



# FCoE Modeling

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Claudio DeSanti, Cisco

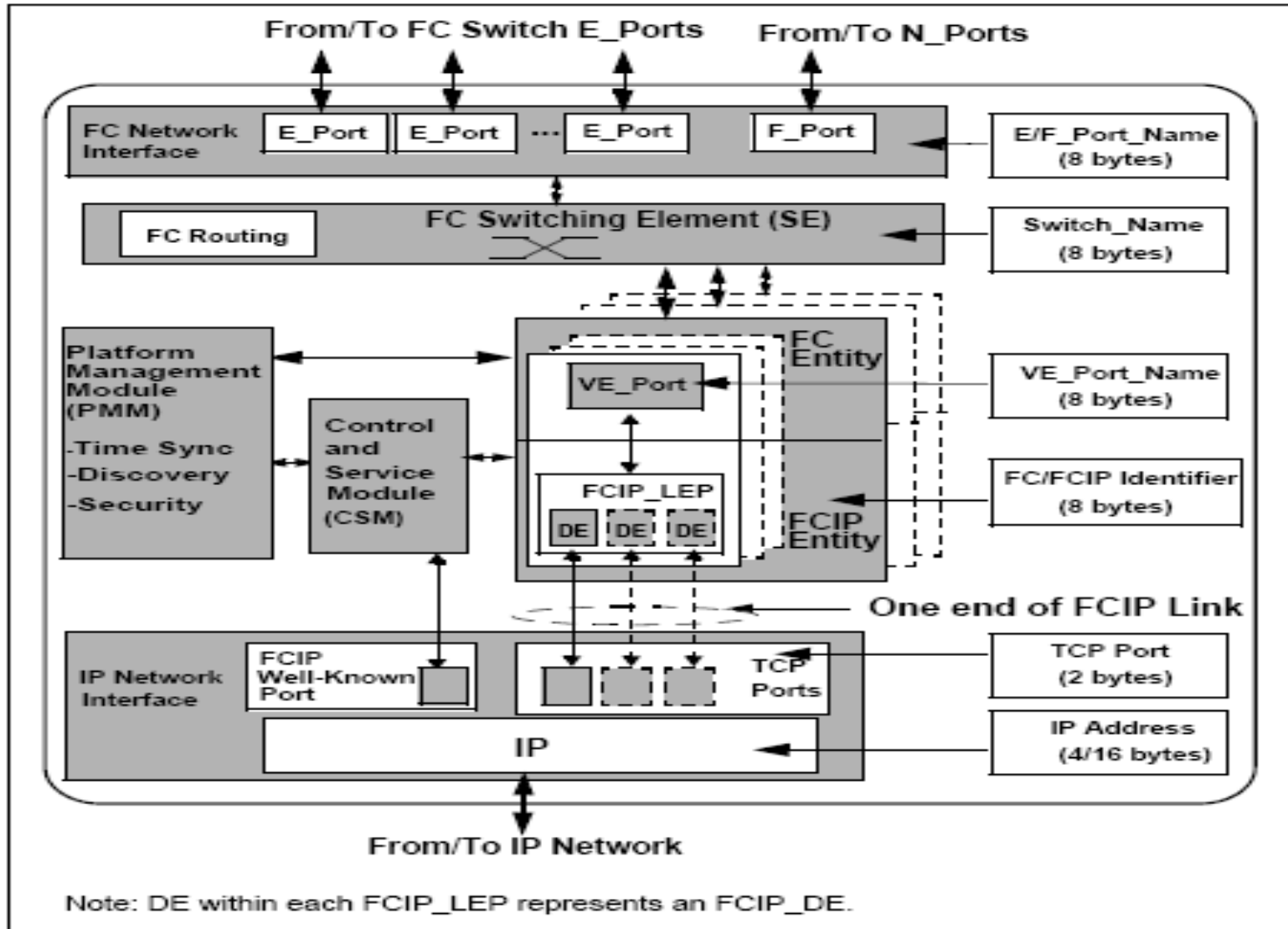
# Agenda

- **Functional Models in FC-BB-x**
- **Switching Functional Model for FCoE**
- **Node Functional Model for FCoE**
- **Proposal for FC-BB-5**

# FC-BB-x and Functional Models

- **FC-BB-x defines functional models**
- **For FCIP it defines two**
  - The **VE\_Port** functional model
  - The **B\_Access** functional model
- **FCoE is similar to FCIP**
  - Keep the **N\_Port**, **F\_Port** and **E\_Port** constructs
  - Replace physical links between them with pairs of **MAC addresses**
- **FCoE needs two functional models**
  - A **VE\_Port/VF\_Port** functional model
  - A **VN\_Port/ENode** functional model

# FCIP VE\_Port Functional Model



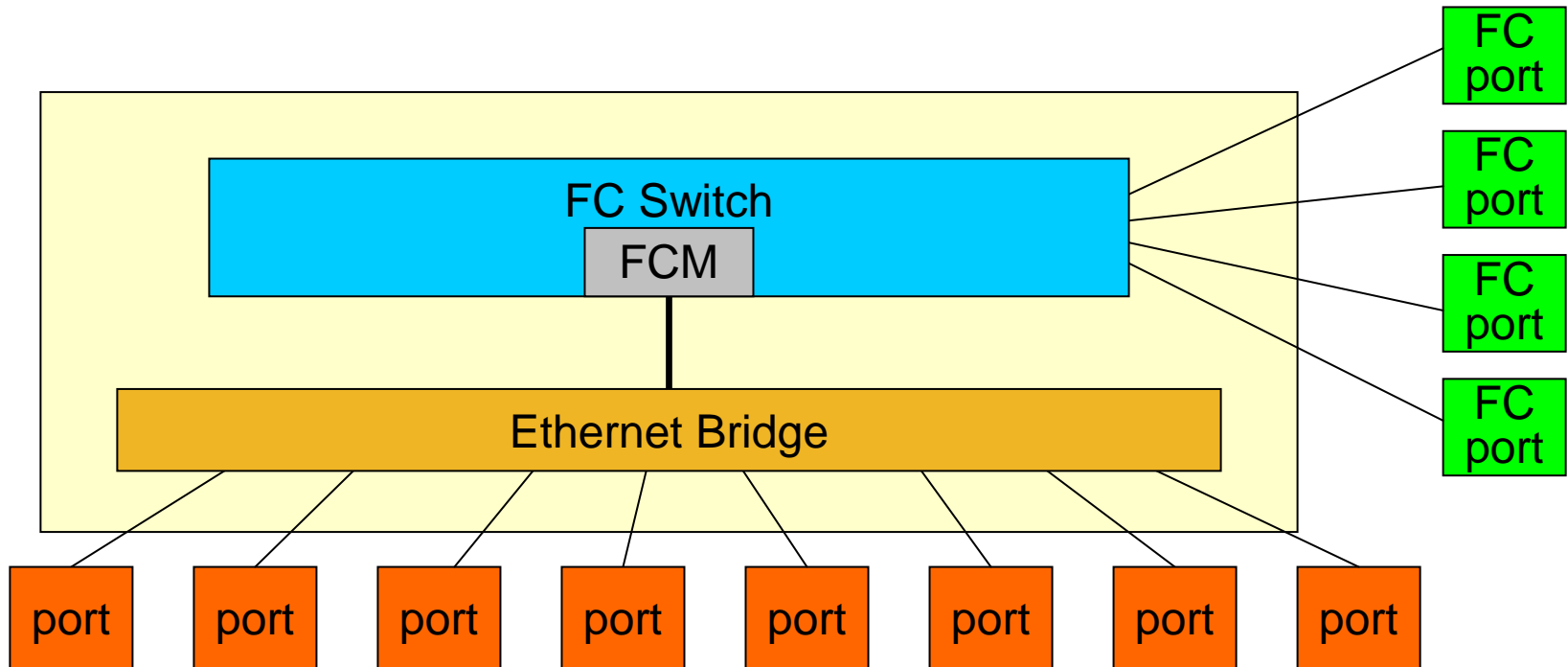
## From FC-BB-4, Subclause 5.2.4.2.2

- Each instance of the FC/FCIP Entity pair consists of one or more VE\_Port/FCIP\_LEP pairs
- A VE\_Port emulates an E\_Port and interfaces with the FCIP\_LEP component of the FCIP Entity
- The VE\_Port receives FC frames from the FC side and sends them to the FCIP\_LEP for encapsulation and transmission on the IP network
- A VE\_Port is uniquely identified by an 8-byte VE\_Port\_Name
- The term “Virtual” in VE\_Port indicates the use of a non Fibre Channel link connecting the VE\_Ports

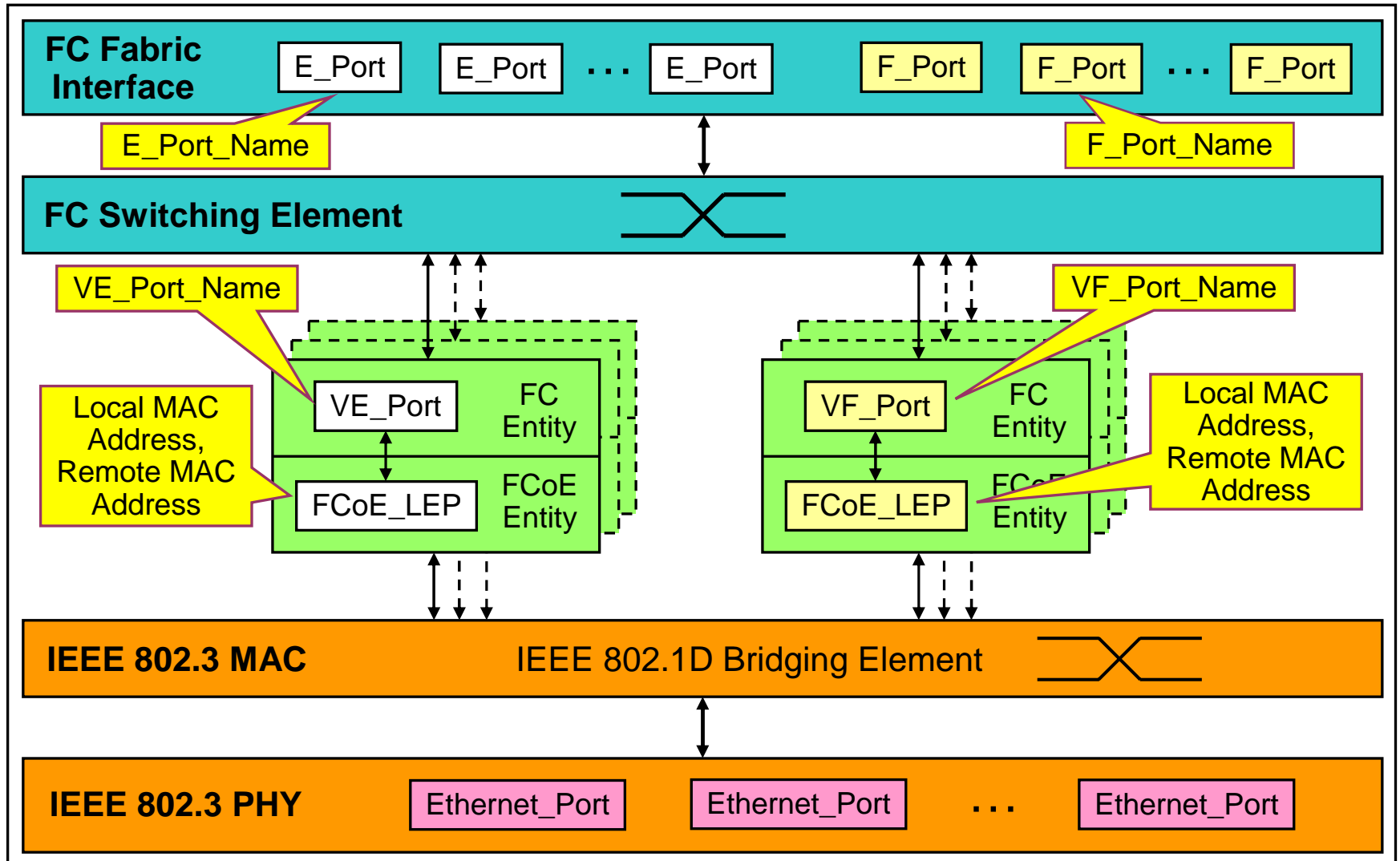
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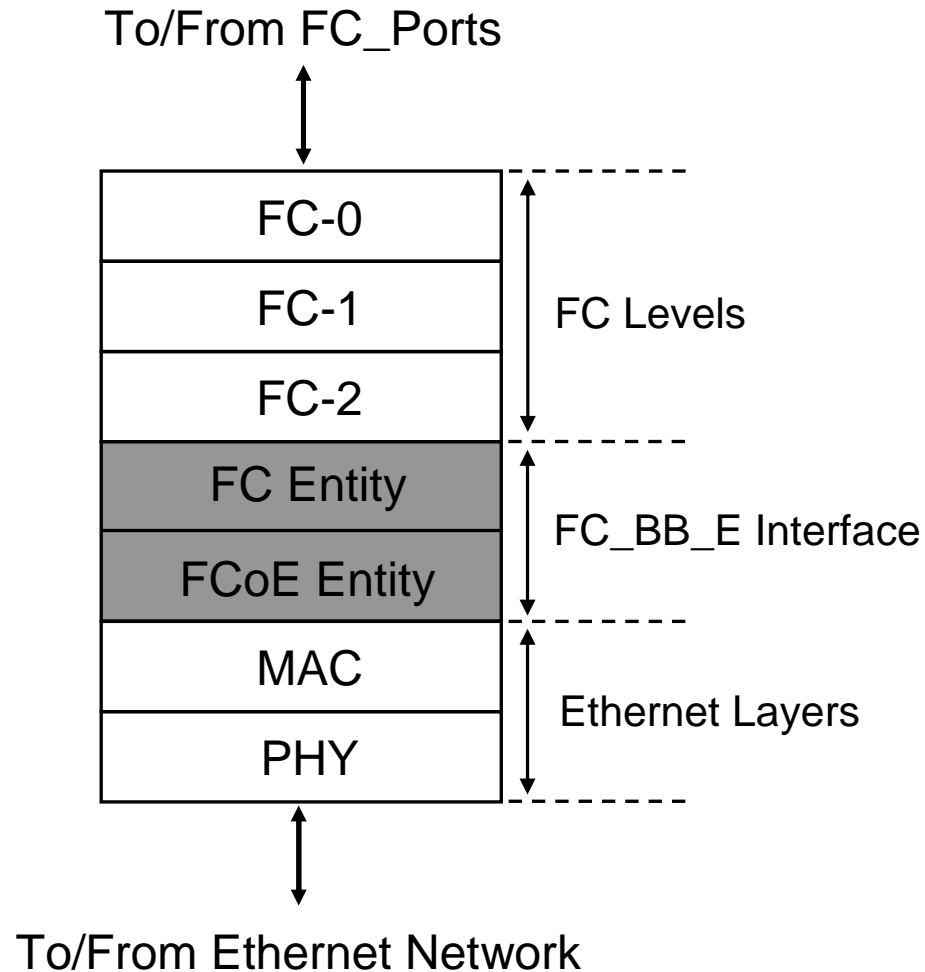
# PropC Type C FCF



# PropC Type C FCF Functional Model



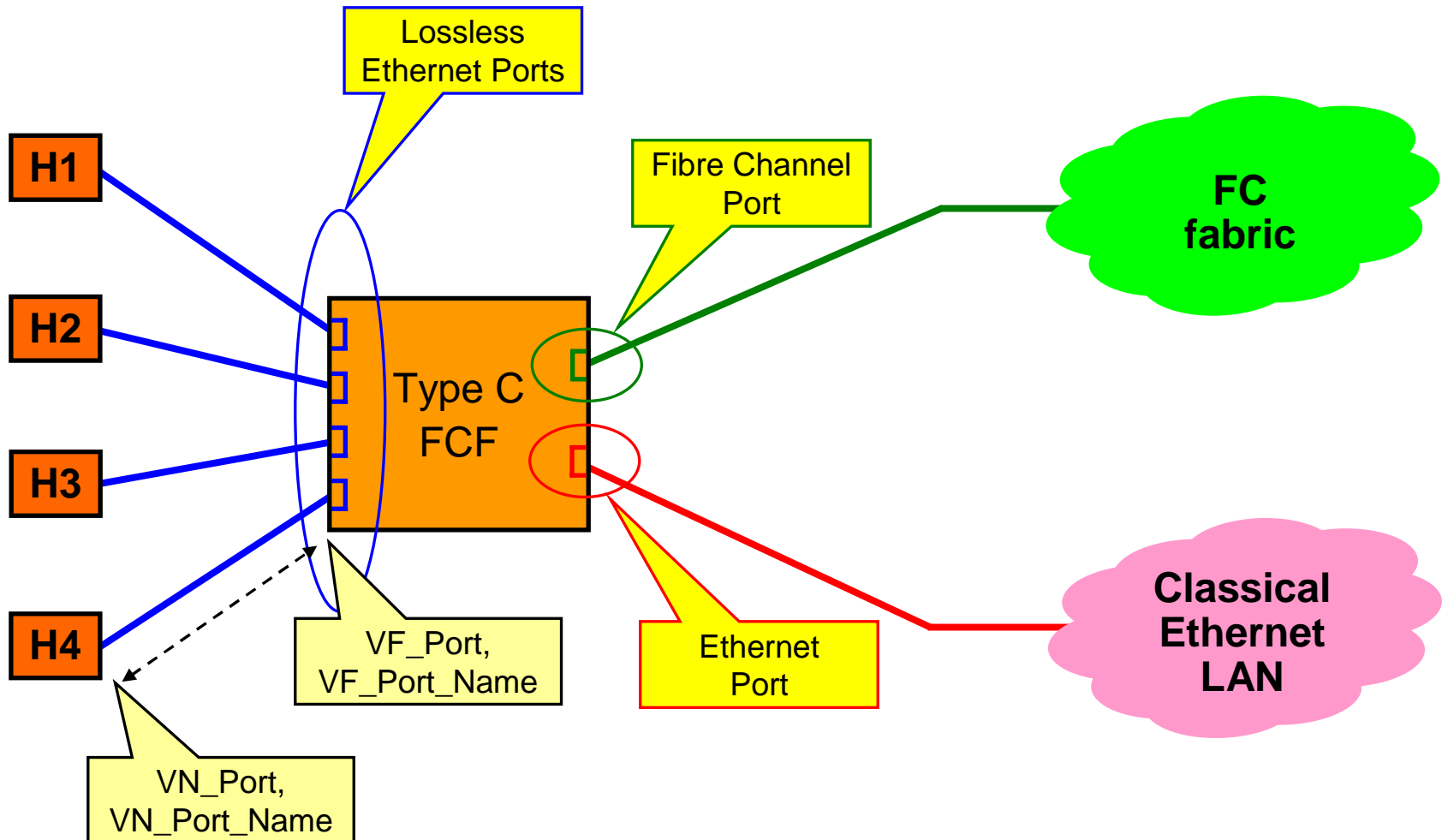
# FC\_BB\_E Protocol Layers (1)



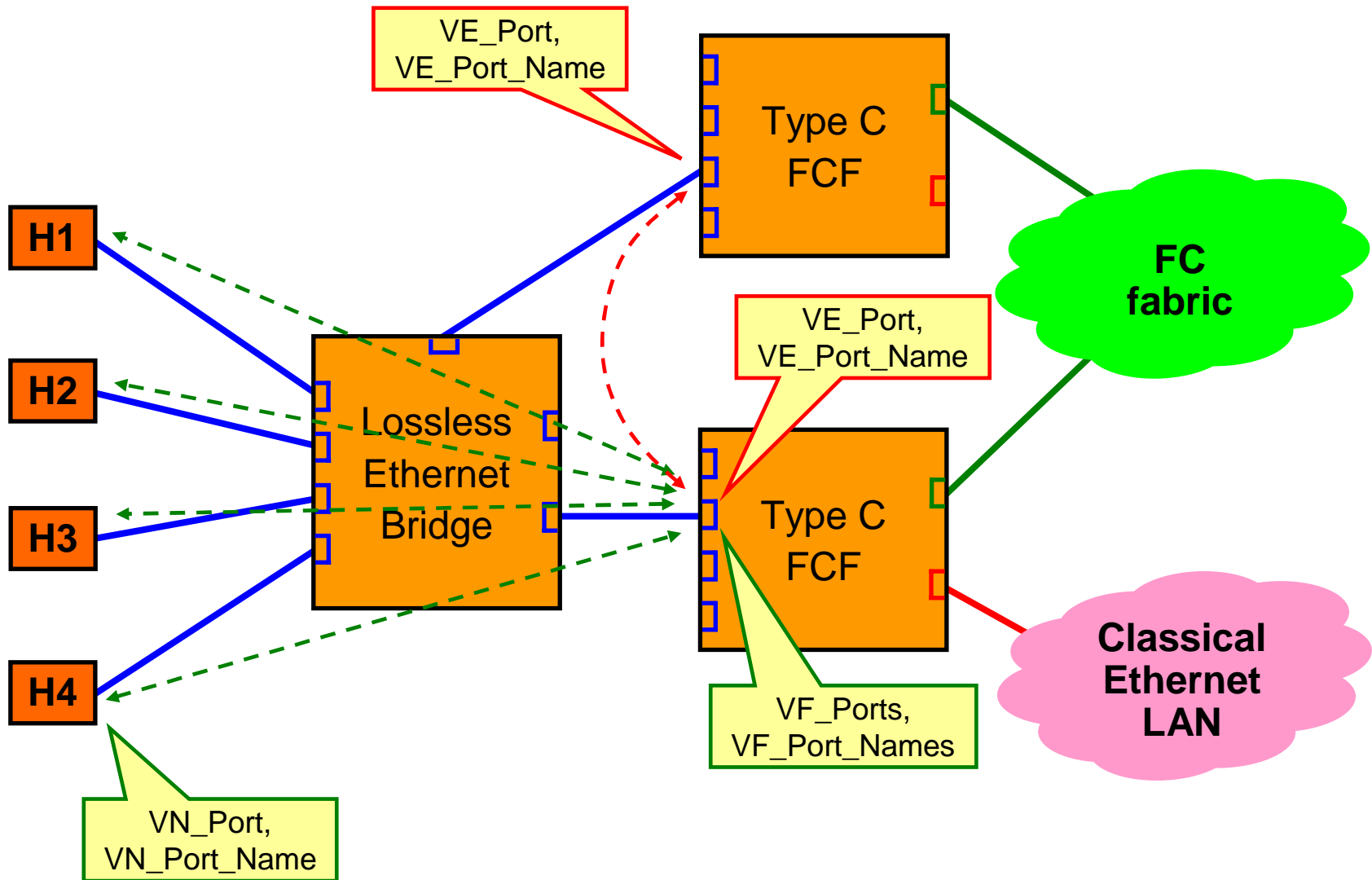
# FCoE Properties

- Each instance of the FC/**FCoE** Entity pair consists of one or more **VE\_Port/FCoE\_LEP** pairs
- A **VE\_Port** emulates an **E\_Port** and interfaces with the **FCoE\_LEP** component of the **FCoE** Entity
- The **VE\_Port** receives FC frames from the FC side and sends them to the **FCoE\_LEP** for encapsulation and transmission on the **Ethernet** network
- A **VE\_Port** is uniquely identified by an 8-byte **VE\_Port\_Name**
- The term “Virtual” in **VE\_Port** indicates the use of a non Fibre Channel link connecting the **VE\_Ports**

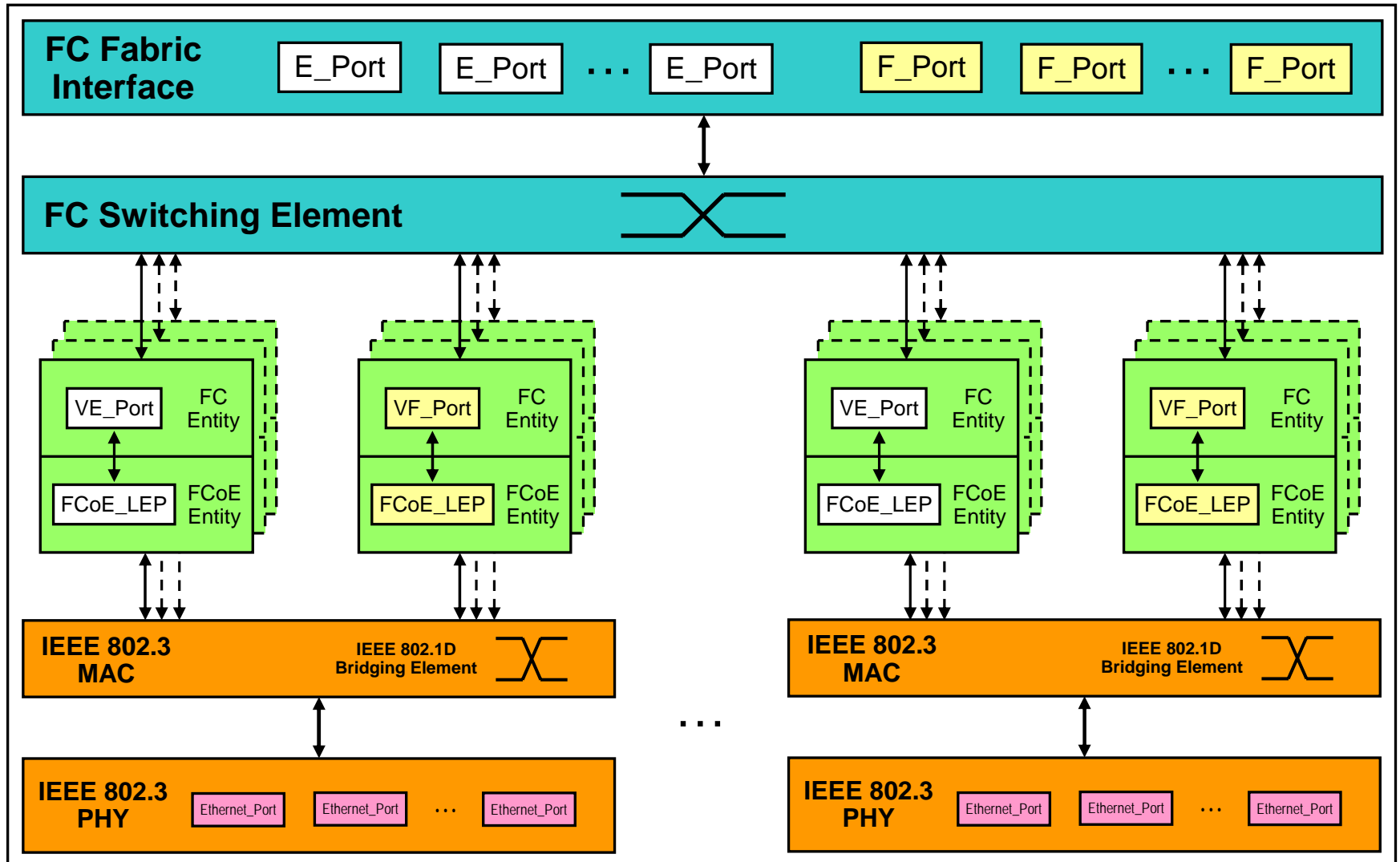
# PropC I/O Consolidation Model (1)



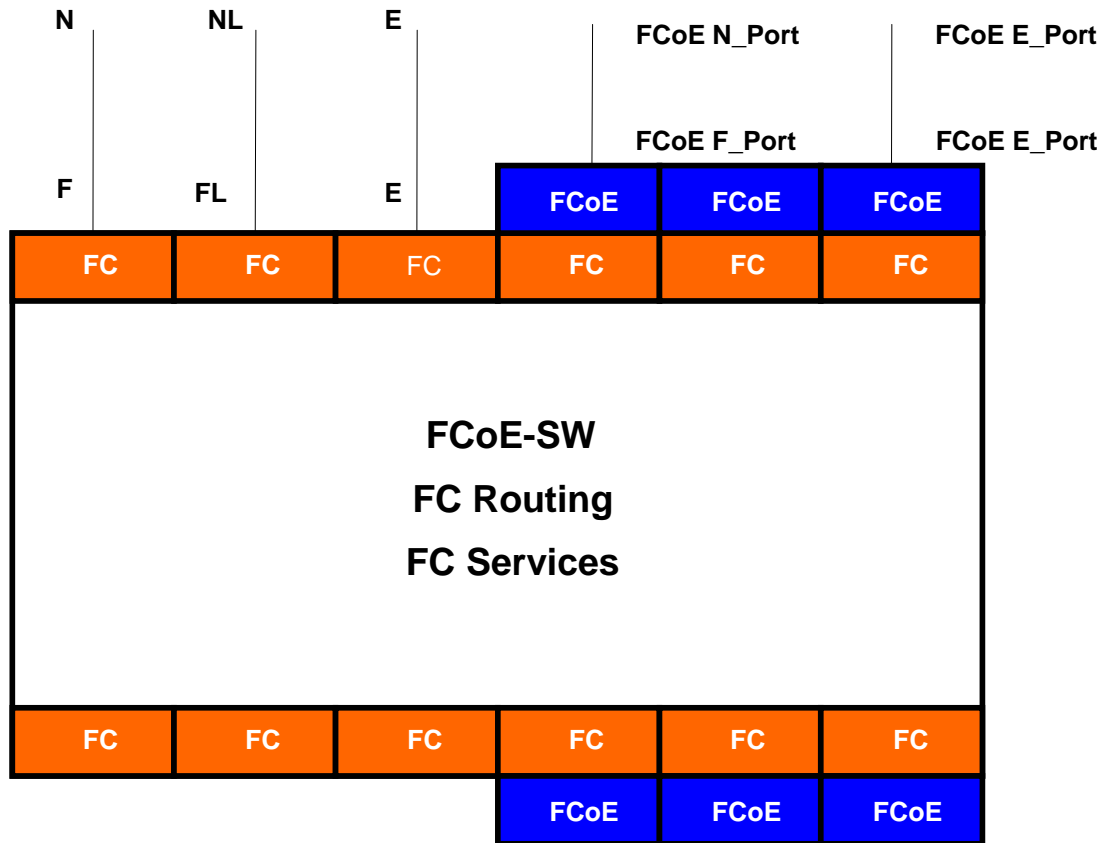
# PropC I/O Consolidation Model (2)



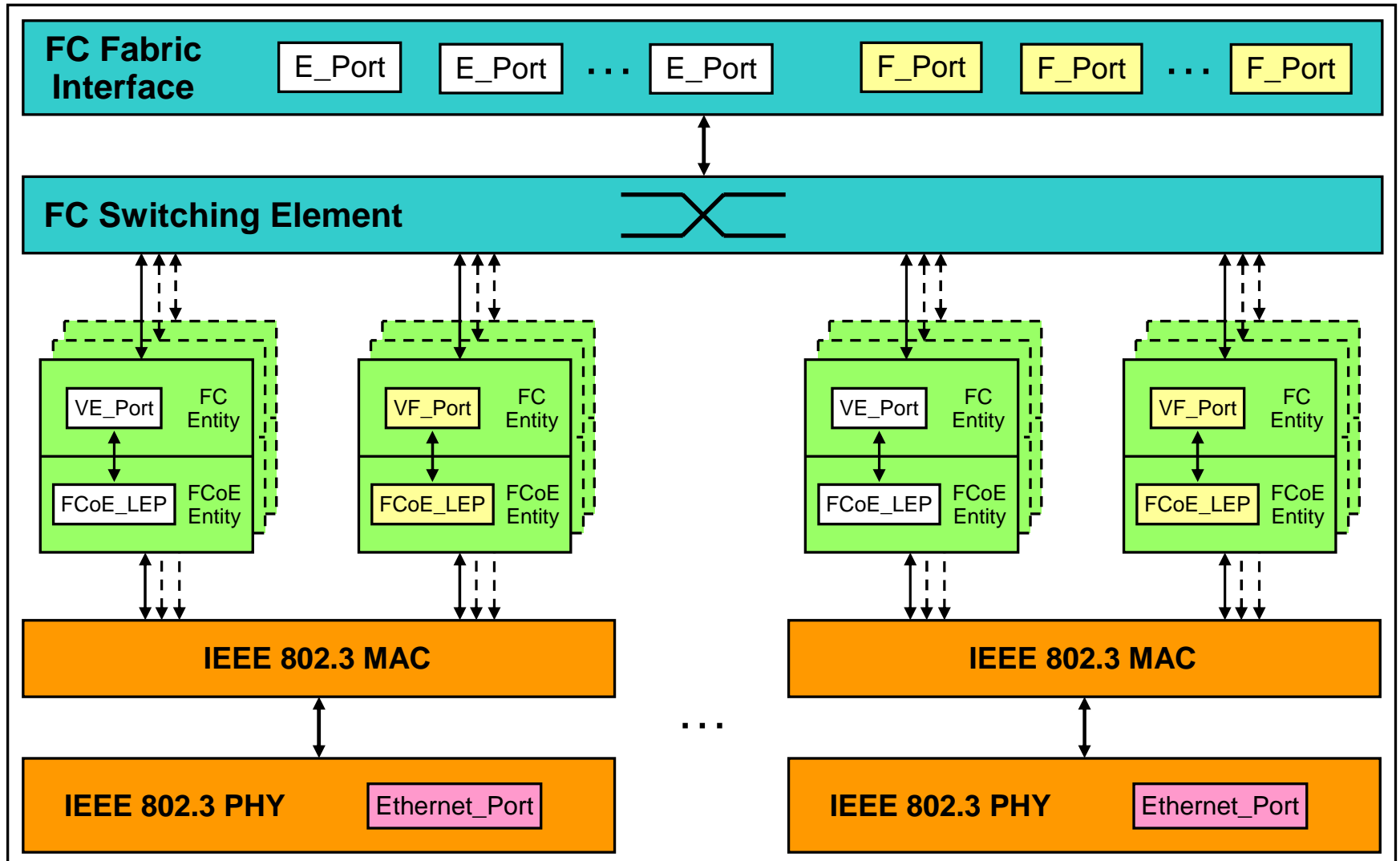
# PropC Type D FCF Functional Model



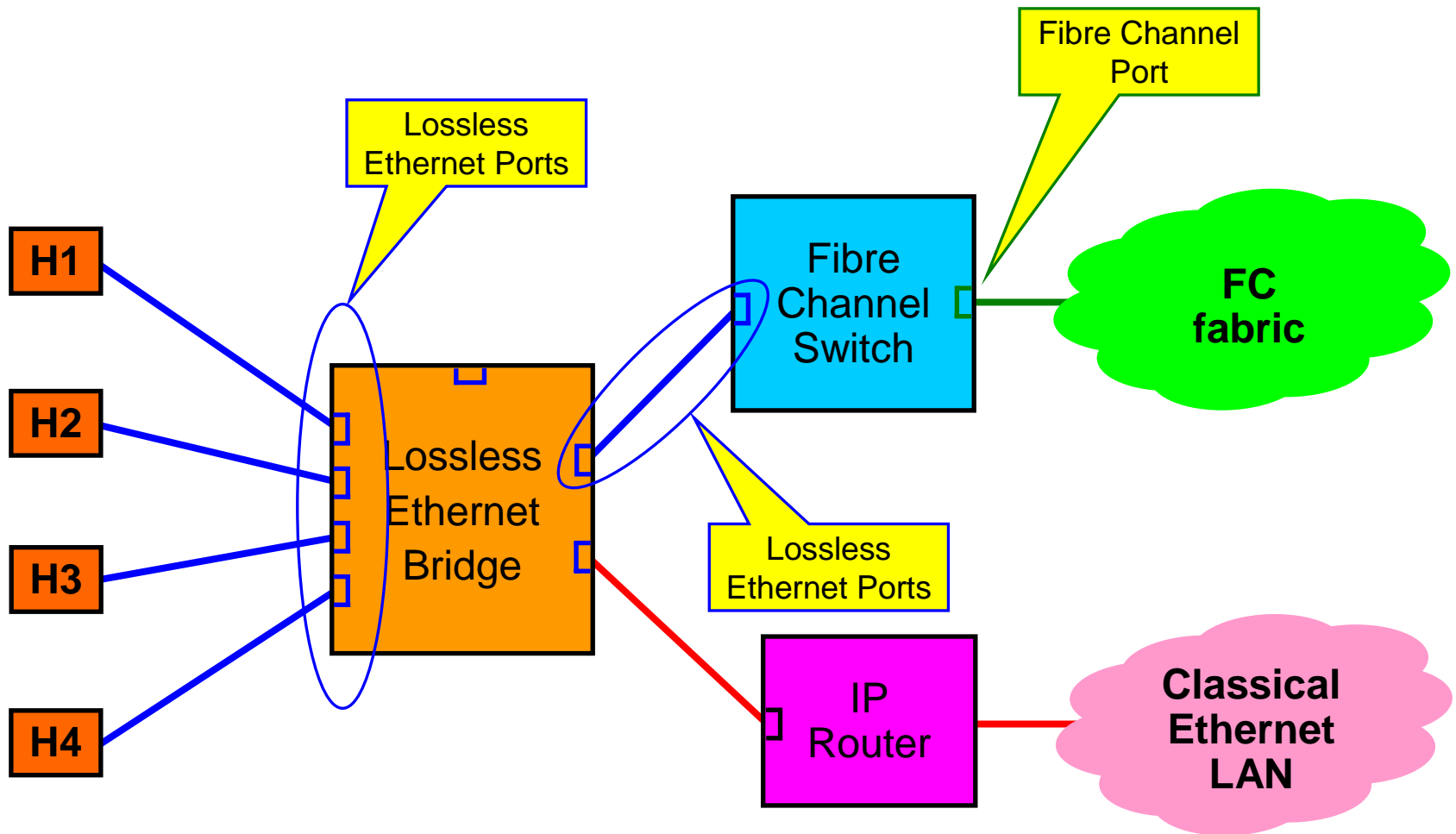
# PropB FCoE Switch



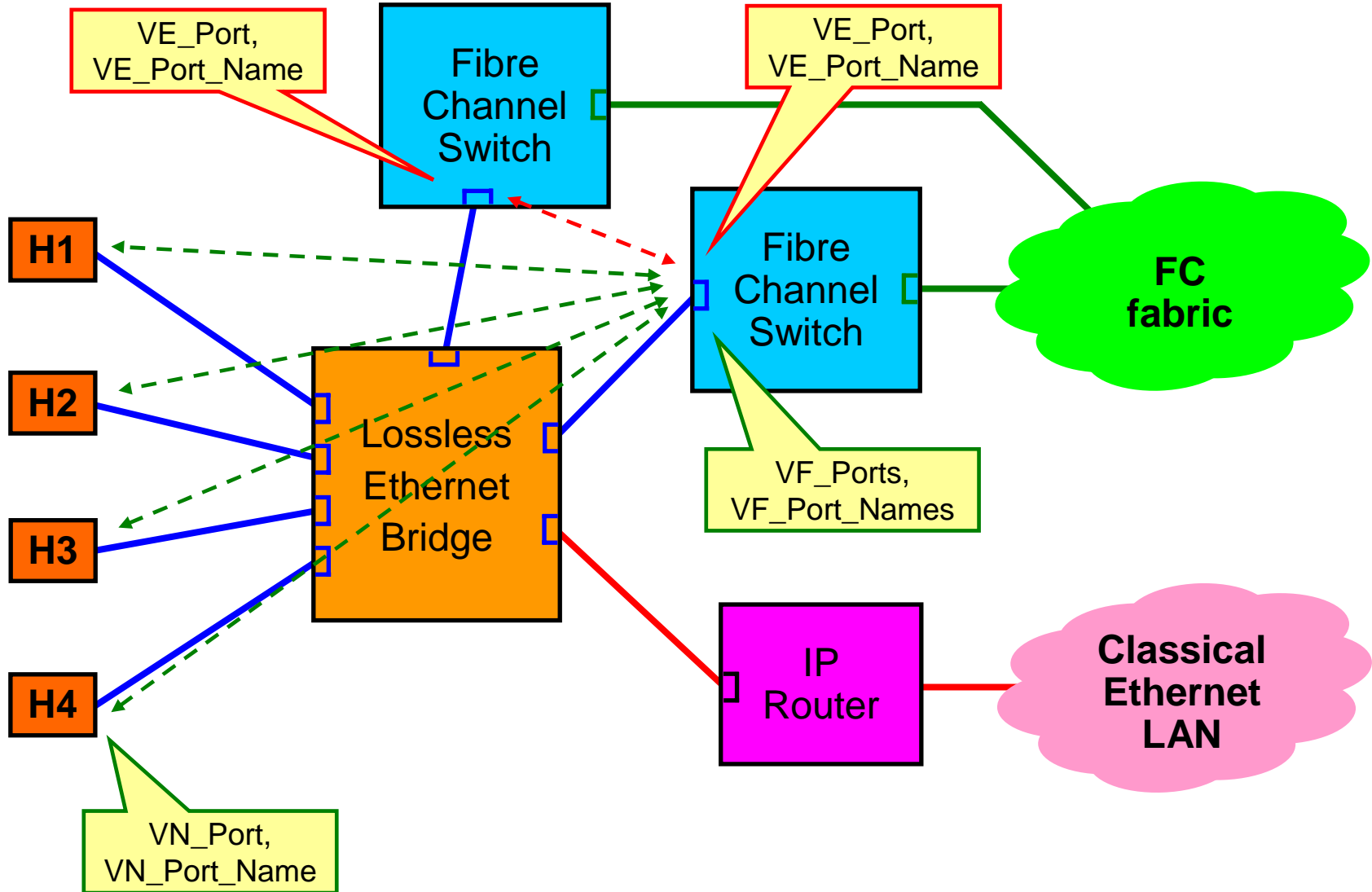
# PropB Functional Model



# PropB I/O Consolidation Model (1)



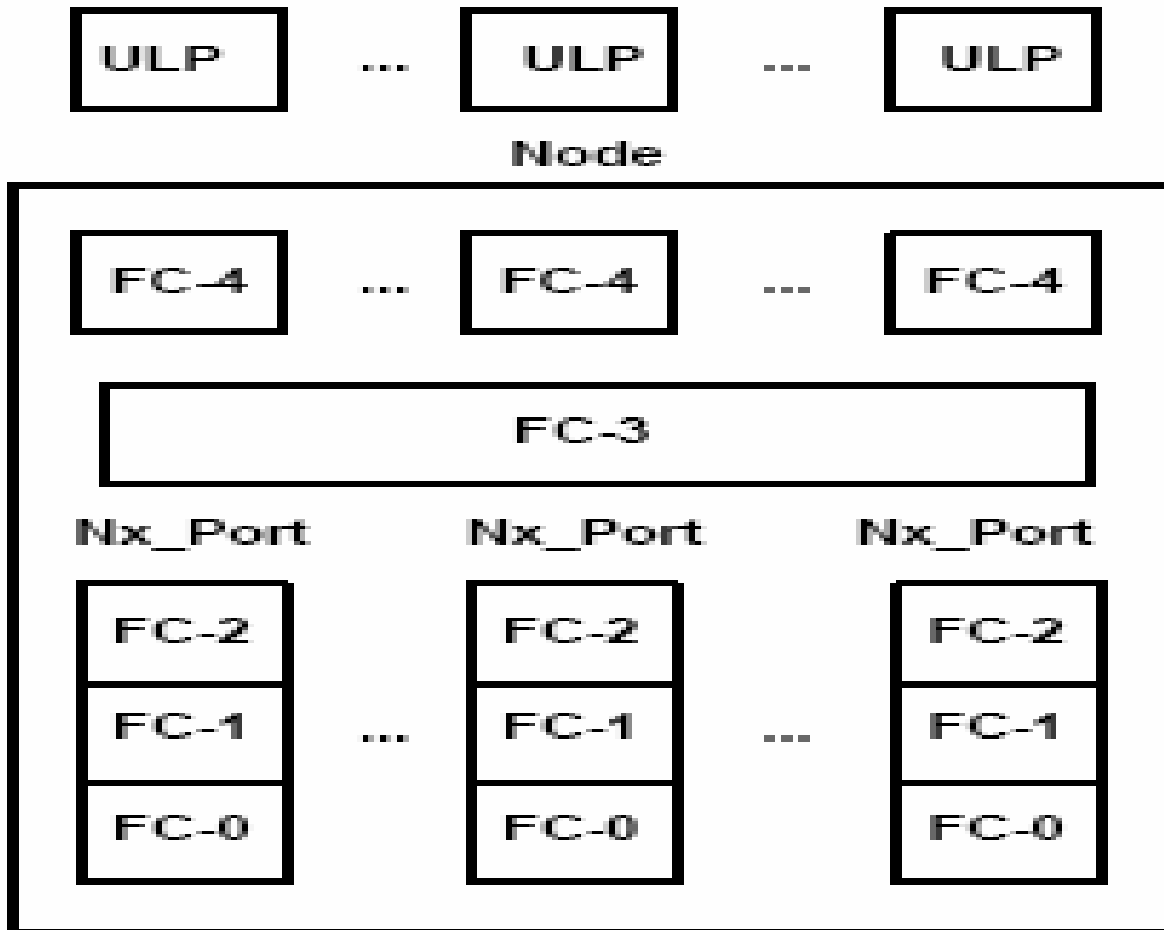
# PropB I/O Consolidation Model (2)



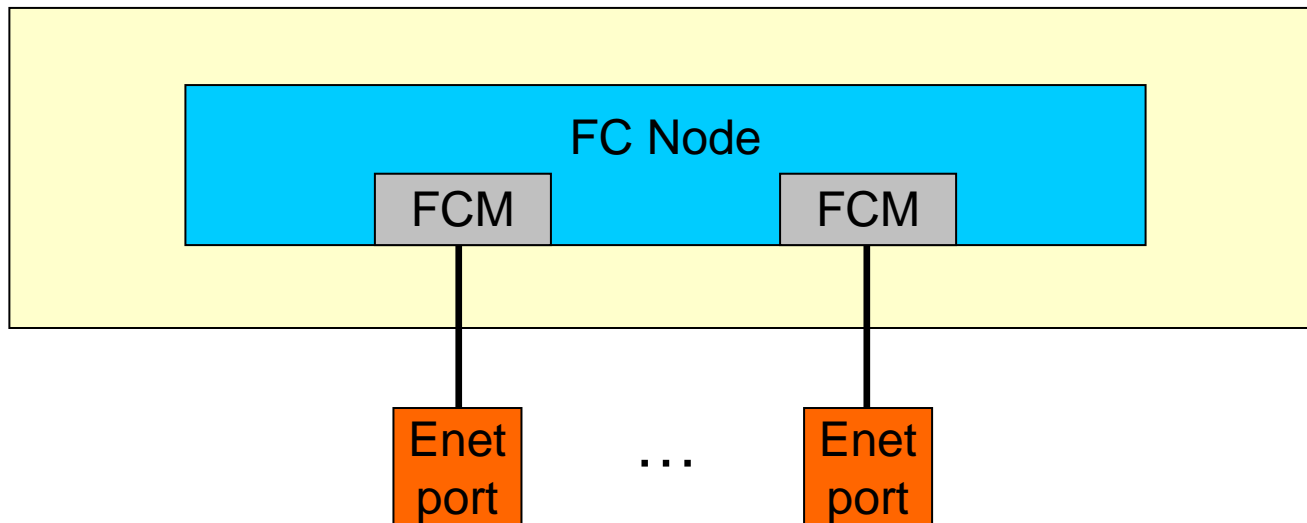
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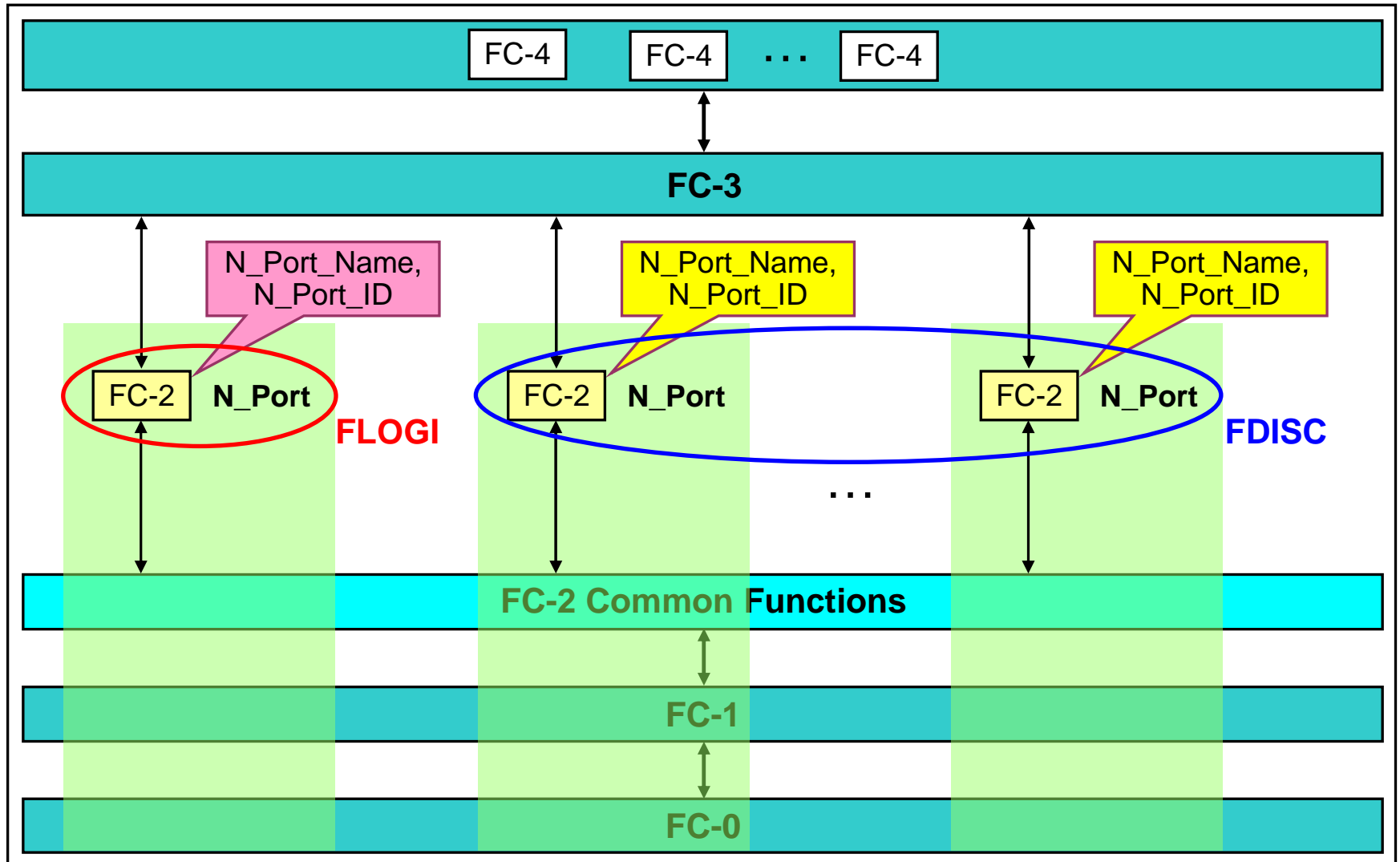
# FC Node Functional Model (FC-FS-x)



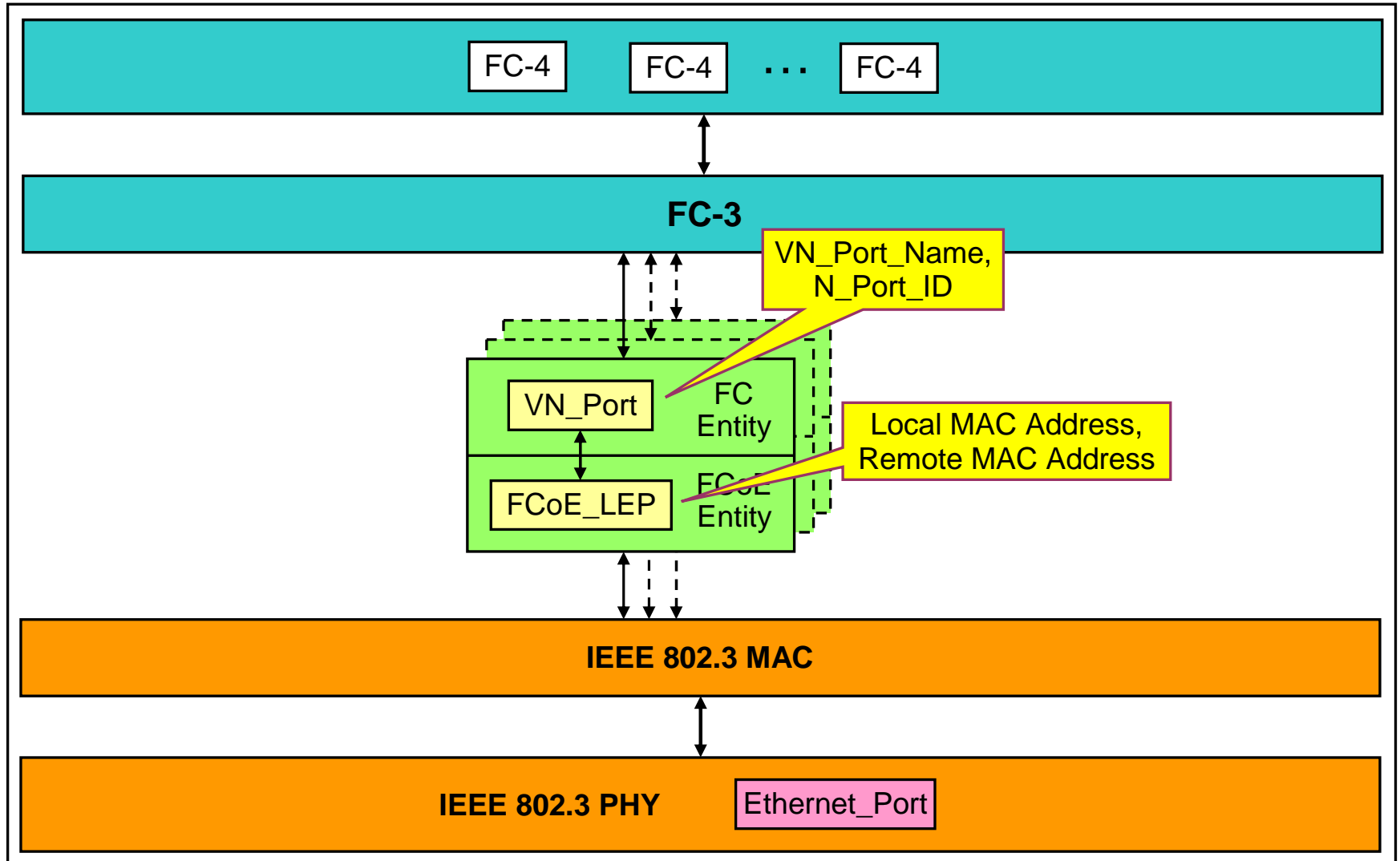
# ENode Model



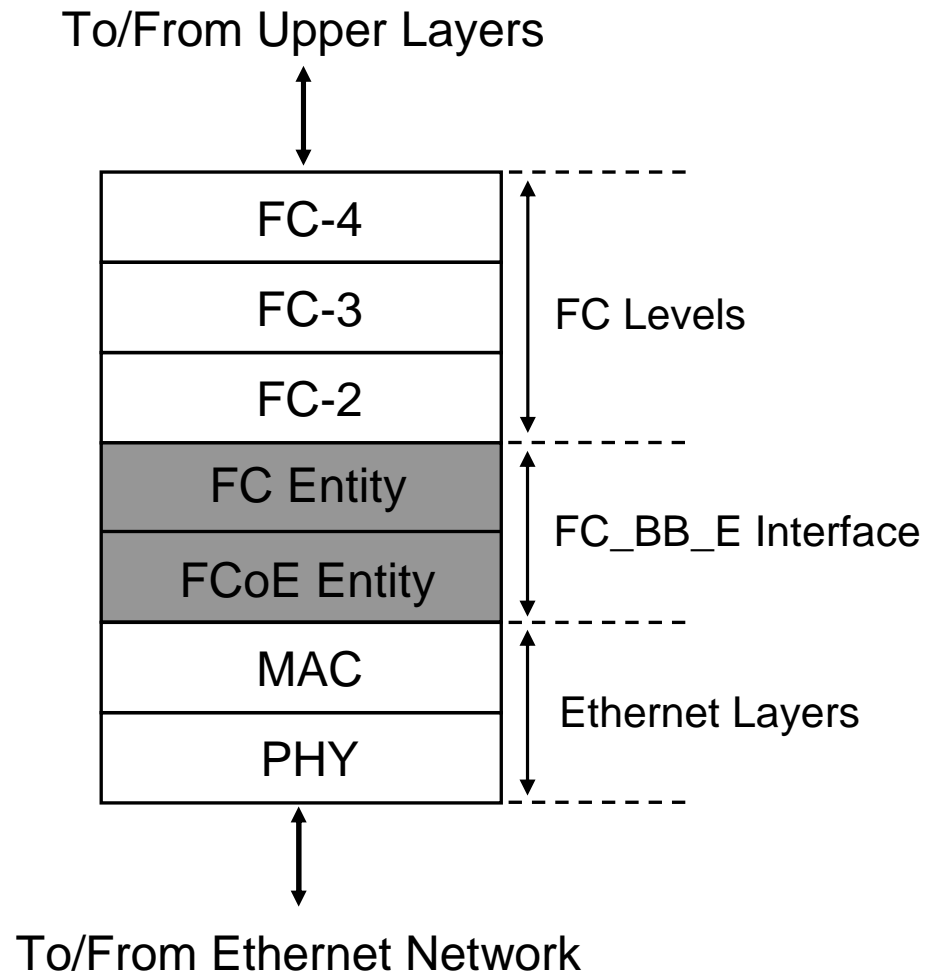
# Functional Model of an N\_Port with NPIV



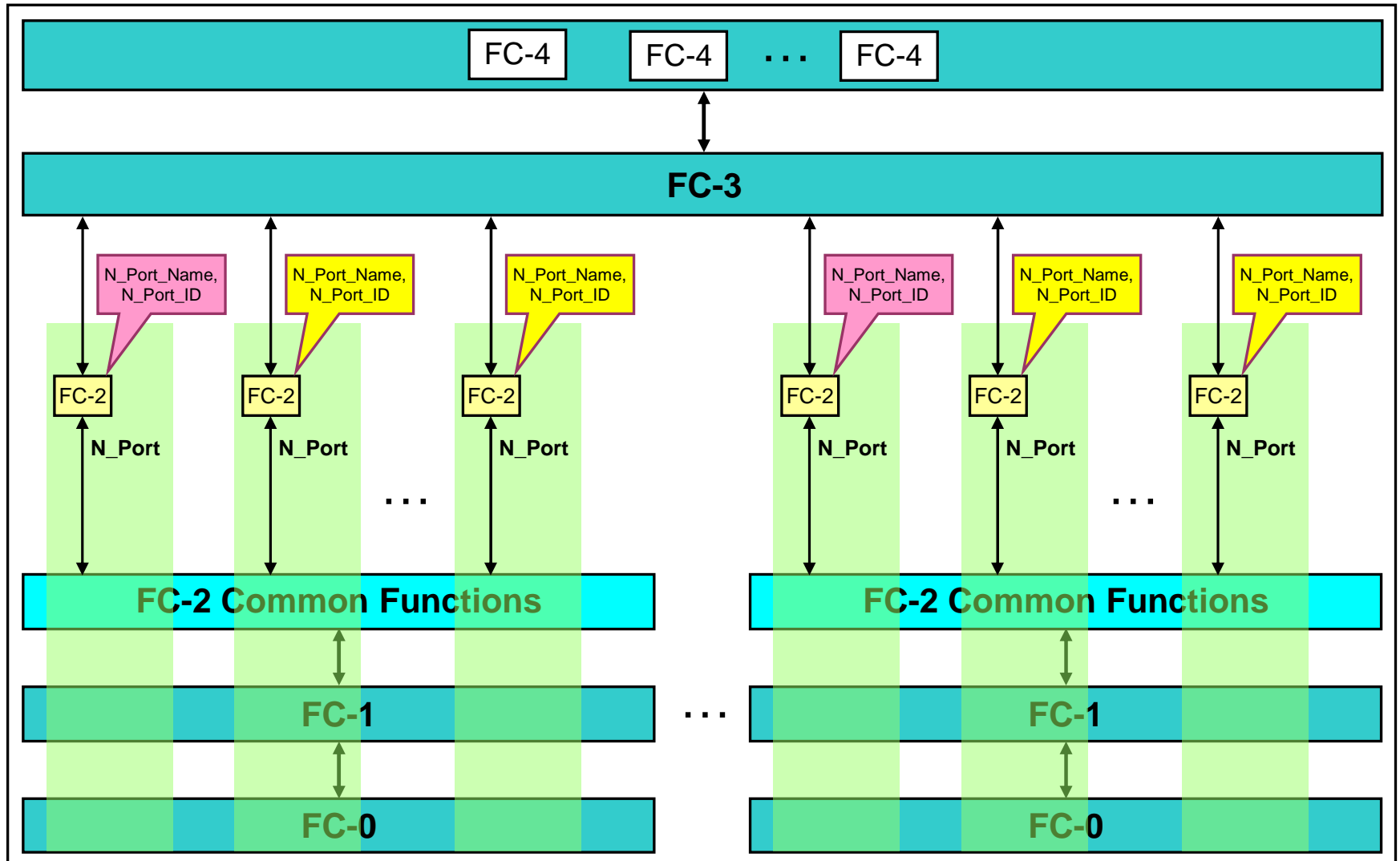
# FCoE VN\_Port Functional Model



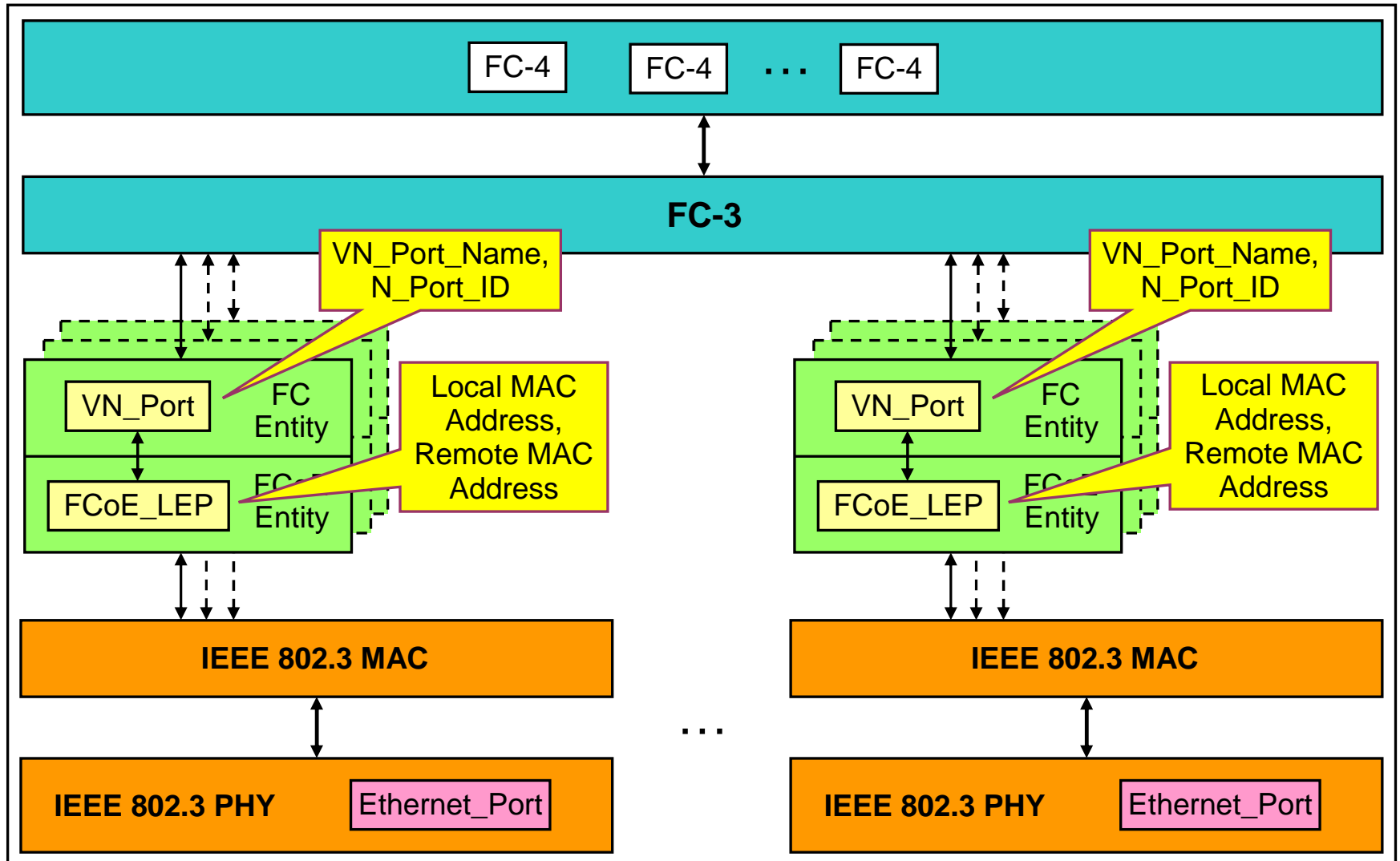
# FC\_BB\_E Protocol Layers (2)



# Functional Model of an FC Node with NPIV



# FCoE ENode Functional Model



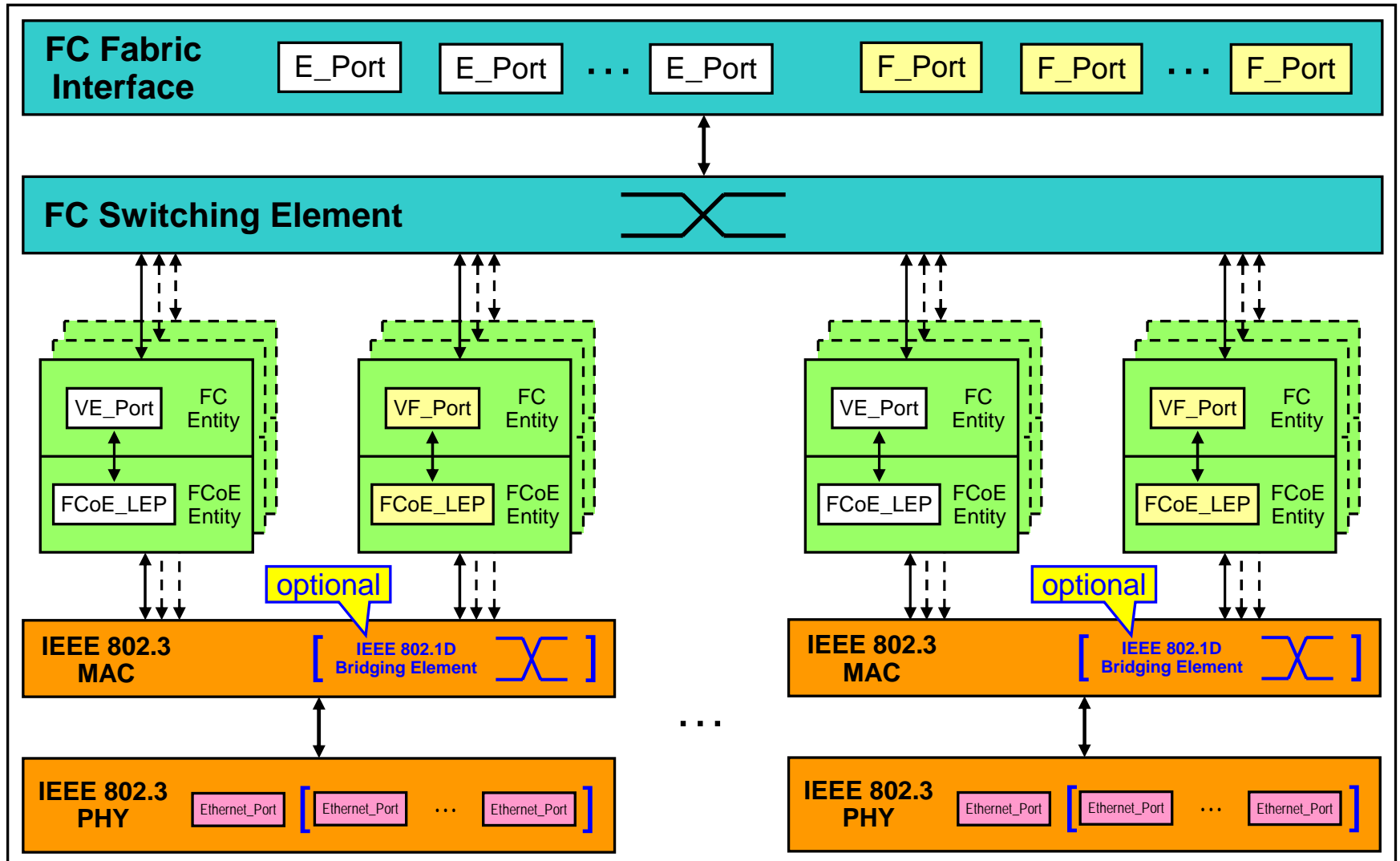
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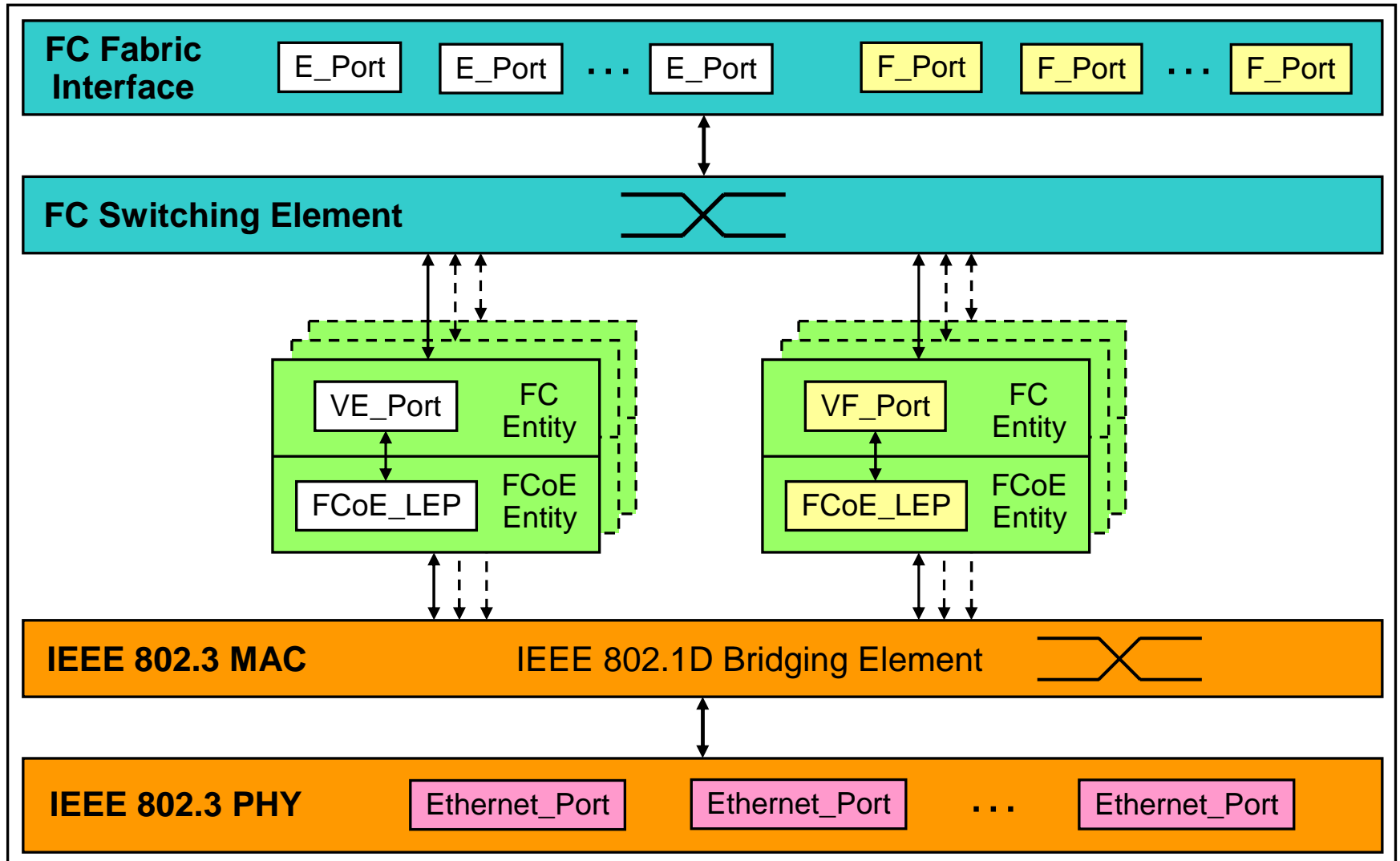
# Functional Models for FC\_BB\_E

- **The following slides are proposals for the FCoE functional models in FC-BB-5**
- **A VE\_Port/VF\_Port functional model**
  - A generic model
  - Two examples of significant instantiations of the generic model
- **A VN\_Port/ENode functional model**

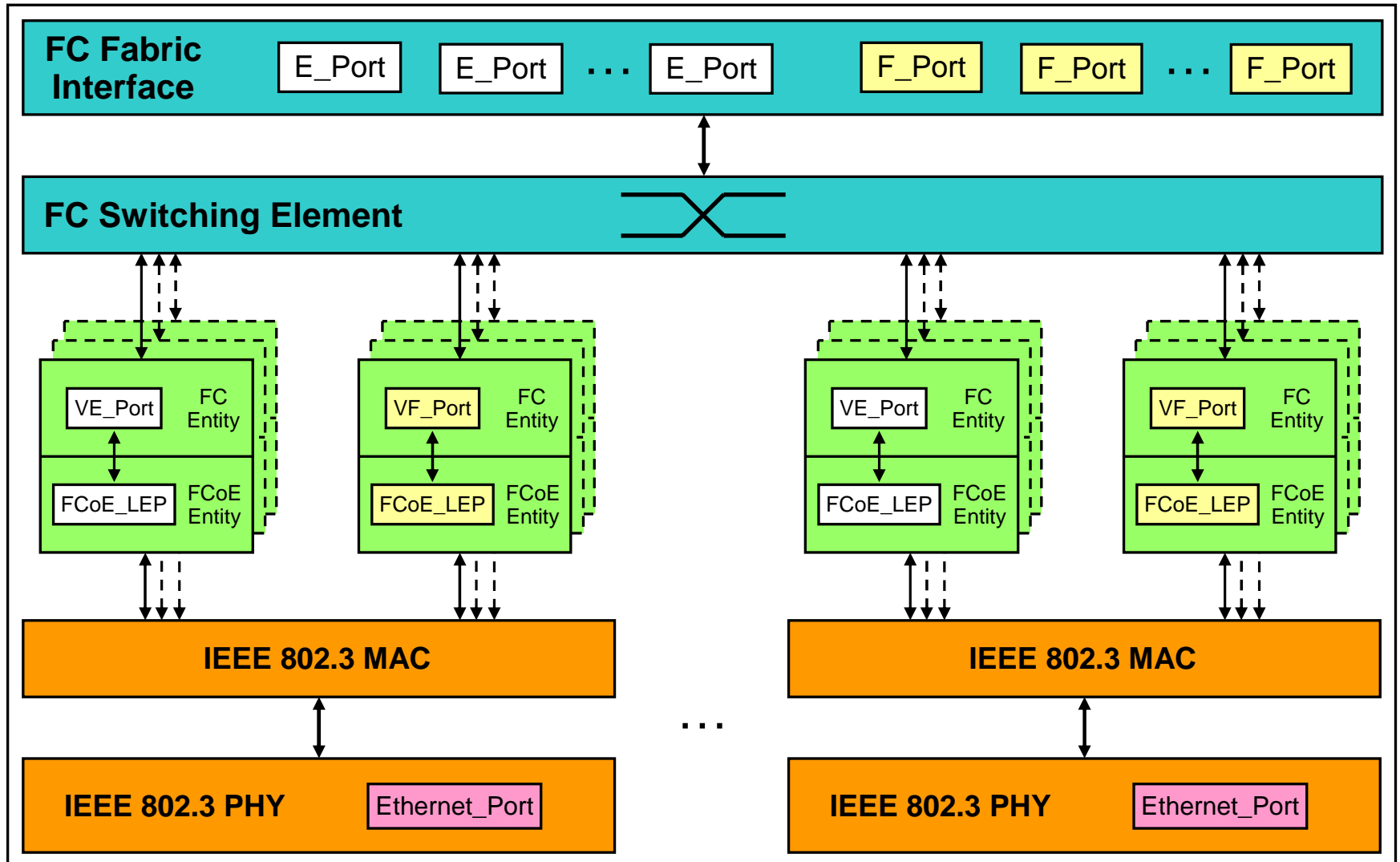
# FCoE VE\_Port/VF\_Port Functional Model



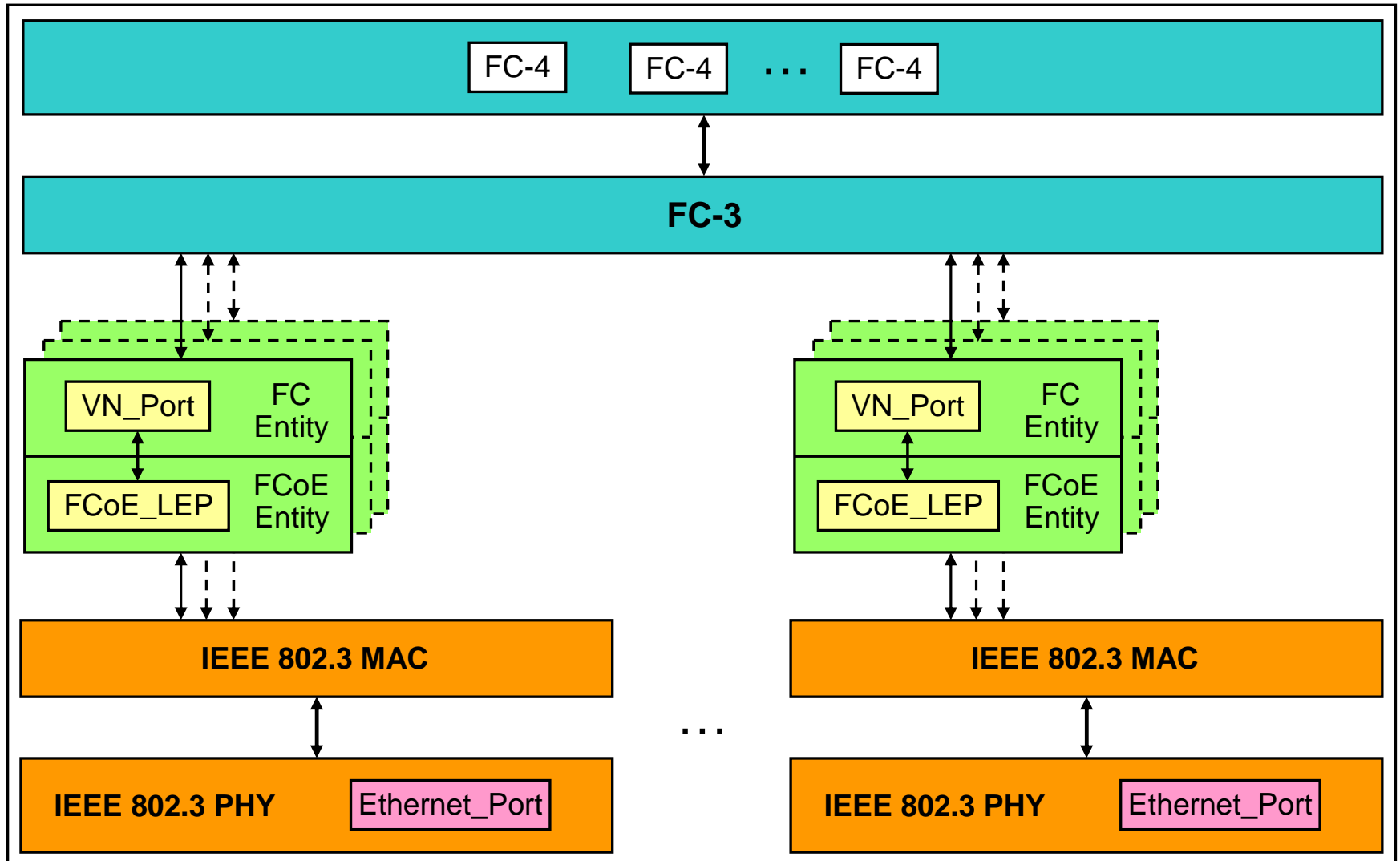
# FCoE VE\_Port/VF\_Port Functional Model (1)



# FCoE VE\_Port/VF\_Port Functional Model (2)



# FCoE VN\_Port/ENode Functional Model



# FC\_BB\_E Protocol Layers

