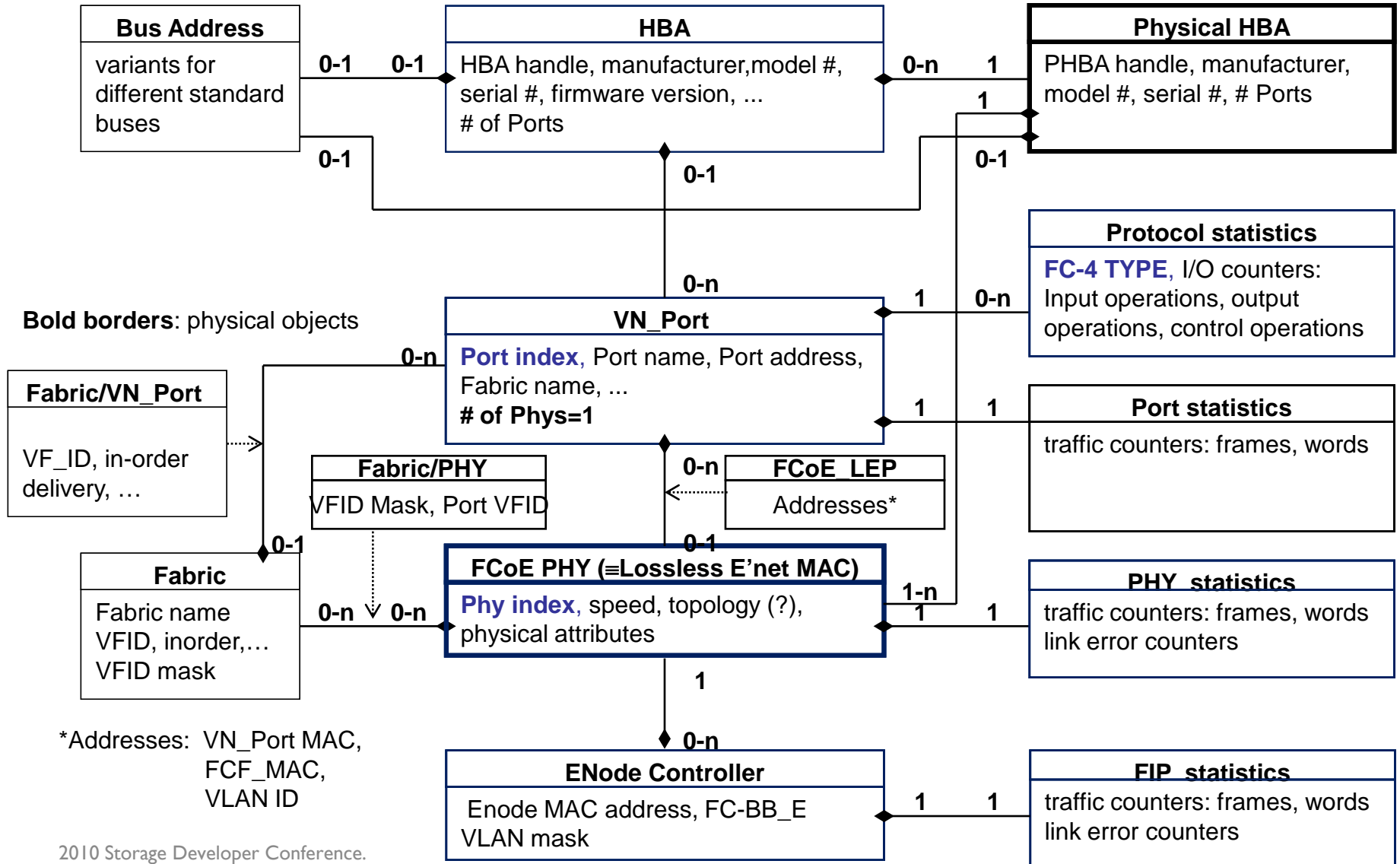
What needs to be added

- ❑ FCoE_LEPs
 - ❑ VN_Port MAC address/VLAN ID and FCF-MAC address
- ❑ Lossless Ethernet MACs
 - ❑ Physical attributes, e.g., speed
- ❑ FCoE Controllers
 - ❑ ENode MAC address
 - ❑ FC-BB_E VLAN mask

Adding FCoE into the SM-HBA-2 Architecture



Adding FCoE into the SM-HBA-2 Architecture



*Addresses: VN_Port MAC, FCF_MAC, VLAN ID

Additional details

- From T1 I/09-530v1 (23 November 2009) by Bob Nixon (Emulex)

FC-GS-7

FC Switching Element and Physical Switch Attributes

FC Switching
Element
Object

Name
Type
Domain ID(s)
Fabric Name
Logical Name
Management Address(es)
Physical Switch Correlatable
Identifier

Physical
Switch
Object

Correlatable Identifier
Management Address(es)
Vendor Name
Model Name
Release Code
Vendor Specific Info

Vx Port and Px Port Attributes

Vx Port
Object

Name
Type
Logical Name
Attached Port(s)
Port State
Zoning Enforcement Status
Physical Port Correlatable ID

Physical Port
Object

Transport Type (FC, FCoE, FCIP, ...)
Correlatable ID
Name
Tx Type
Module Type
Physical Port Number
Port State
Port Speed Capabilities
Port Operating Speed
Physical Location

Enhanced Fabric Configuration Server – Request Command Codes

Code (hex)	Mnem.	Description	Attribute(s) in Request CT_IU	Attribute(s) in Accept CT_IU
0100	GSL	Get Switch List	none	List of Switch Names
0101	GSAG	Get Switch Attribute Group	Switch Name	A group of attributes for the Switch
0102	GSPL	Get Switch Port List	Switch Name	List of VxPorts
0110	GPSAG	Get Physical Switch Attribute Group	Physical Switch Name	A group of attributes
0111	GPSPL	Get Physical Switch Port List	Physical Switch Name	List of PxPorts
0130	GVPAG	Get Virtual Port Attribute Group	Physical Switch Name, List of Port Names	A group of attributes for the listed ports

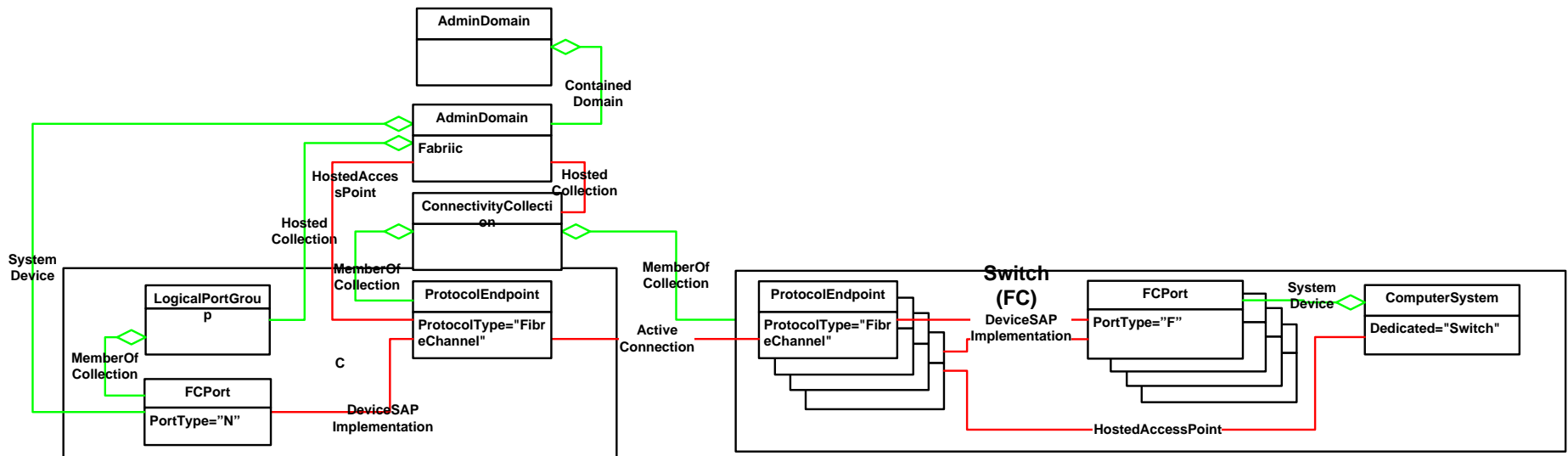
Enhanced Fabric Configuration Services

Request Command Codes

Code (hex)	Mnem.	Description	Attribute(s) in Request CT_IU	Attribute(s) in Accept CT_IU
0131	GAPL	Get Attached Port List	Port Name	List of Attached Port Names
0140	GPPAG	Get Physical Port Attribute Group	Physical Switch Name, List of Port Names	A group of attributes

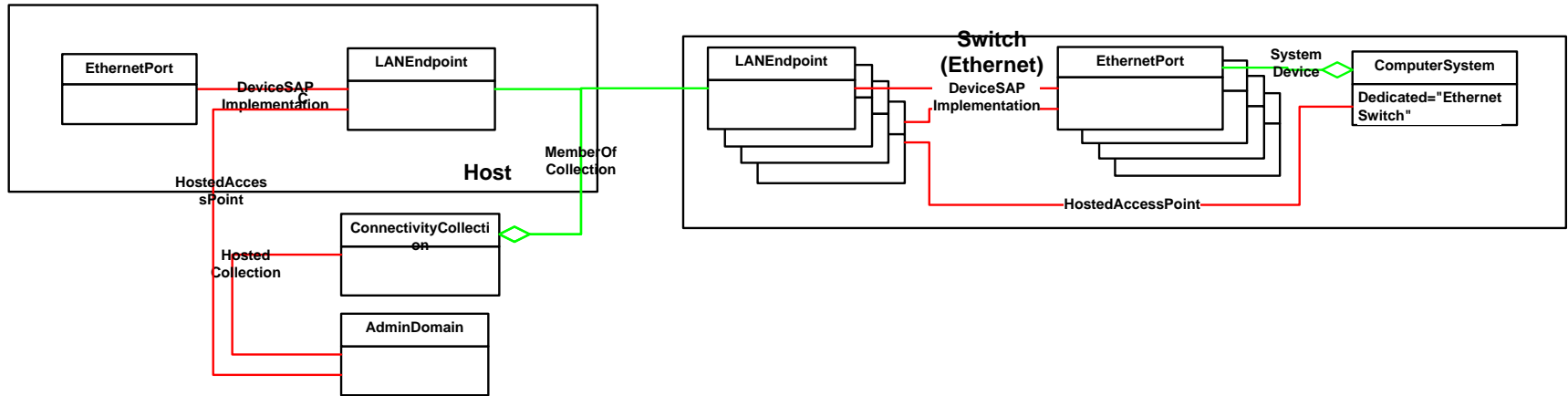
SNIA SMI

Fabric Model



- ❑ Current Fabric Model showing a Host and Switch
- ❑ Note
 - ❑ ConnectivityCollection collects PEs
 - ❑ AdminDomain represents the Fabric and SAN (A System)

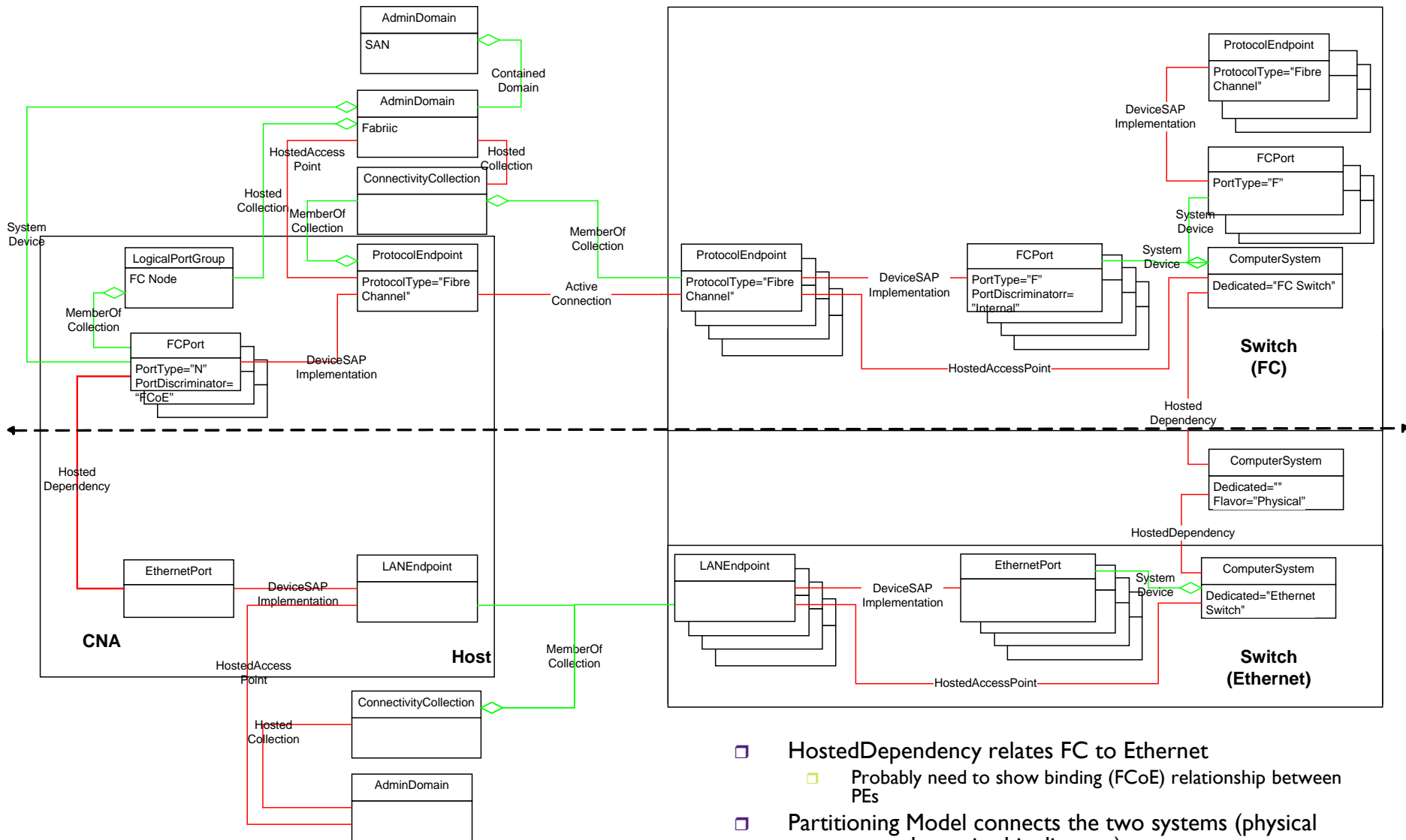
FCoE Additions



- ❑ Mirror image of FC Fabric
 - ❑ Ethernet Switch
 - ❑ Dedicated = Ethernet Switch
 - ❑ Host
 - ❑ ConnectivityCollection collects LANEndpoints
 - ❑ AdminDomain represents the Ethernet Cloud

- ❑ Avoiding Ethernet Topology
- ❑ Work Items
 - ❑ Ethernet Switch Durable Name
 - ❑ Cloud Durable Name

All together



- HostedDependency relates FC to Ethernet
 - Probably need to show binding (FCoE) relationship between PEs
- Partitioning Model connects the two systems (physical system not shown in this diagram)
- Many to Many relationship between the Ethernet Switch EthernetPort and the FC Switch FCPort

What is missing

- ❑ VLANs
- ❑ ACLs

DMTF Diag Profiles

- ❑ Define a common industry standard diagnostics interface for clients to
 - ❑ Discover and execute diagnostic tests
 - ❑ Configure and control diagnostic test execution
 - ❑ Monitor diagnostic test progress
 - ❑ View and manage diagnostic test execution results
- ❑ FC HBA (DSP I 104)
- ❑ Ethernet NIC (DSP I 006)

- ❑ ManagedElement is
 - ❑ PortController
 - ❑ EthernetPort
- ❑ Diagnose NIC problems
- ❑ Pre-boot vs online tests
- ❑ Subcomponent tests

SVPC Virtual Switch

- ❑ DSP 1097 – Virtual Ethernet Switch Profile
 - ❑ Specializes the autonomous Virtual System Profile. This profile defines the minimum top-level object model needed to define a virtualization system's internal Ethernet switch.
- ❑ DSP 1050 – Ethernet Port Resource Virtualization Profile
 - ❑ Specializes the abstract Resource Allocation Profile and the Allocation Capabilities Profile to specify the allocation and management of a host computers Ethernet network access, in support of virtual computer systems ability to access external and internal network.

But there is more ...

- IEEE Port Profile Work
 - VEBs – Virtual Ethernet Bridge
 - VEPAs – Virtual Ethernet Port Aggregator

Questions?