

BROCADE



Filling the Virtualization Swamp (09-412v1)

October 1, 2009

Agenda

- FC-GS
 - Speeds
 - Update Definitions
 - Fabric Configuration Server Illustration
 - Interconnect Object
 - FCoE Interconnect Object Type
 - Port Usage/Clarification
 - Mapping durable identifier
- FC HBA API



FC-GS



Definitions

- Update needed
 - Only PN is defined in FC-GS and it's definition references VN_Ports
 - But there is also VE, VF, and VN Ports
- Interconnect Element: Any device in a Fabric that assists in the transport of Fibre Channel frames between PN_Ports.
 - Is this really a good definition? Is it even accurate today?



Port Speed Capabilities and Operating Speed

- Currently
 - 1 Gb/s operation
 - 2 Gb/s operation
 - 4 Gb/s operation
 - 10 Gb/s operation
 - 8 Gb/s operation
 - 16 Gb/s operation
 - 20 Gb/s operation
 - 32 Gb/s operation
 - 40 Gb/s operation
- Add
 - 10 GE
 - 40 GE
 - 100 GE



Port TX Type

- Currently
 - Unknown
 - Long wave laser - LL (1 550 nm)
 - Short wave laser - SN (850 nm)
 - Long wave laser cost reduced - LC (1 310 nm)
 - Electrical – EL
 - 10GBASE-SR 850nm lasera
 - 10GBASE-LR 1310nm lasera
 - 10GBASE-ER 1550nm lasera
 - 10GBASE-LX4 WWDM 1300nm lasera
 - 10GBASE-SW 850nm lasera
 - 10GBASE-LW 1310nm lasera
 - 10GBASE-EW 1550nm lasera
 - 10GBASE-CX4a
- Add
 - Long wave laser-LZ (1490 nm)



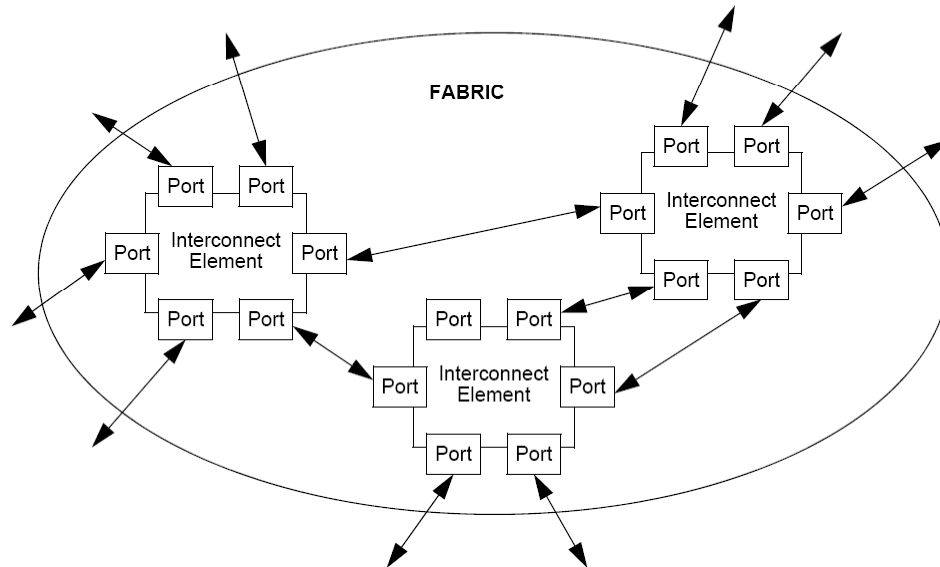
Port Module Type

- Current
 - Embedded
 - GLM
 - GBIC with serial ID
 - GBIC without serial ID
 - SFP with Serial ID
 - SFP without Serial ID
 - XFP
 - X2 Short
 - X2 Medium
 - X2 Tall
 - XPAK Short
 - XPAK Medium
 - XPAK Tall
 - XENPAK
 - SFP-DWDM
 - QSFP
 - X2-DWDM
- Add
 - CFP



Fabric Configuration Server

- Physical Fabric Illustration



- States that it “illustrates the physical Fabric, consisting of one or more Interconnect Elements, that each have some number of physical Ports (i.e., LCFs). These Ports are then connected either to other Ports on other Interconnect Elements, or to Nx_Ports outside of the physical Fabric.”

Fabric Configuration Service (continued)

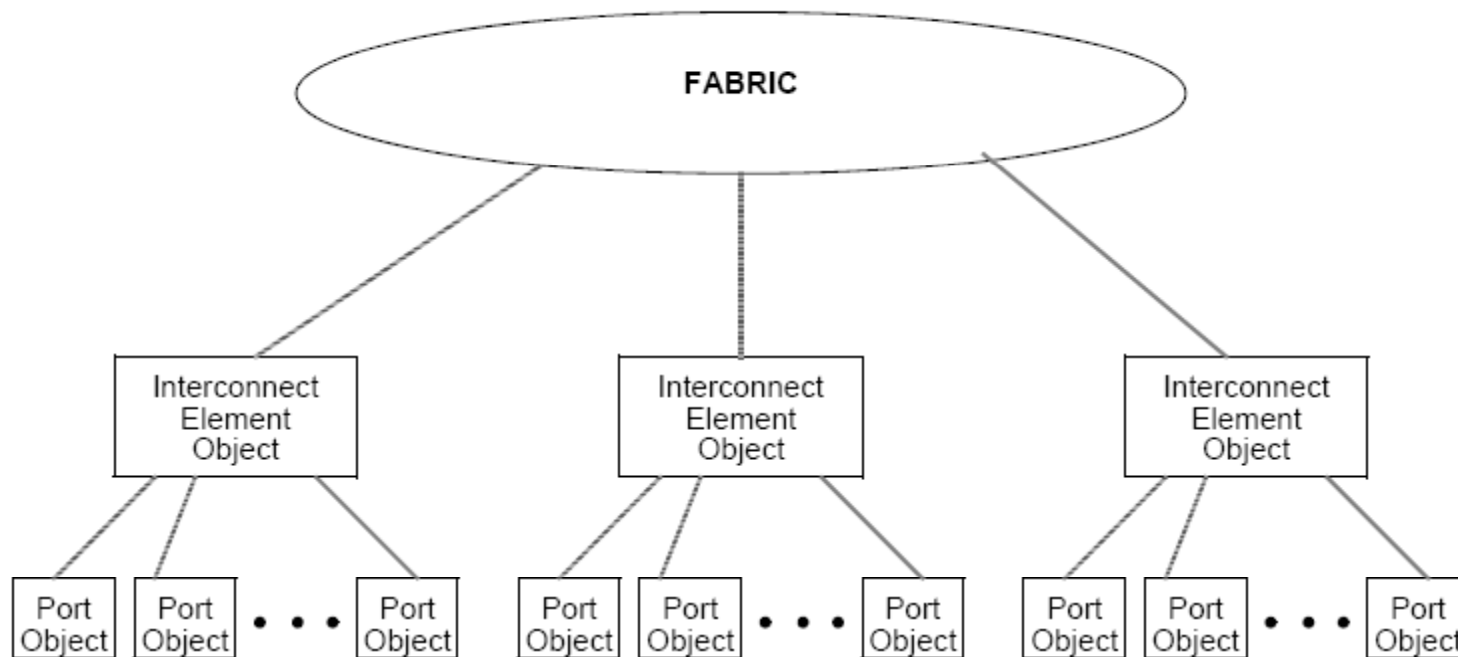
- Needs to be updated
 - What is meant by NxPorts outside of the physical fabric?
 - Description needs to be updated
- But what really is needed is ...
 - A complete update
 - To address FCoE, FCIP, and VF.
 - Thus it needs to address the idea there is a physical layer and a logical layer

- Lets continue and look at the objects and attributes



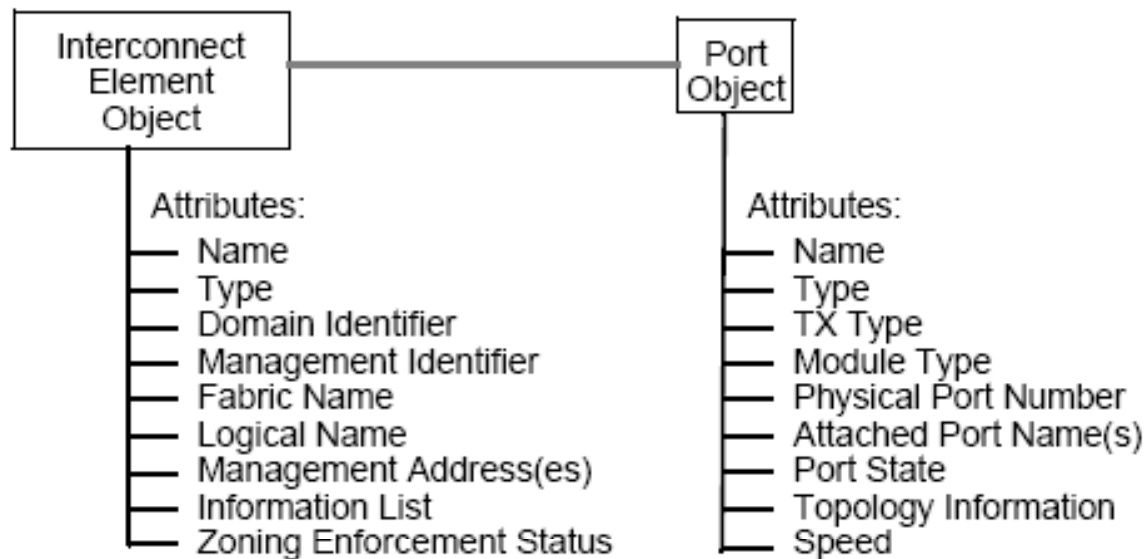
Fabric Configuration Service (continued)

- Current Fabric Configuration Server Object Model



Fabric Configuration Service (continued)

- Interconnect Element and Port Attributes



Fabric Configuration Service (continued)

- Interconnect Element
 - One domain per Interconnect Element
 - Interconnect Element shown as a physical element
 - Interconnect Element Information List is vendor, product, version
 - Multiple domains in a single physical element
 - How do we handle this?
 - Directors are Switches, Bridges, and potentially Platforms (Virtualizer)
 - **Should Interconnect Element really be physical?**
 - **Do we need a new underlying object?**
 - How should a FCoE Switch be reported?
 - Switch, Hub, or Bridge
 - Implementations seem to be a Switch and a Bridge
 - New Type?



Fabric Configuration Server (continued)

- Attached Port Name(s)
 - Part of Port Object
 - Implied as physical, but can be logical
 - Need to clarify
 - Needs to address newer definitions for PN_Port, VE_Port, VN_Port and VF_Port
 - Provide additional clarification
 - FCIP (BB)
 - FCoE (BB)
 - VF (SW)
 - NPIV (LS)
 - Physical (?)



FCoE

- FC to Ethernet Mapping
 - FCF
 - FC_BB_E Mapping
 - MACAddress
 - Durable Identifier
 - Really should be generic
 - FCIP with IP Address
 - Need from BB
 - VF
 - Others
- Any other information needed?



FC HBA



Same as Fabric Configuration Server

- FC to Ethernet Mapping
 - FCF
 - FC_BB_E Mapping
 - MACAddress
 - Durable Identifier

