



P802.1Qbh Control Protocol Overview

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April, 2010

bh-pelissier-control-overview-0410

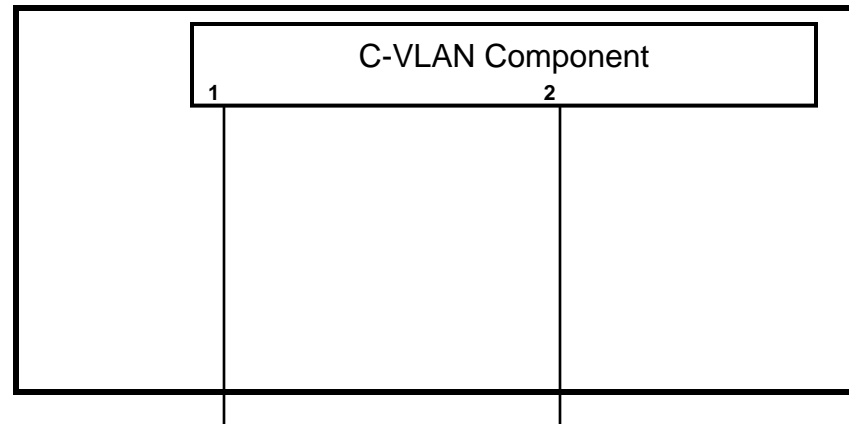
Introduction

- P802.1Qbh specifies three major items:
 - A Port Extender
 - An M-Component which is used to make a Port Extender
 - A EVB Controlling Bridge, a bridge that is capable of being extended using Port Extenders
- The combination of the EVB Controlling Bridge and the Port Extenders is referred to as an Extended VLAN Bridge (E-VLAN Bridge)
- Some assumptions:
 - The Port Extender Configuration and Status Protocol operates over ECP
 - The VSI discovery protocol operates through Port Extenders transparently
 - LLDP (and the multichannel discovery TLV) operates through Port Extenders transparently
 - Channel Discovery of Port Extenders is done via the PE CSP protocol to support large number of channels

E-VLAN Bridge Model of Operation

- In the beginning...

For example, a two port bridge



E-VLAN Bridge Model of Operation

- The Universe is created...

A Port Extender and an end device are attached

The PMSC is instantiated and the C-VLAN component ports 1 & 2 come up

LLDP starts executing on CVC ports 1&2

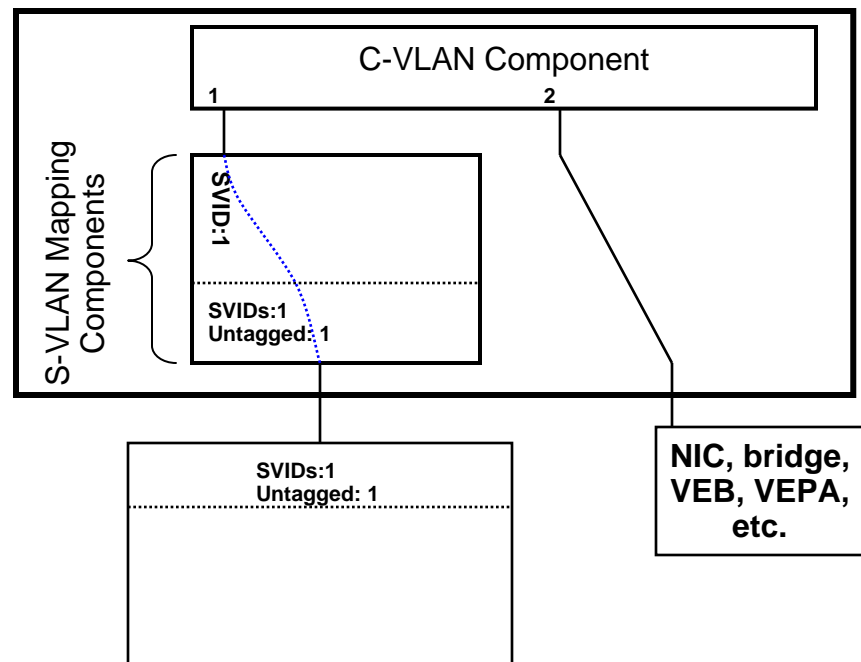
Port Extender discovered on port 1

Something else discovered on port 2

EVB Control and Status Protocol (EVB CSP) starts executing on CVC Port 1

Configures member set and untagged set on PE.

Configures PE Uplink port parameters (PFC, ETS, etc.)



E-VLAN Bridge Model of Operation

- The Universe Expands...

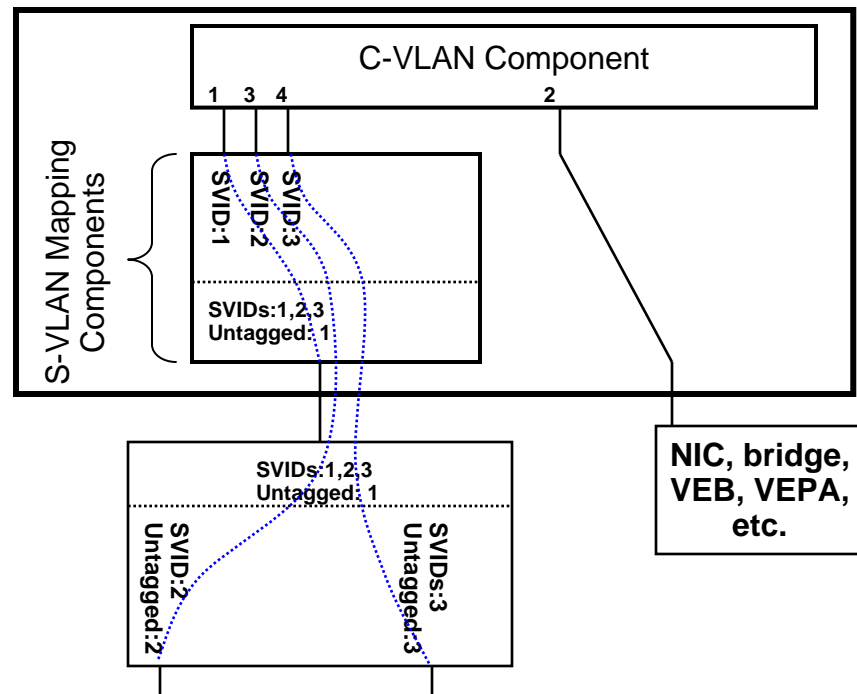
The EVB Controlling Bridge discovers via the PE CSP that the PE has two ports active

C-VLAN component ports 3 & 4 instantiated

PMSC SVID member sets and untagged sets set-up

Downlink port parameters Configured (PFC, ETS, etc.)

The C-VLAN Component starts executing LLDP on ports 3 & 4.



E-VLAN Bridge Model of Operation

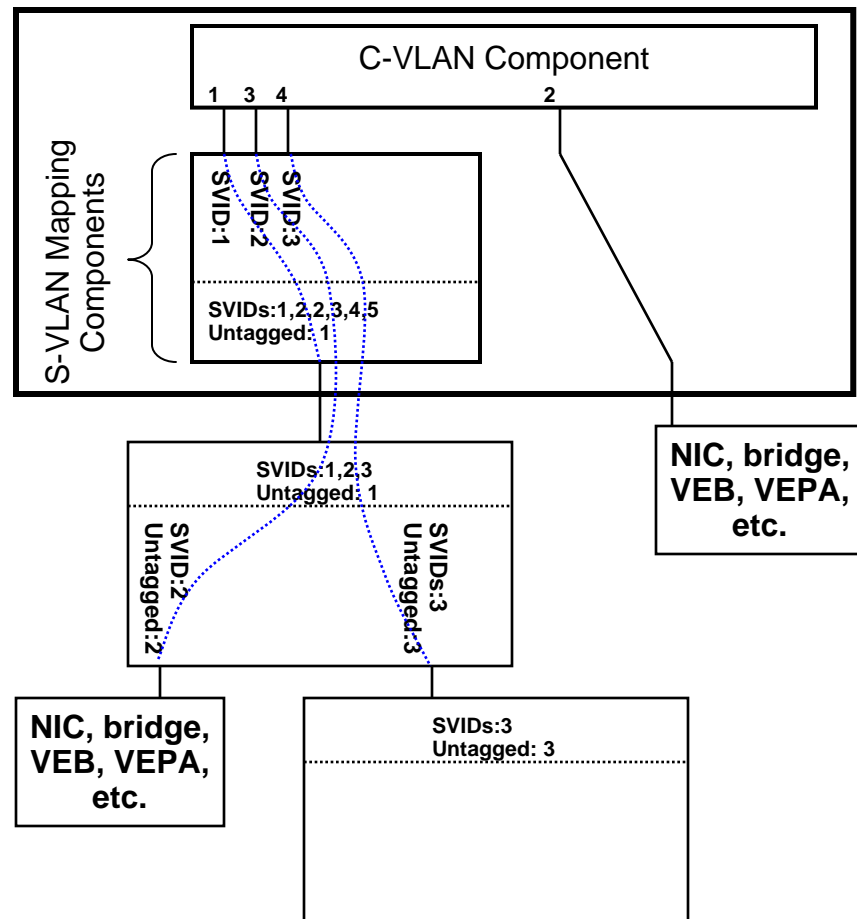
- The Universe Expands Some More...

LLDP on CVC port 3 discovers something other than a PE.

LLDP on CVC port 4 discovers the second PE.

EVB CSP Protocol starts executing on CVC port 4

Configures second PE Uplink member sets, untagged sets, and port parameters.



E-VLAN Bridge Model of Operation

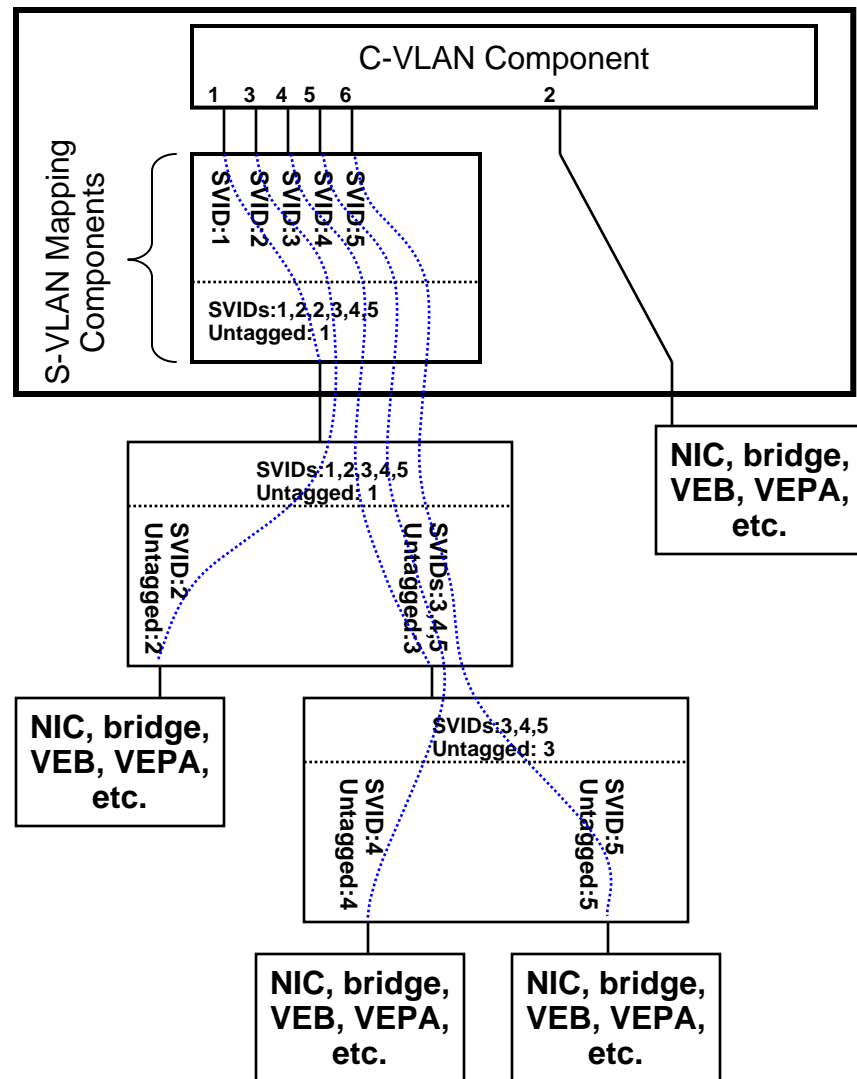
- The Universe Expands Even More...

EVB CSP on C-VLAN component port 3 discovers two ports on the second PE.

CVC ports 5 & 6 instantiated

EVB CSP sets up member sets and untagged sets in PE Ports

LLDP on CVC port 5 & 6 discovers something other than a PE.



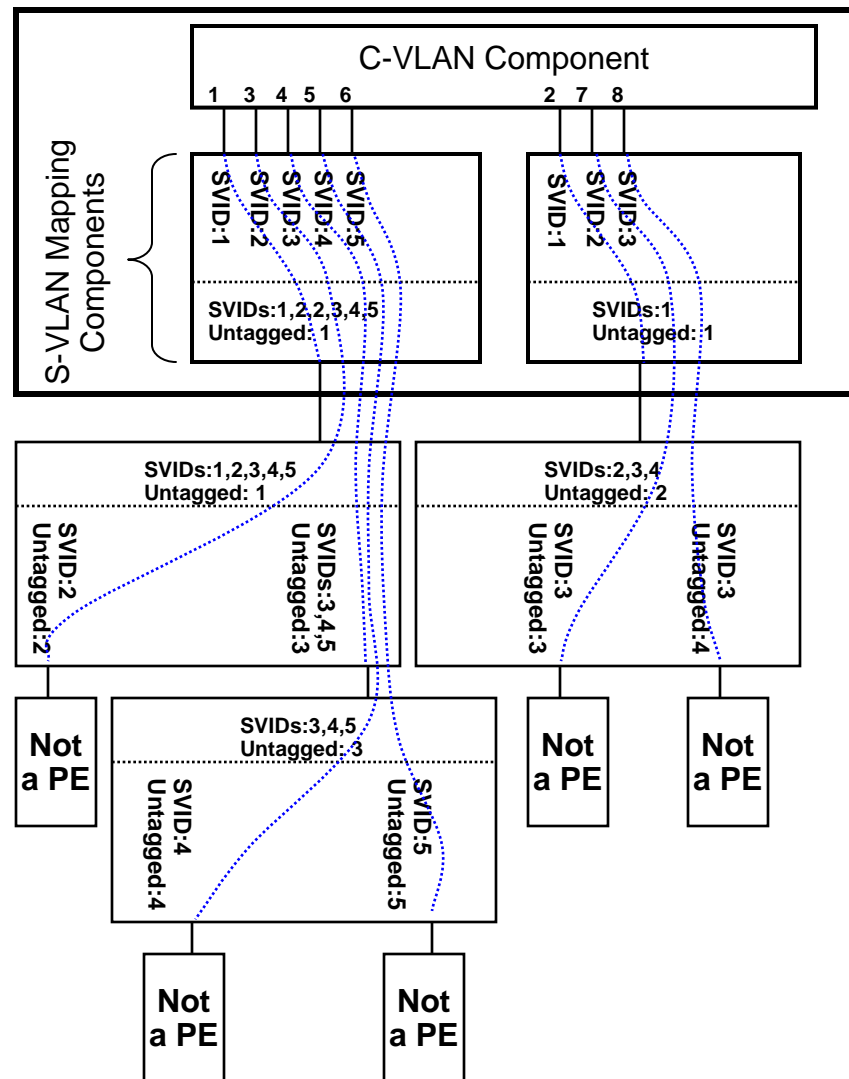
E-VLAN Bridge Model of Operation

- The Universe Expands Just a Little Bit More...

(I need another PE to make my multicast examples interesting ;-)

EVB CSP and LLDP operate as previously described

Details left as an exercise to the reader



E-VLAN Bridge Model of Operation

- A Multicast Example...
 - Multicast frame originated (no S-TAG)
 - PE adds S-TAG with SVID 5
 - SVID Still 5
 - S-TAG removed, frame received on CVC port 6
 - Without remote replication, frame would be forwarded on CVC ports 3 & 5. With remote replication, frame forward to Primary PE port with M-TAG; filter set true, source SVID set to 5.
 - Frame could be sent to CVC port 8, but we'll keep this a multicast example. So, frame is M-Tagged with filter set false and SVID set to 0.
 - Frame forwarded with M-TAG and no S-TAG
 - PE does replication. M-TAG removed since this is the last PE.
 - Frame has M-TAG and no S-TAG.
 - M-TAG removed since this is the last PE
 - PE filters frame since this is the last PE, filter set TRUE, and SVID matches source SVID in M-TAG.
 - Frame forwarded with M-TAG and no S-TAG
 - M-TAG removed since last PE

