



An Enode desirable feature: Preserve FCoE Ethernet ACLs and Zoning Configuration when moved

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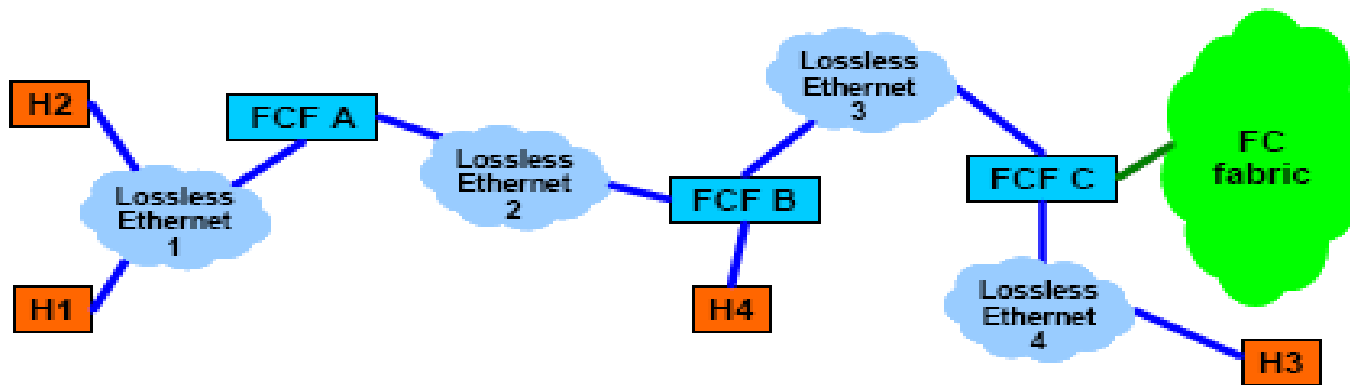
Background

In a FC hardware-enforced zoning when a device is connected to another physical port, the zoning configuration could become unusable. Often, an administrator's intervention to "open zoning" is required.

It is very desirable to address "Preserve FCoE's Ethernet ACL and zoning" that we avoid above FC hardware zoning issue; i.e. to avoid non-automated "open zoning" when a device is moved. This will enable a very useful feature of live VM migration when a VM has to be moved to another physical server and hence another physical port.

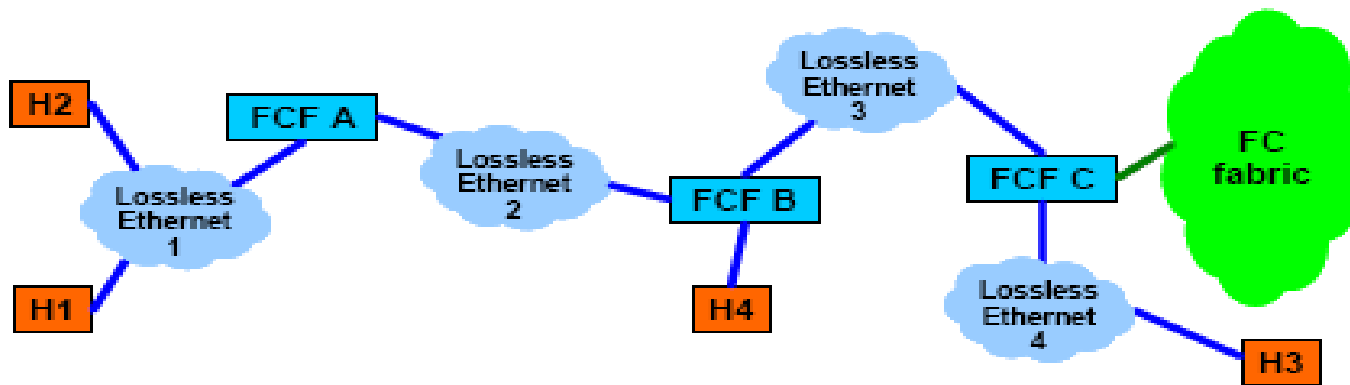
FCoE Ethernet ACLs Simple Example

- Dedicated FCoE MAC address per VN_Port (or per FLOGI/FDISC)
 - This is not the burn-in MAC address
- A simple ACL in Lossless Ethernet 1 only allows H2 or H1 to talk directly to FCF A, basing on their MAC address and EtherType
- ACL should be a L2 only feature; i.e. MAC address based



FCoE Zoning Enforcement Model

- Enode [FCoE MAC address : FC_ID] has 1:1 relation per FCF
- MAC addresses (SA and DA) in a FCoE frame do not always correspond to FC_ID (S_ID and D_ID)
 - Entity of MAC addresses in FCoE frame are hop-by-hop not end-to-end
- In FCF, zoning enforcement must use encapsulated FC_ID in the frame
- Typically, the zoning configurations are FC_ID based



24-bit Port Address Identifiers (FC_ID)

- Each FCF has a 8-bit Domain ID. This leaves 16-bit Area+Port (or 64K) available port address space per FCF
- FC doesn't guarantee the consistent FC_ID assignment for a given WWPN when attached to the same switch (moved to another port)
- FC_ID based zoning configuration can't be preserved when a device moved to another port

24-bit Port Addressing scheme



An Evolutionary Solution for Persistent FC_ID Assignment

- An FCF should have a large port address space
- The FCF guarantees a persistent FC_ID assignment by maintaining a history of WWPN – FC_ID mapping
 - MAC address is also persistent for “mapped MAC address” scheme
- If a device moves within the same FCF, the Ethernet ACL and FC zoning may be preserved
- Innovation is to allow maximum physical connectivity within a single FCF

Summary

- Preserve FCoE's ACLs and zoning configuration is a prerequisite of a desirable feature of live VM migration
 - FC today can not guarantee this
- The evolutionary solution to address the invariant FC_ID assignment within an FCF is feasible
- Call to action: Can we do better persistent solution beyond a single FCF?