



FCoE VLAN Discovery

T11/08-545v1, October 2008

Claudio DeSanti

Joe Pelissier

Silvano Gai

Problem Statement

- **A common FCoE deployment model is to use independent VLANs**
 - Put FCoE in one or more dedicated VLANs
 - Keep the other traffic on one or more other VLANs
- **FCoE and FIP are defined on a per VLAN basis**
 - Supporting this deployment model**
 - VLANs not supposed to carry FCoE and FIP traffic should block this traffic through ACLs at all bridges
- **If FCoE is used on certain VLANs, these have to be properly configured on both ENodes and FCFs**
- **Is it possible to automate the FCoE VLANs configuration?**
 - i.e., define new FIP messages to allow ENodes to discover over which VLANs the FCFs are offering FCoE services**

FIP Operation Codes and SubCodes

Operation Code	SubCode	Operation
0001h	01h	FIP Discovery, Solicitation
	02h	FIP Discovery, Advertisement
0002h	01h	FIP Login, Request
	02h	FIP Login, Reply
0003h	01h	FIP Keep Alive
	02h	FIP Clear Virtual Link
0004h	01h	FIP VLAN Discovery, Request
	02h	FIP VLAN Discovery, Notification
All others	All others	Reserved

FIP VLAN Discovery Protocol

- **An ENode may send a FIP VLAN Request message to the MAC address All-FCF-MACs over a VLAN available to the ENode**
 - FCFs reachable through that VLAN receive the FIP VLAN Request message
- **Each FCF that receives the FIP VLAN Request message replies with a unicast FIP VLAN Notification message over that VLAN**
 - The FIP VLAN Notification message carries the list of VLANs over which the FCF offers FCoE services (to that ENode)
- **The ENode may enable a subset of these VLANs for FCoE**
 - Running the FIP protocol in these VLANs on a per-VLAN basis
 - Same processing of a “configured” ENode
 - Some VLANs that offer FCoE services on an FCF may not be reachable from the ENode
 - A FIP Solicitation with no Advertisement in reply detects these unreachable VLANs

FIP VLAN Discovery

- **Protocol requirement:**

FCFs need to listen to the All-FCF-MACs multicast MAC address over the VLANs where FCoE can be deployed

Best practice: use the default VLAN

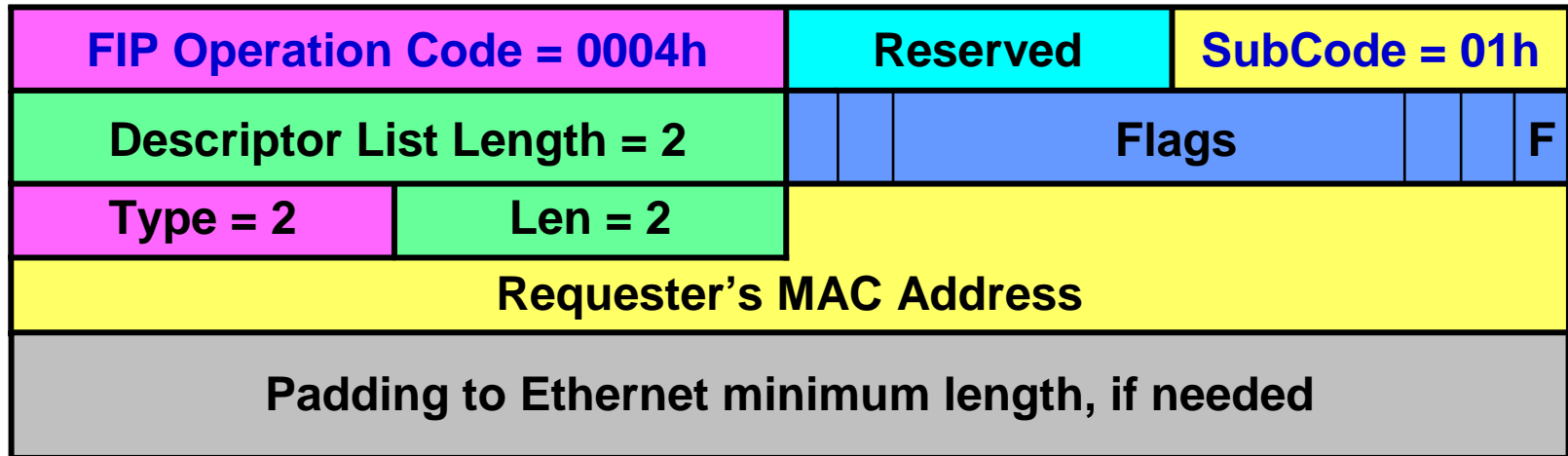
- **Optional to use**

If an administrator has manually configured FCoE VLANs on ENodes and FCFs, there is no need to use this protocol

FIP and FCoE will run over the configured VLANs

An ENode without FCoE VLANs configuration may use this protocol to discover over which VLANs FCoE is running

FIP VLAN Request



FIP VLAN Reply

FIP Operation Code = 0004h		Reserved	SubCode = 02h
Descriptor List Length = 2		Flags	
Type = 2	Len = 2	F	
FCF-MAC Address			
Type = 14	Len = 1	Reserved	FCoE VLAN #1
Type = 14	Len = 1	Reserved	FCoE VLAN #2
Type = 14	Len = 1	Reserved	FCoE VLAN #n
Padding to Ethernet minimum length, if needed			

Thank You