

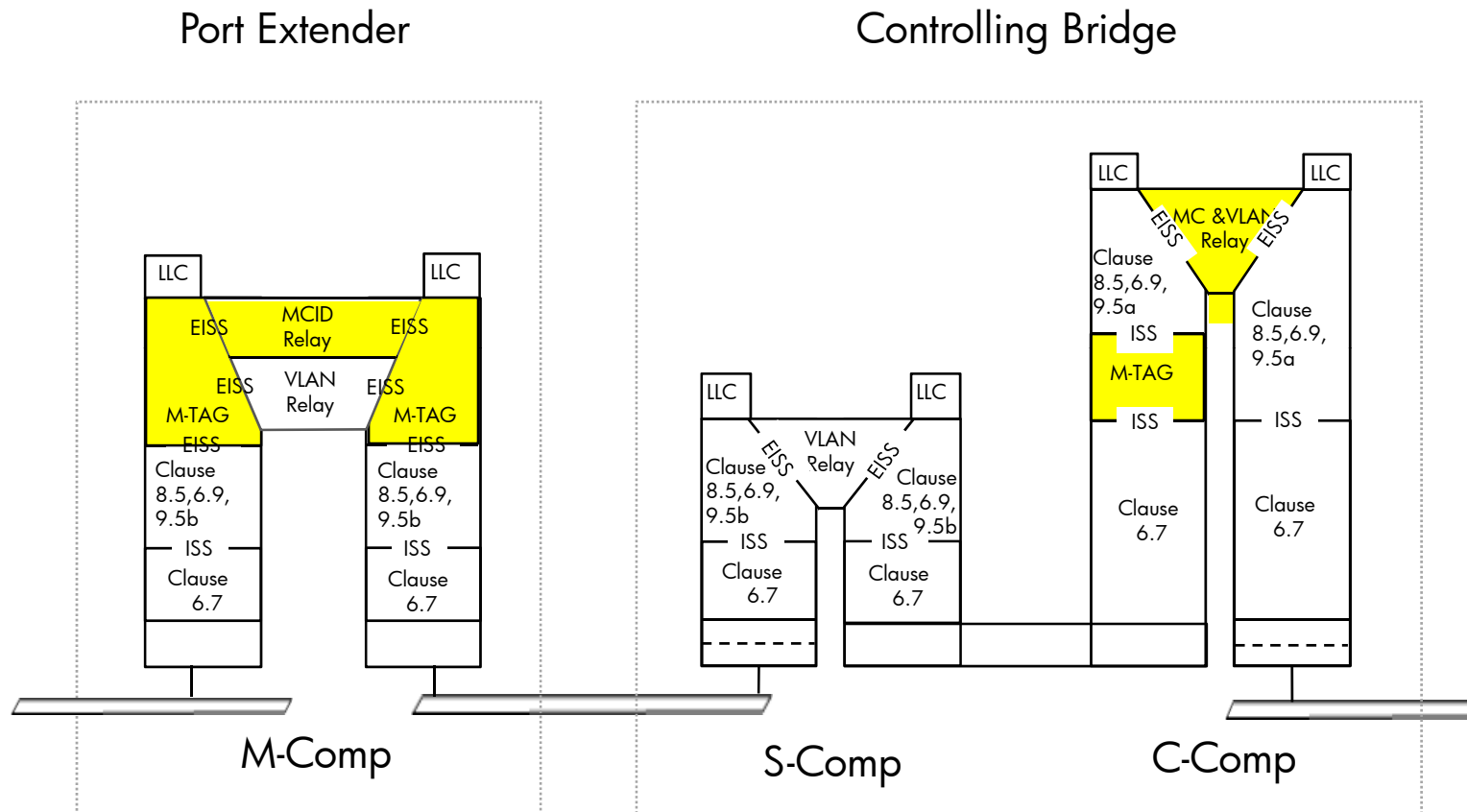
Port Extender Architecture

V1

Sept 12, 2010

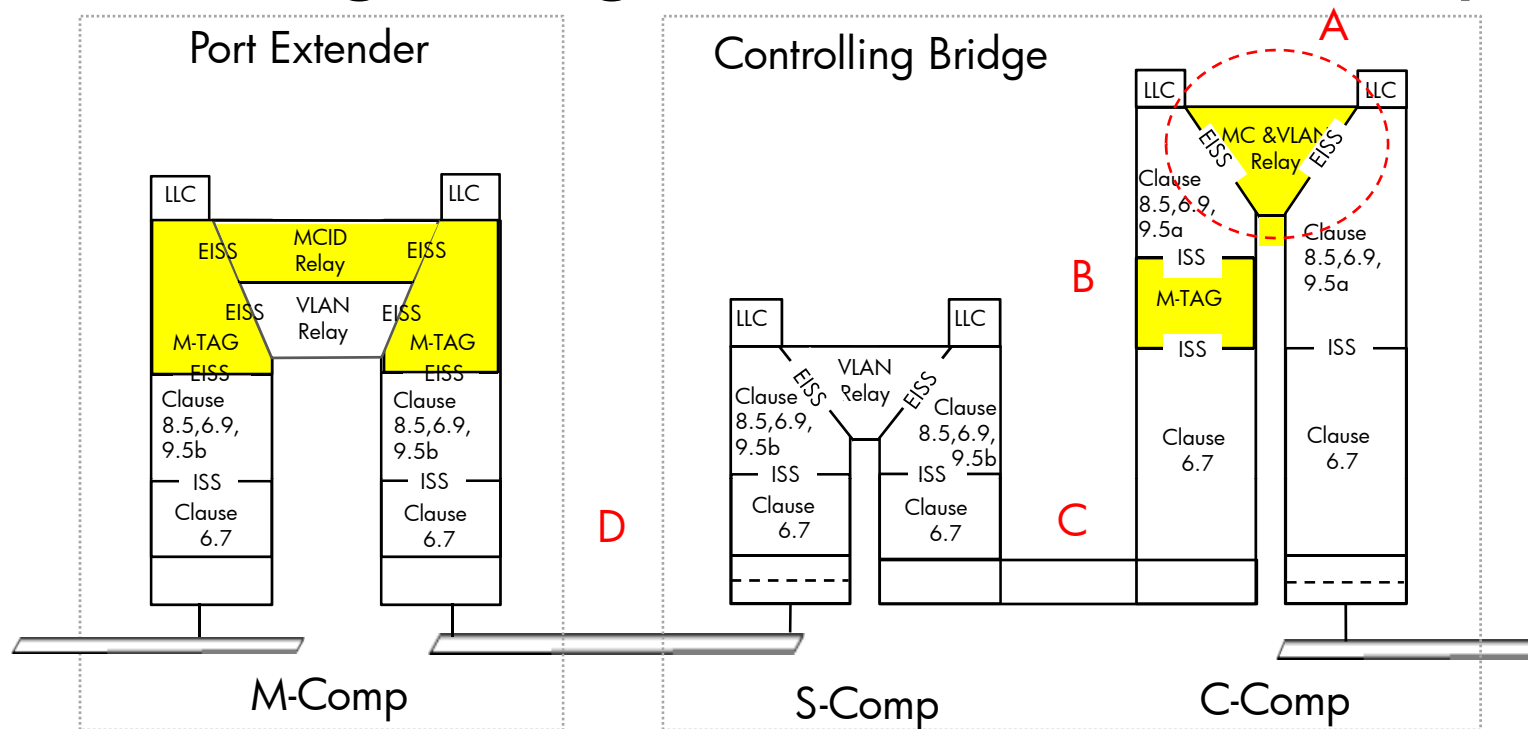
Paul Bottorff (HP)

Port Extender “Baggy Pants” Model



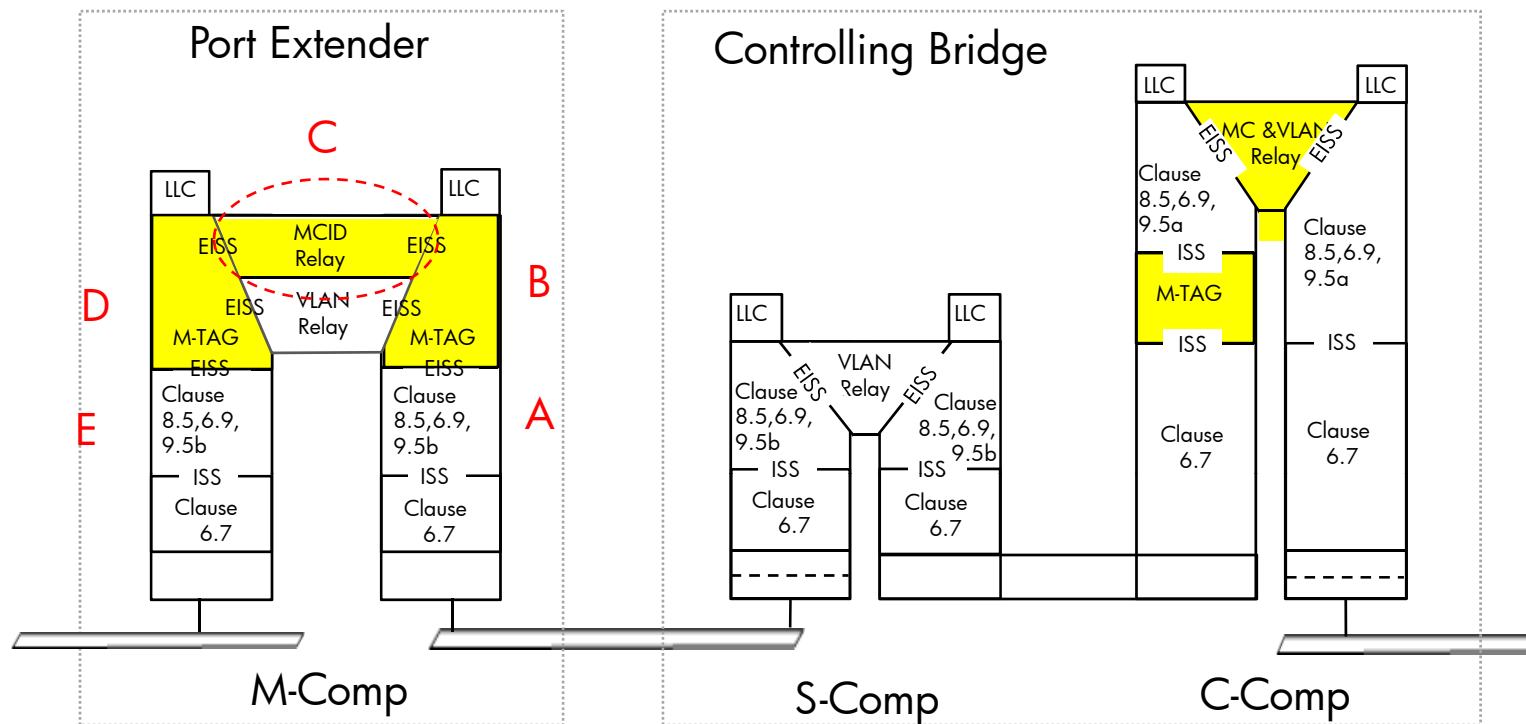
- Controlling Bridge: Add MCID resolution and MC steering to MAC Relay
- Controlling Bridge: Add CB M-TAG layer
- Port Extender: Add PE M-TAG layer

Controlling Bridge MC & VLAN Relay



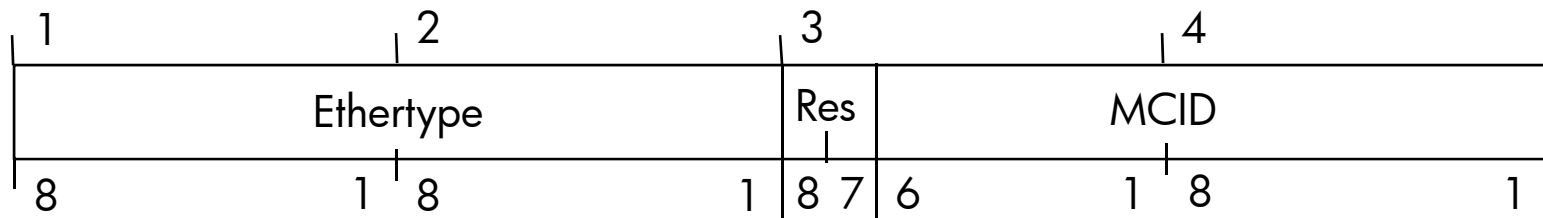
- A: Unicast frame passes through just like a standard VLAN Relay
- A: For each multicast frame resolves "all true" egress ports and an MCID for each egress port
 - "True" egress port is the ingress port for the entry PE group (reflective relay)
 - "True" egress port is the control port for any other PE group
 - "True " egress port is the port list for all ports not attached to a PE group (except ingress port)
- B: MCID is passed in the connection_identifier parameter of the EISS and ISS to CB M-TAG shim
- C: can have both C-Tagged and M-Tagged, M-TAG is outside if present
- D: S-Comp of controlling bridge adds S-TAG based on the ingress port 1-1 with C-comp
- D: always S-Tagged outside, optionally M-TAG, optionally C-TAG

Port Extender M-TAG Shim and MCID Relay



- A: Unmodified EISS for S-VLAN
- B: M-TAG layer divides processing of M-Tagged from S-Tagged frames
 - If no M-TAG present then M-TAG layer hands to S-VLAN relay
 - If M-TAG is present then M-TAG layer hands to MCID relay with MCID in EISS connection_idenfifer parameter and S-VID in EISS vlan_idenfifier parameter
- C: MCID relay replicates to egress Port Extender ports based on MCID and hands MCID and vid in connection idenfifier and vid EISS parameters
- D: M-TAG layer deletes the frame if this is an extended port of the vlan_idenfifier parameter
- D: M-TAG layer generates M-TAG if needed (based on port configuration) and hands to EISS layer

New M-TAG Format



- M-TAG does not need any echo cancellation since we have the outside S-TAG

BACKUP SLIDES

EVB Data and Control Entities - Station

Sublayer Service

Interfaces

LLC-SS →

ISS →

ECP-SS →

ISS →

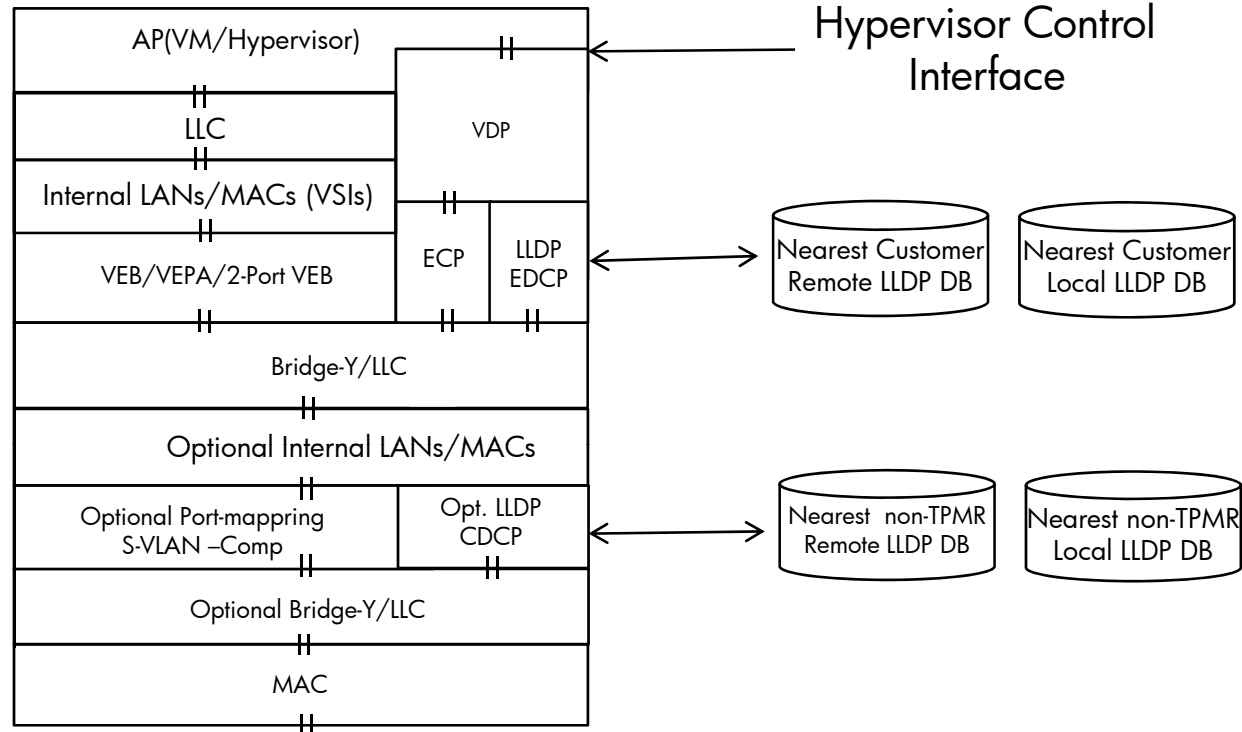
ISS/LLC-SS →

ISS →

ISS →

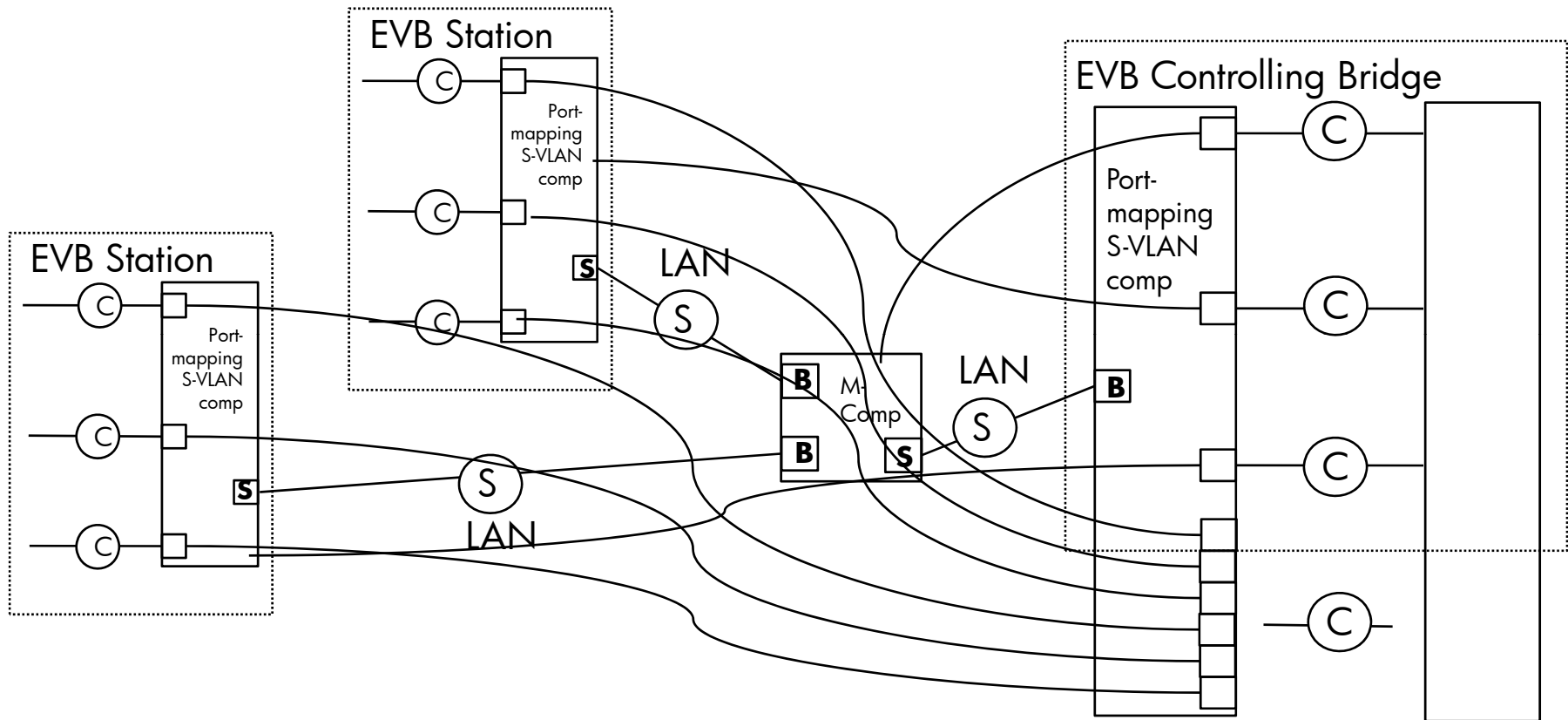
ISS/LLC-SS →

ISS →



- MAC: Media Access Control 802.2001 subclause 6.2.3 and 802.1Q Rev 2010 subclause 6.1
- ISS: Internal Sublayer Service 802.1Q Rev 2010 subclause 6.6
- LLC: Link Layer Control Protocol see 802.2001 subclause 6.2.2 and 802.2 (note: see 802.1AB 2009 subclause 6.7)
- LLC-SS: Link Layer Control Protocol Sublayer Service 802.1AB-Rev 2009 subclause 6.7
- LLDP: Link Layer Discovery Protocol 802.1AB Rev 2009
- CDCP: S-channel Discovery and Configuration Protocol is an LLDP based S-channel discovery protocol
- EDCP: Edge Virtual Bridge Discovery and Configuration Protocol is an LLDP based EVB discovery protocol
- ECP: Edge Control Protocol new link layer protocol
- ECP-SS: Edge Control Protocol Sublayer Service new service interface for ECP to ULP
- S-Comp: Draft 802.1Qbc Port mapping S-VLAN component subclause 5.10 & S-VLAN component 802.1Q Rev 2010 subclause 5.6
- VEB/VEPA: C-VLAN component 802.1Q Rev 2010 subclause 5.5

Cascade of Port-mapping S-VLAN Comps



- LLDP from S-B hop-by-hop through cascade.