

# EVB Revisions

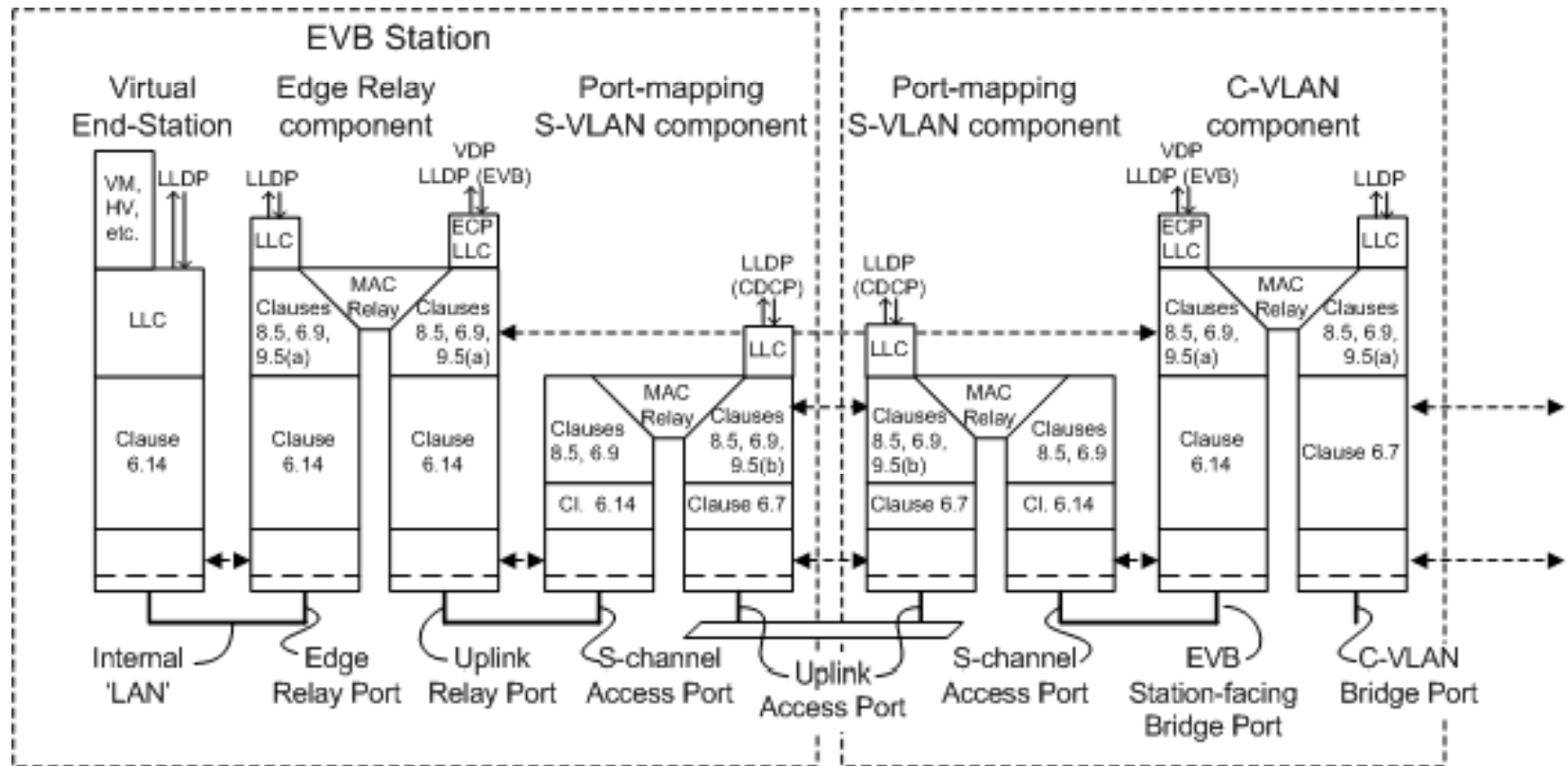
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# Agreements from January Meeting

- Port naming and architecture
  - Ports ERP, URP, UAP, CAP, SBP and C-VLAN Bridge Port
  - No phantom S-VLAN components
- Management structures
  - Use ComponentID, Port Number referencing
  - Separate ECP objects
  - Allow EVB station references
- Edge relay conformance need to encompass all the C-VLAN component options
  - Define in terms of C-VLAN component, however don't require C-VLAN conformance
  - Identify the forwarding requirements for VEPA

# January Meeting: Architecture diagram



- LLDP at 4 internal places with different databases

# Jan Meeting: Without S-channels

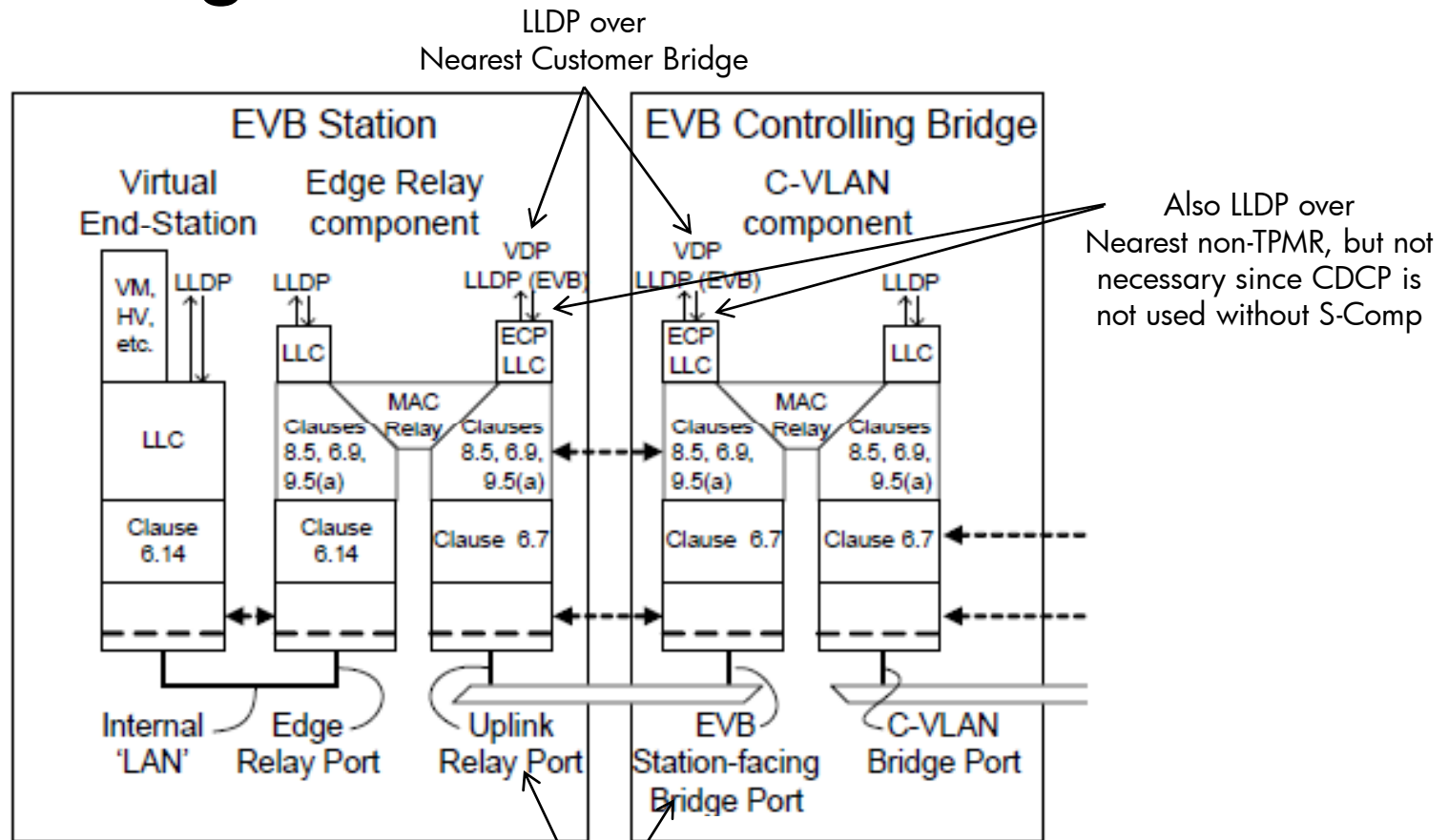


Figure 40-4—Configuration without S-channels

- Without S-Components and thus without S-Channels

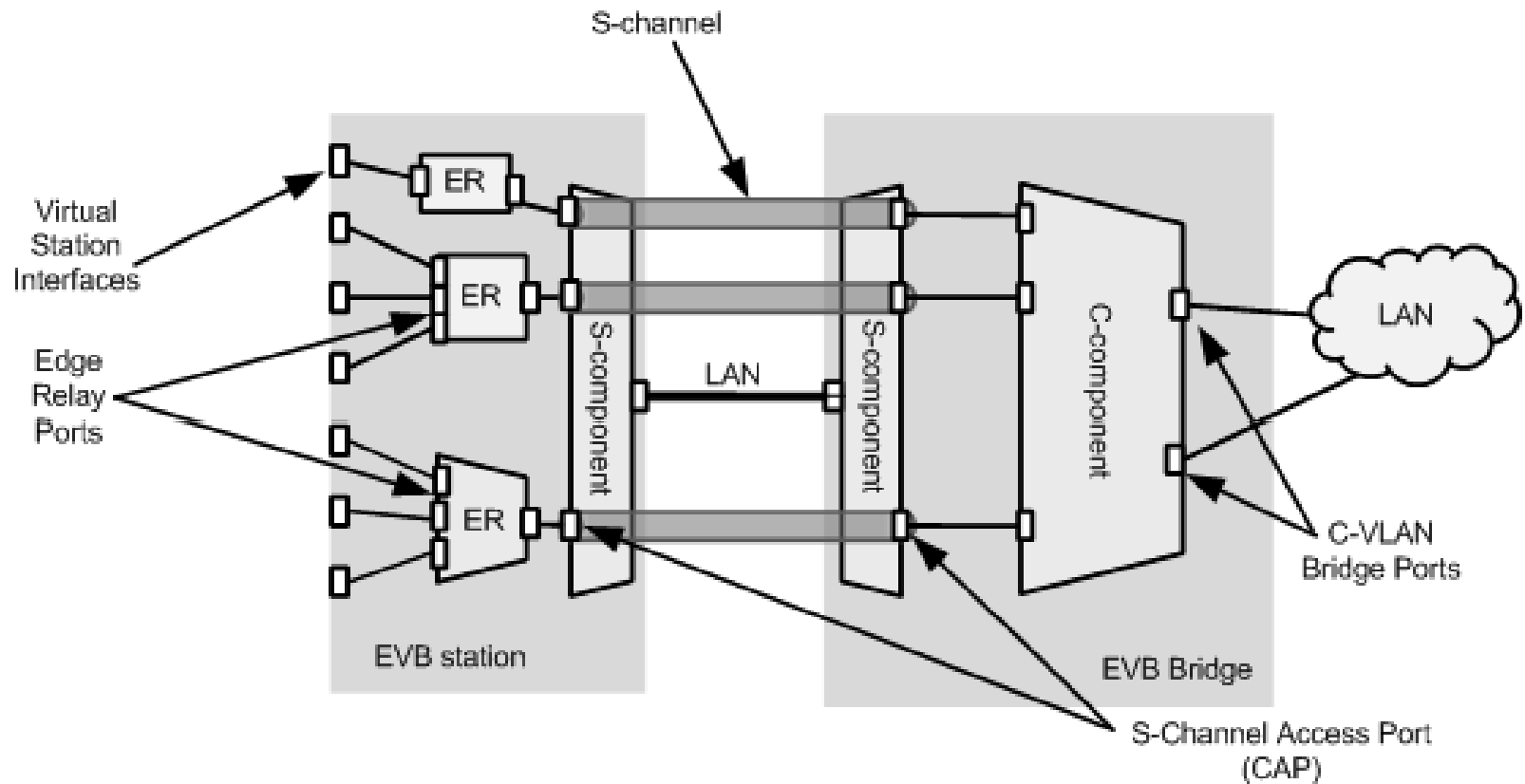
# New Draft D1.4

- Available since last Thursday
- Tried to resolve all ballot comments
- All architecture sections from clauses 12 and 42 consolidated into clause 40
  - Without S-component
  - With S-components
  - Asymmetric S-component on one side
  - Default S-channel now same as default S-VLAN (No phantom S-channels in D1.4)
- Conformance for edge relay framed in terms of C-component
- Management structures referenced by ComponentID
  - Separate SBP, URP and ECP tables

# Update to VDP TLV for GUID support

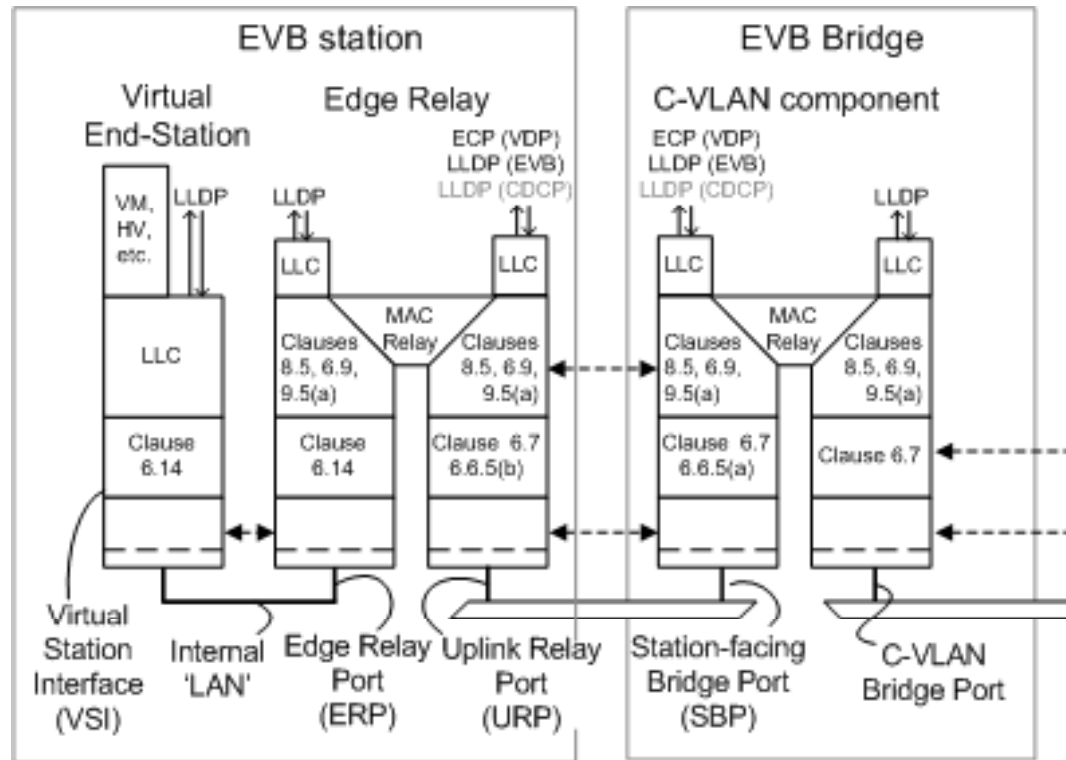
- Change VSI Manager ID from 1 octet to 16 octets
- Allows DCN mergers without conflicts
- Need a few more bits to indicate the format
- May want encode to be in separate TLV
- May want to allow the use of a hyperlink
- Not in current draft, however agreements of EVB calls indicate this is highly desirable change

# EVB Architecture Overview



- Edge relays connect VSIs to each other and external networks
- Optional S-components used to support multiple edge relays over a single LAN
- Each EVB Bridge has a single primary C-component

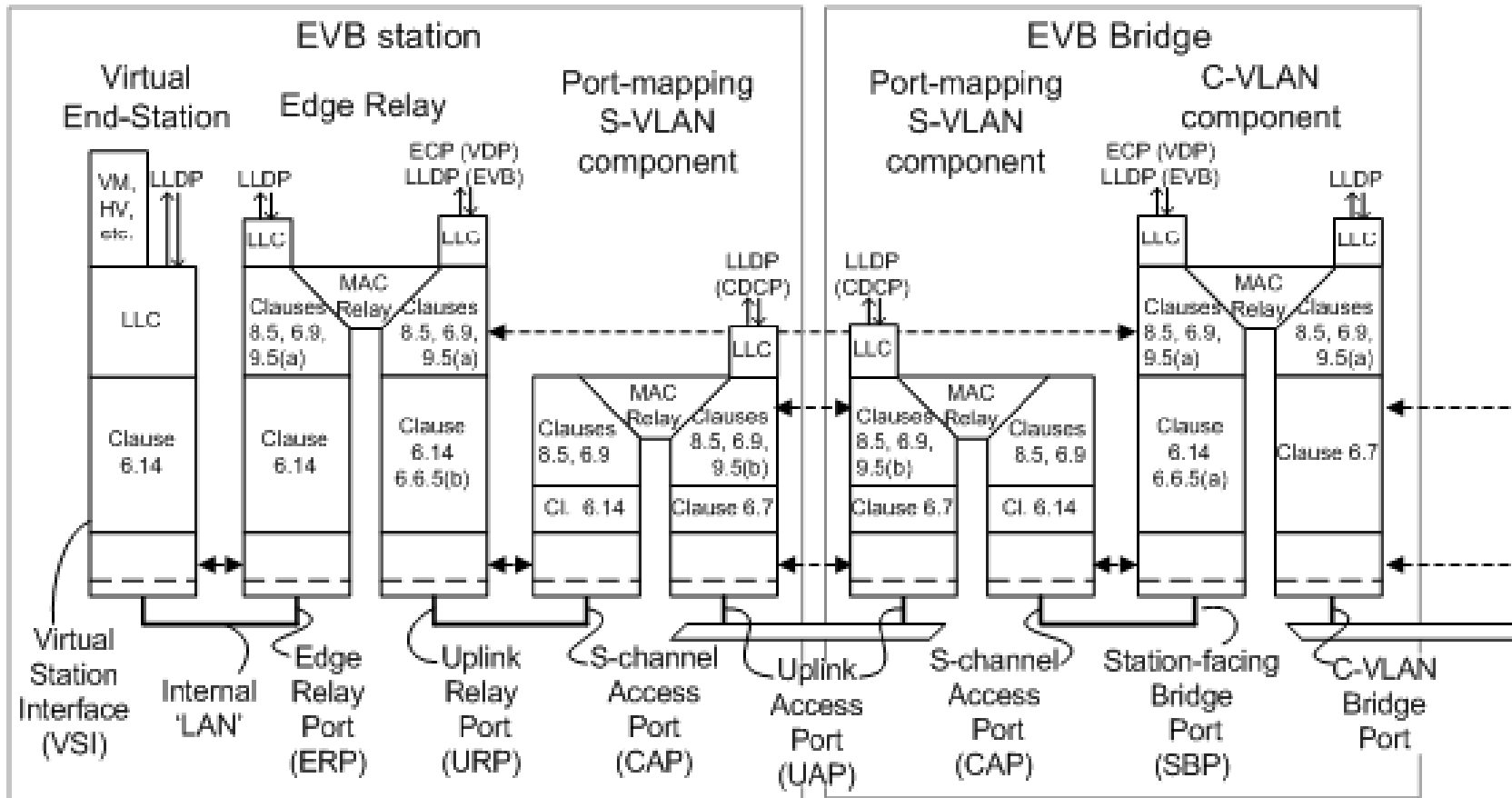
# EVB configuration without S-channels



- Nearest non-TPMR LLDP database is optional. If no CDCP TLV is exchanged it indicated no S-channel capability is present. Optionally, an LLDP nearest non-TPMR database with the CDCP TLV may be built at the URP and(or) SBP. If the CDCP TLV is advertised it must have the parameter SComp set FALSE.

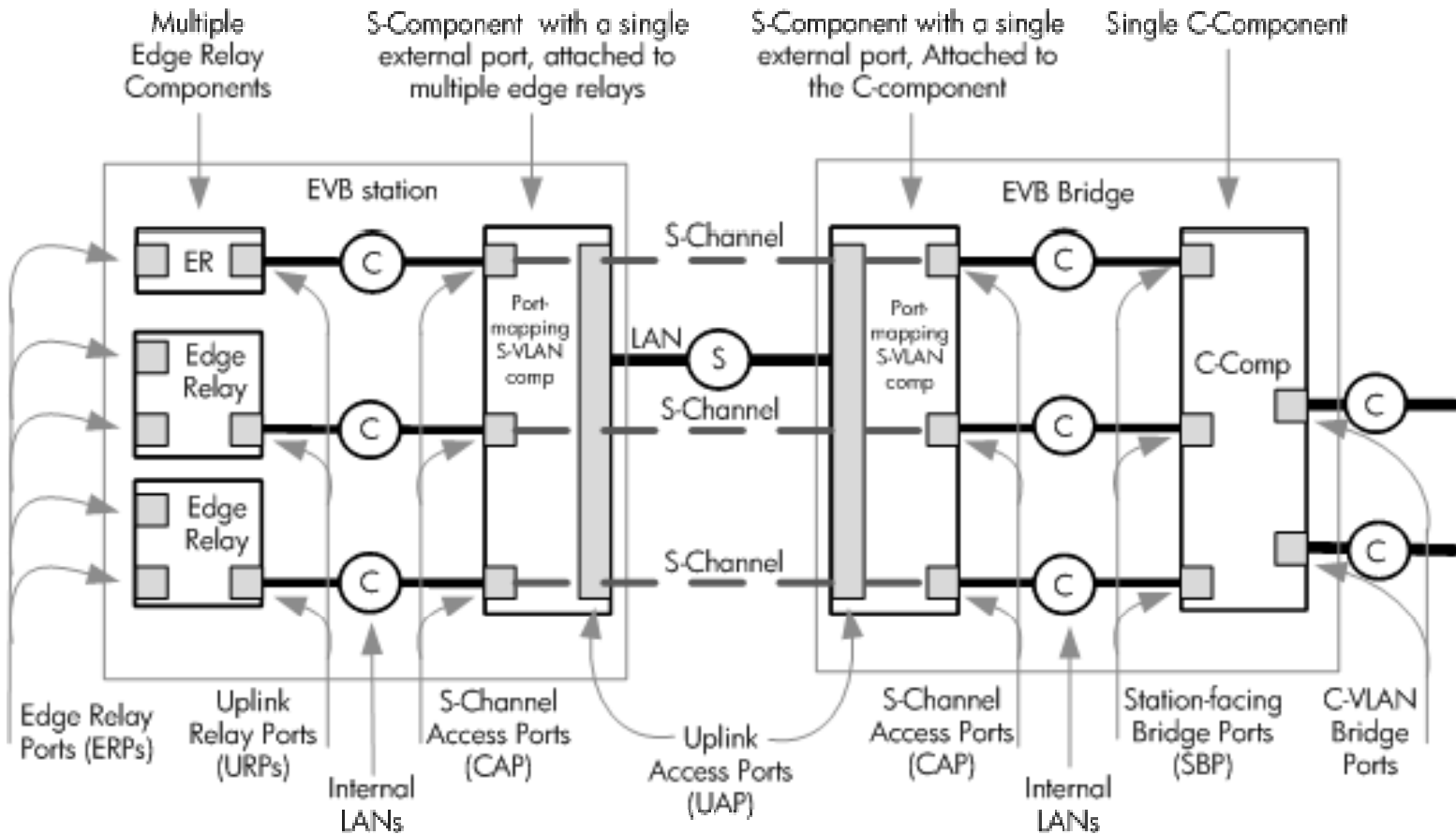


# EVB configuration with S-channels



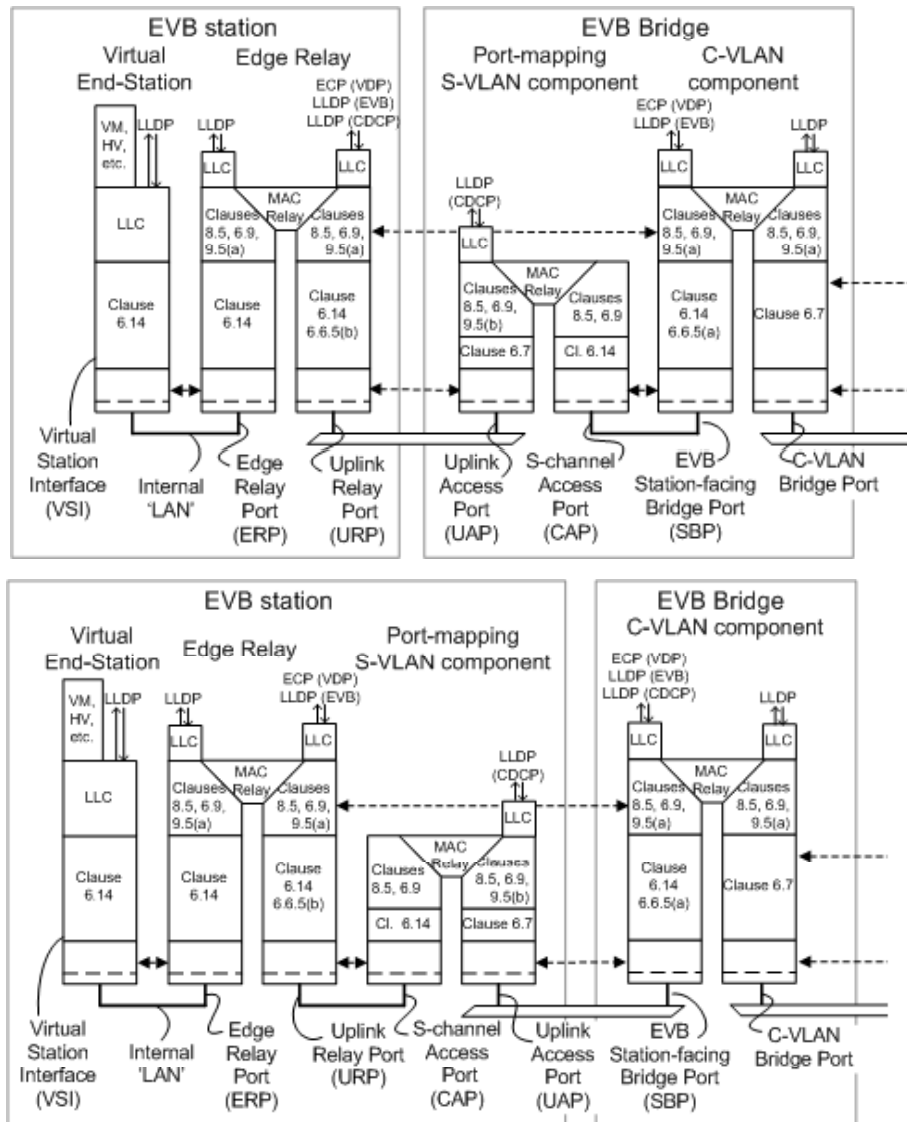
- An LLDP nearest non-TPMR database with the CDCP TLV is built at the UAPs. The CDCP TLV must have the parameter SComp set TRUE.

# EVB configuration with S-channels



- S-channels allow multiple edge relays multiplexed over a single LAN
- Each Port-mapping S-VLAN component has a single UAP
- Each EVB Bridge has a single primary C-VLAN component

# Asymmetric EVB configurations, no S-channels



- In both asymmetric cases the LLDP nearest non-TPMR local database with the CDCP TLV is built at the UAPs which includes a CDCP TLV with the parameter SComp set TRUE.
- In the first case, the URPs see the remote nearest non-TPMR database with the CDCP TLV and the SComp set TRUE, however may not advertise a CDCP TLV. If the URPs choose to advertise a CDCP TLV they must set SComp to FALSE.
- In the second case, the SBPs see the remote nearest non-TPMR database with the CDCP TLV and the SComp set TRUE, however may not advertise a CDCP TLV. If the SBPs choose to advertise a CDCP TLV they must set SComp to FALSE.

# Conformance framework

- EVB station has two types of externally accessible port:
  - URP
  - UAP
- EVB Bridge has three types of externally accessible ports:
  - C-VLAN Bridge Ports
  - SBP
  - UAP
- S-channel requirements
  - Only for systems with UAPs
  - Extend the base requirements for EVB station and Bridge
- Edge Relays:
  - Are C-VLAN components
  - Have a single URP
  - Have separate VEPA and VEB requirements

# Edge relay generic requirements

- Is a (possibly non-conformant) C-VLAN component
- Requirements
  - Has exactly one URP and one or more ERP
  - Supports 6.6.5 ReflectiveRelayMode = user
  - Filter the Reserved MAC Addresses specified in Table 8-1.
  - Support setting the Enable Ingress Filtering parameter (8.6.2) on each ERP.
- Options for edge relays
  - Support setting the Acceptable Frame Types parameter (6.9) to *Admit Only VLAN Tagged Frames* on the URP.
  - Support disabling of learning on each ERP (8.6.1).
  - Support discarding frames with unregistered source addresses at each ERP (8.8.1).

# VEB/VEPA requirements

- No specific VEB requirements beyond edge relay
- Reflective relay written as extensions to 8.6.1 and 8.6.3
  - 8.6.1 Filtering reflected frames
  - 8.6.3 Forward frames
- Reflective relay configuration support through extended 6.6.5 description
  - Support mode: unsupported, user, provider
  - No further parameters if mode is unsupported
  - Only auto modes supported
- Other VEPA requirements for learning, reflective relay, etc in clause 20.1.2

# Management framework

- Separate the ECP parameters into separate object
- Separate SBP and URP objects from S-channel interface object
  - Keying under <componentID, portNumber>
  - Map to external portNumbers,
    - needed since an EVB station may have multiple ERs each with redundant portNumbers
  - EVB TLV enables, controls and configuration
  - ECP object references
  - VDP object references
- UAP and S-channel interface objects optional
  - S-channel interface object no longer carrier SBP/URP configuration information
  - CDCP configuration still tied to UAP

# Some Terminology

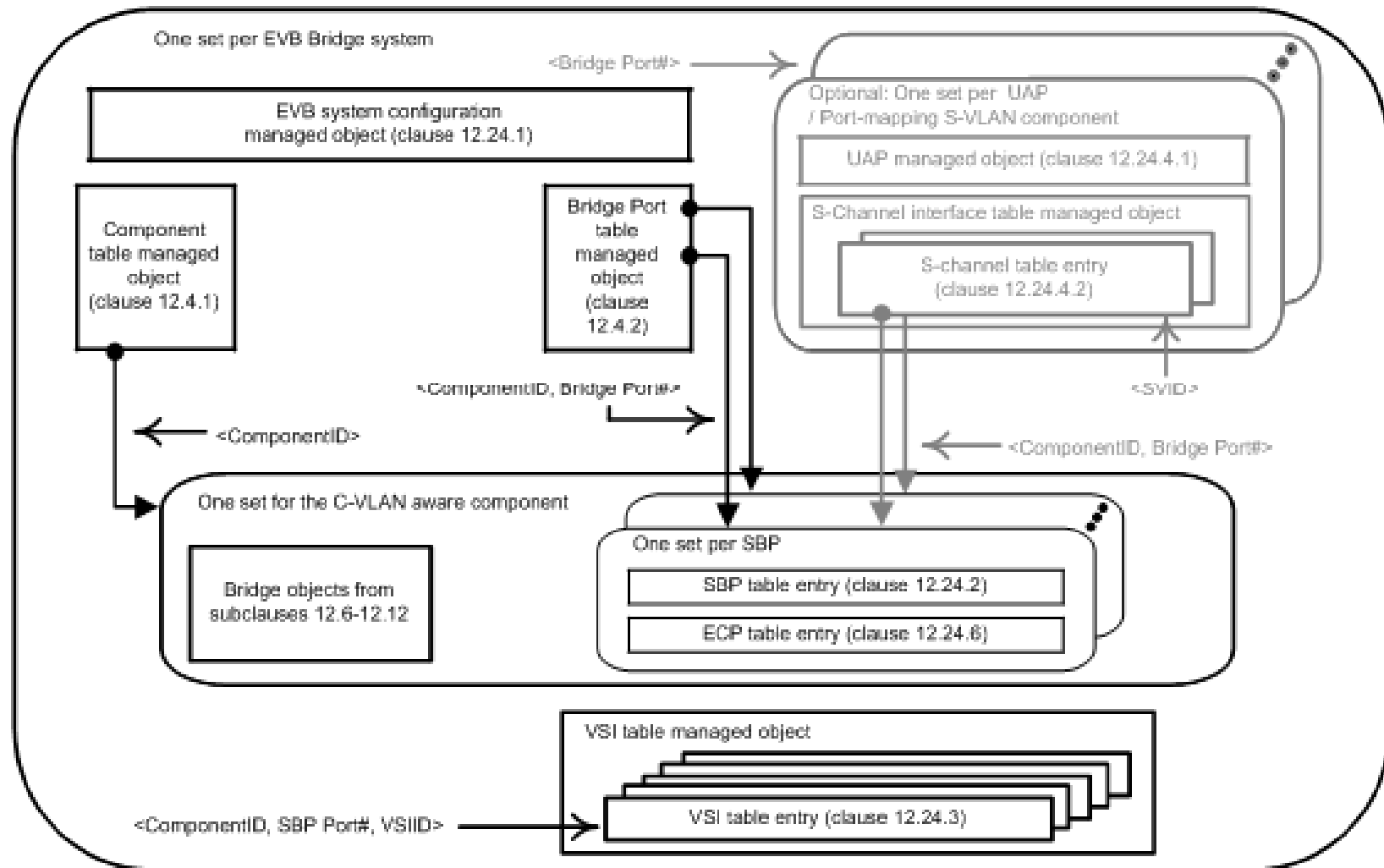
- Edge Virtual Bridging station: The system containing V-LAN aware Edge Relays
- Edge Virtual Bridging Bridge: The system containing a single C-VLAN component which is the device attaching directly to an EVB station.



# EVB System managed objects

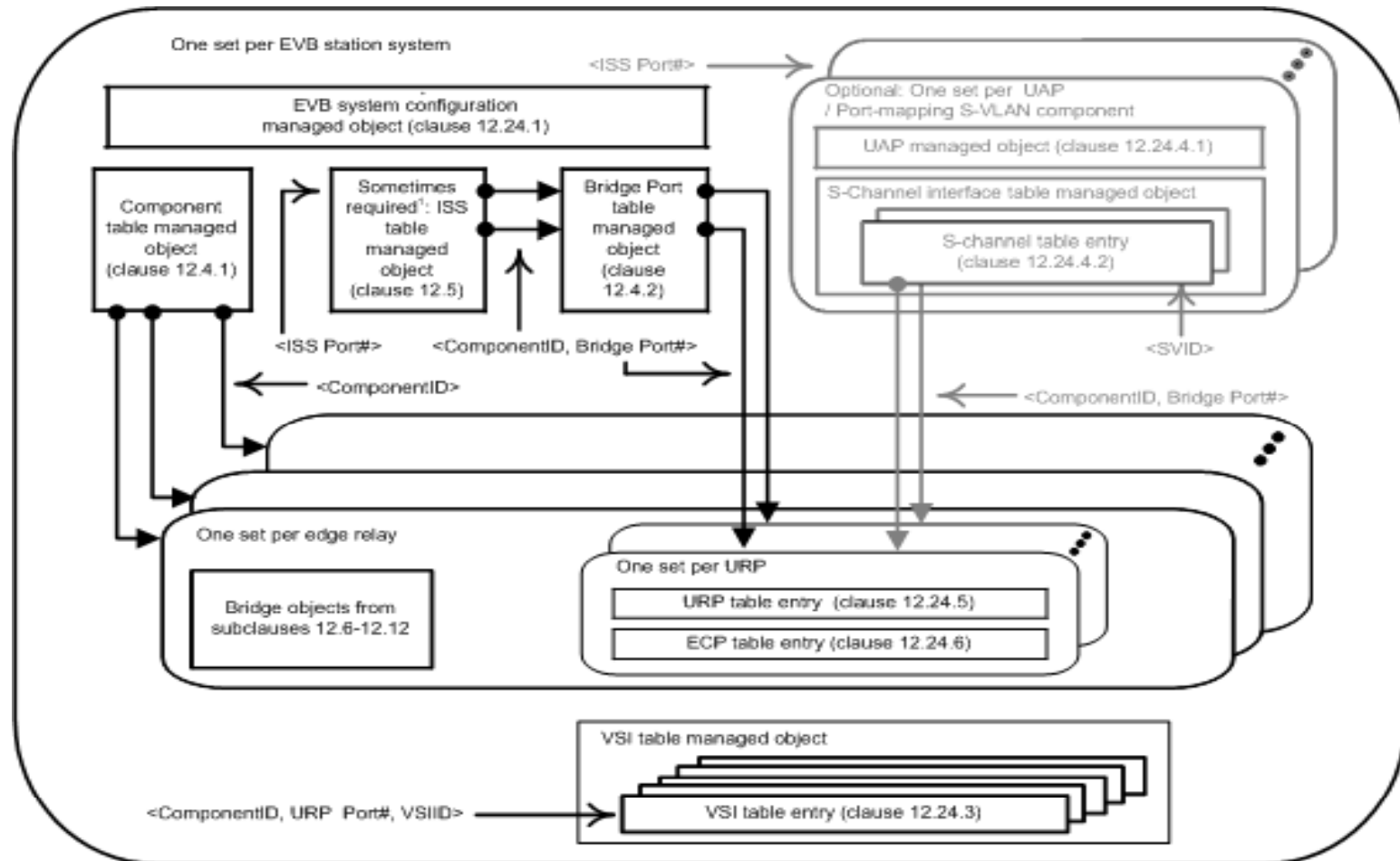
- Root structure for entire EVB system provides defaults for LLDP/ECP/VDP
- Station-facing Bridge Port object providing parameters for LLDP/VDP
  - Create implicitly sets Bridge Base Port tables
- Uplink Relay Ports objects providing parameters for LLDP/VDP
  - Create implicitly sets Bridge Base Port tables
  - Possible binding to ISS Port Number
- UAP table provides running parameters and statics for CDCP
  - Implicitly builds S-component
- S-Channels objects
  - In EVB Bridge keyed by <ISS Port Number, S-channel S-VID>
  - In EVB station keyed by <ISS Port Number, S-channel CID>
  - Use of Bridge Base Component and Port tables are optional
  - Maps CAP to SBP/URP <ComponentID, Port Number>
  - EVB Bridge default S-channel the ISS Port Number = SBP Port Number
- VSI database is keyed by <ComponentID, Port Number, VSIID>
- ECP table entries
  - Built automatically for each SBP or URP
  - Provides all ECP parameters and statics

# Relationships among EVB Bridge objects



- The EVB Bridge has only a single C-VLAN component
- Port-mapping S-VLAN components are optional

# Relationships among EVB station objects



Note 1: ISS table managed object is required when URP Port# == ISS Port#

- The EVB station supports multiple edge relays
- Edge relays are bound to LANs and S-channels by OS
- Port-mapping S-VLAN components are optional

# EVB System Base Table

Name	Data type	Operations supported <sup>‡</sup>	Conformance <sup>†</sup>	References
evbSysType	Enumerated {sysB, sysS}	R	BE	5.19, 5.20
evbSysNumExternalPorts	Unsigned [1...4095]	R	BE	12.4.2, 12.5.1
evbSysEvbLldpTxEnable	Boolean	RW	BE	D.2.13
evbSysEvbLldpManual	Boolean	RW	BE	D.2.13
evbSysEvbLldpDfltMode	Unsigned	RW	BE	D.2.13
evbSysEvbLldpNumVsisSup	Unsigned	RW	BE	D.2.13
evbSysEvbLldpDfltNumVsisCfg	Unsigned	RW	BE	D.2.13
evbSysEcpDfltAckTimerInit	timer exp	RW	BE	D.2.13, 43.3.7.1
evbSysEcpDfltMaxTries	Unsigned [0...7]	RW	BE	D.2.13, 43.3.7.6
evbSysVdpDfltRsrcWaitDelay	timer exp	RW	BE	D.2.13, 41.2.5.10
evbSysVdpDfltReinitKeepAlive	timer exp	RW	BE	D.2.13, 41.2.5.8

# EVB System Parameter Defaults

System Parameter	Default Value	LLDP, SBP, URP, ECP entry parameter
evbSysEvbLldpTxEnable	EVB LLDP TLV is transmitted on nearest Customer Address when set	sbpLldpTxEnables, urpLldpTxEnable
evbSysEvbLldpManual	URPs and SBPs use local configurations when set	sbpLldpManual, urpLldpManual
evbSysEvbLldpDfltMode	Enable STD, RTE, ECP, VDP <sup>1</sup>	LLDP EVB TLV MIB
evbSysEvbLldpNumVsisSup	System Dependent <sup>2</sup>	LLDP EVB TLV MIB
evbSysEvbLldpDfltNumVsisCfg	evbSysEvbLldpNumVsisSup	LLDP EVB TLV MIB
evbSysEcpDfltAckTimerInit	14, for 164 milliseconds	ecpAdminAckTimerInit
evbSysEcpDfltMaxTries	3	ecpAdminMaxTries
evbSysVdpDfltRsrcWaitDelay	20, for 10.5 seconds	sbpVdpAdminRsrcWaitDelay, urpVdpAdminRsrcWaitDelay
evbSysVdpDfltReinitKeepAlive	20, for 10.5 seconds	sbpVdpAdminReinitKeepAlive, urpVdpAdminReinitKeepAlive

- The system defaults are used to initialize the Admin parameters for SBP/URP/ECP/LLDP.
- The Admin parameters are individually settable during create or update.

# LLDP EVB TLV Enables

- By default LLDP EVB TLV is both generated and used to set operating parameters.
  - System default is used to initialize the admin variable per SBP/URP
  - LLDP controls per SBP/URP
- LLDP EVB TLV enables use 2 booleans
  - First boolean determines if the local EVB TLV is transmitted.
  - Second boolean determines if the remote EVB TLV is used to set the system parameters
    - ECP/VDP timers use max proposed by local and remote. If no remote then we use local. If manual then we use local only.

# SBP Table Entry

Name	Data type	Operations supported <sup>†</sup>	Conformance <sup>†</sup>	References
sbpComponentID	ComponentID	RW	B	12.4.1.5
sbpPortNumber	Port Number	RW	B	12.4.2
sbpLldpTxEnable	Boolean	RW	B	D.2.13
sbpLldpManual	Boolean	RW	B	-
sbpVdpOperRsrcWaitDelay	timer exp	RW	B	D.2.13, 41.2.5.10
sbpVdpOperReinitKeepAlive	timer exp	R	B	D.2.13, 41.2.5.8
sbpVdpOperToutKeepAlive	Unsigned	RW	B	D.2.13, 41.2.5.16

- Automatically creates Port Table entry in Bridge Base tables with type SBP
- ECP table entry automatically built
- Contains LLDP enable and operating VDP timers

# URP Table Entry

Name	Data type	Operations supported <sup>‡</sup>	Conformance <sup>†</sup>	References
urpComponentID	ComponentID	R	E	12.4.1.5
urpPortNumber	Port Number	R	E	12.4.2
urpBindToISSPortNumber	Unsigned [0...4095]	RW	e	12.5.1
urpLldpTxEnable	Boolean	RW	E	D.2.13
urpLldpManual	Boolean	RW	E	-
urpVdpOperRsrcWaitDelay	timer exp	R	E	D.2.13, 41.2.5.10
urpVdpOperRespWaitDelay	Unsigned	RW	E	D.2.13, 41.2.5.12
urpVdpOperReinitKeepAlive	timer exp	RW	E	D.2.13, 41.2.5.8

- Automatically creates Port Table entry in Bridge Base tables with type SBP
- ECP table entry automatically built
- Contains LLDP enable and operating VDP timers
- Bind to ISS Port Number updates ISS Port Number table



# VSI Database

Name	Data type	Operations supported <sup>*</sup>	Conformance <sup>†</sup>	References
evbVsiComponentID	ComponentID	R	BE	12.4.1.5
evbVsiPortNumber	Port Number	R	BE	12.4.2
evbVsiID	string (SIZE(16))	R	BE	41.1.6
evbVsiTimeSinceCreate	time interval	R	BE	41
evbVsiVdpOperCmd	Enumerated {vdpDeassoc, vdpPreassoc, vdpPreassocR, vdpAssoc}	R	BE	41.1.1
evbVsiOperRevert	Boolean	R	BE	41.1.2
evbVsiOperHard	Boolean	R	BE	41.1.2
evbVsiOperReason	Unsigned (0..15)	R	BE	41.1.2
evbVsiMgrID	string (SIZE(1))	R	BE	41.1.3
evbVsiType	string (SIZE(3))	R	BE	41.1.4
evbVsiTypeVersion	string (SIZE(1))	R	BE	41.1.5
evbVsiMvFormat	string (SIZE(1))	R	BE	41.1.7
evbVsiNumMACs	Unsigned	R	BE	41.1.8
evbVsiMachineState	Unsigned	R	BE	41.2
evbVsiCmdsSucceeded	Counter	R	BE	41.2
evbVsiCmdsFailed	Counter	R	BE	41.2
evbVsiCmdsReverts	Counter	R	BE	41.2

# VSI Database: MAC/VID/GroupID

Name	Data type	Operations supported <sup>‡</sup>	Conformance <sup>†</sup>	References
evbMvComponentID	ComponentID	R	BE	12.4.1.5
evbMvPortNumber	Port Number	R	BE	12.4.2
evbMvVsiID	string (SIZE(16))	R	BE	41.1.6
evbMvGroupID	Unsigned	R	BE	41.1.8
evbMvVsiVID	Unsigned (1..4094)	R	BE	41.1.8
evbMvVsiMAC	MAC Address	R	BE	41.1.8

- A single VSI table exists per EVB system. It services all components.

# Uplink Access Port table

Name	Data type	Operations supported <sup>a</sup>	Conformance <sup>b</sup>	References
uapExtnPortNumber	Port number	R	BE	12.24
uapComponentID	ComponentID	R	BE	12.24
uapInternalPortNumber	Port number	R	BE	12.24
uapSchCdcAdminEnable	boolean 2	RW	BE	42.4.4
uapSchCdcAdminRole	enumerated 2	RW	BE	42.4.2
uapSchCdcAdminChnCap	Unsigned 1-276	RW	BE	42.4.1
uapSchCdcOperChnCap	Unsigned 1-276	R	BE	42.4.10
uapSchAdminCdcSvidPoolLow	Unsigned 0,2-4095	RW	BE	42.4.9
uapSchAdminCdcSvidPoolHigh	Unsigned 0,2-4095	RW	BE	42.4.9
uapSchOperState	Enumerated 2	R	BE	42.4.18
uapSchCdcRemoteEnabled	Boolean 1	R	BE	42.4.17
uapSchCdcRemoteRole	Enumerated 2	R	BE	42.4.15

UAP Table Name	Default Values
uapSchCdcAdminEnable	<b>Enable CDCP TLV</b> <b>Disable manual operation</b>
uapSchCdcAdminRole	<b>'S' if EVBS and 'B' if EVBB</b>
uapSchCdcAdminChnCap	<b>1</b>
uapSchAdminCdcSvidPoolLow	<b>0</b>
apSchAdminCdcSvidPoolHigh	<b>0</b>

# UAP Operation

- UAP create generates an S-component auto-configured
- UAPs generate a CDCP TLV in the LLDP database
- The network administrator may change the configuration of the UAP to enable creation of S-Channels supporting more than the default S-Channel.

# S-Channel Interface Table

Name	Data type	Operations supported <sup>‡</sup>	Conformance <sup>†</sup>	References
schUapISSPortNumber	Port Number	R	BE	12.4.2, 12.5.1
schScid	Unsigned [1...4094]	R	bE	42.3.2
schSvid	Unsigned [0...4094]	R	BE	42.4.12
schComponentID	ComponentID	R	be	42.1.2, 12.4.1.5
schCapPortNumber	Port Number	R	be	42.1.2, 12.4.2
schSbpOrUrpComponentID	ComponentID	RW	BE	12.4.1.5
schSbpOrUrpPortNumber	Port Number	RW	BE	12.4.2

- UAPs by default generate a CDCP TLV in the LLDP database and start with a single default S-channel.

# ECP table entry

Name	Data type	Operations supported <sup>‡</sup>	Conformance <sup>†</sup>	References
ecpComponentID	ComponentID	R	BE	12.4.1.5
ecpPortNumber	Port Number	R	BE	12.4.2
ecpAdminAckTimerInit	timer exp	RW	BE	D.2.13, 43.3.7.1
ecpOperAckTimerInit	timer exp	R	BE	D.2.13, 43.3.7.1
ecpAdminMaxTries	Unsigned [0...7]	RW	BE	D.2.13, 43.3.7.6
ecpOperMaxTries	Unsigned [0...7]	R	BE	D.2.13, 43.3.7.6
ecpTxFrameCount	Counter	R	BE	43
ecpTxRetryCount	Counter	R	BE	43
ecpTxFailures	Counter	R	BE	43
ecpRxFrameCount	Counter	R	BE	43

- ECP entry built along with SBP and URP ports

# ISS Port Number table entry (optional)

Name	Data type	Operations supported <sup>z</sup>	References
issPortNumber	Port Number	R	13.25
issMACAddress	MAC Address	R	8.13.2
issToComponentID	ComponentID, 0	R	12.4.2
issToPortNumber	Port Number, 0	R	12.4.2

- Used to identify each ISS where a URP could attach
  - Multiple LANs each attached to a separate edge relay without S-channel support
- Only needed when the Port Number of the URP does not equal the Port Number of the ISS and when S-channels are not used.

# Timers: Exchanged in D.2.13 TLV and formed in SBP and URP table entries

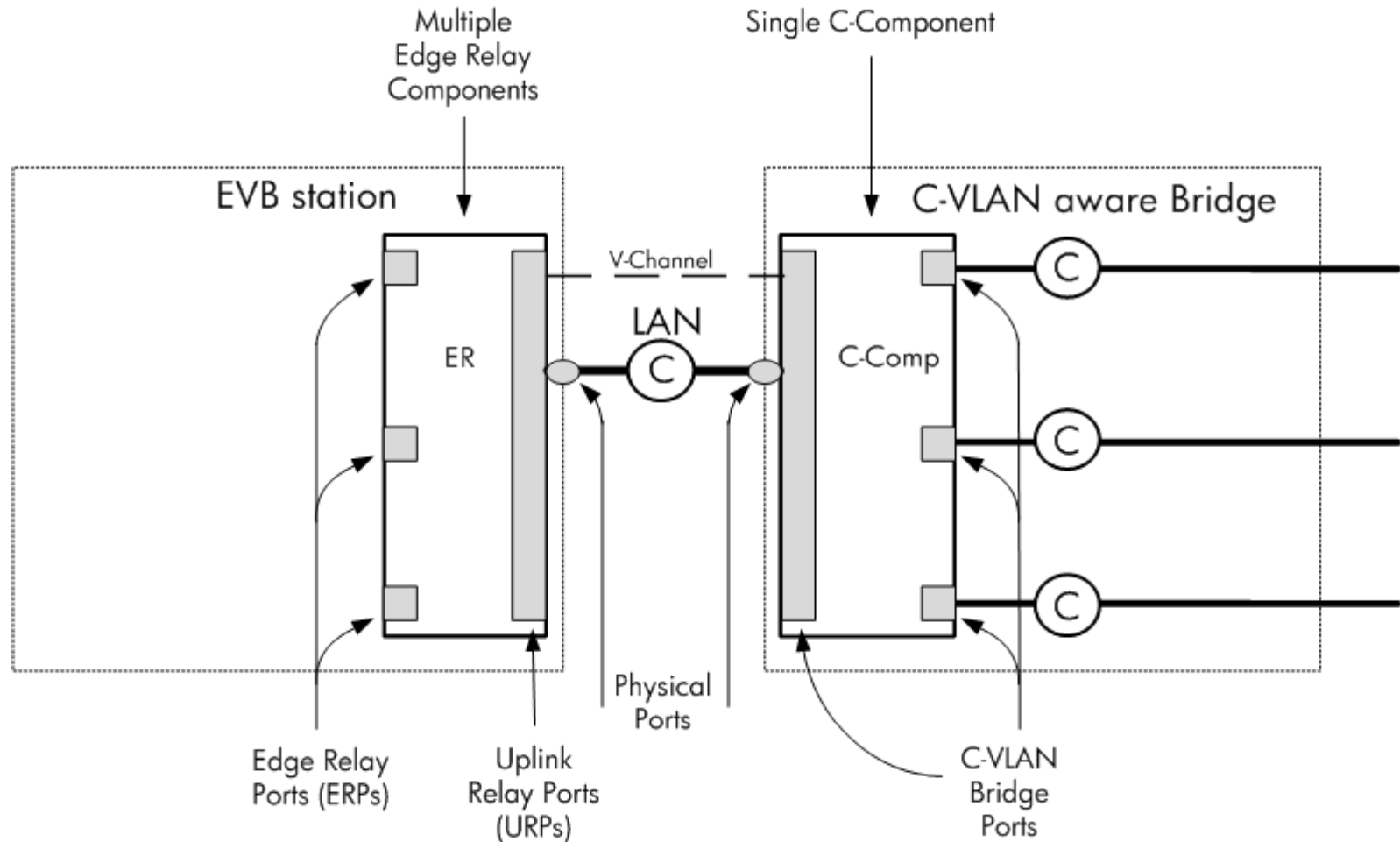
- TG (Timer Granularity) = 10 usec
- ECP Retransmission Timer: Default RTE = ~164 msec, R = 2
  - Default RTE = schEcpAdminAckTimerInit = 14, Default R = schEcpAdminMaxTries = 2
  - Retransmission Multiplier (RTM) =  $2^{RTE'} = 2^{\text{schEcpOperAckTimerInit}}$  (12.24.4.2)
  - ECP ackTimerInit (43.3.7.1) = RTM \* TG
  - ECP maxRetries (43.3.7.6) =  $R' = 2^{\text{schEcpOperMaxRetries}}$
- VDP Resource Timer: Default ~10.5 sec, WTE = evbSysVdpDfltRsrcWaitDelay = RWD = 20
  - VDP Wait Timeout Multiplier (WTM) =  $2^{WTE} = 2^{\text{schVdpOperRsrcWaitDelay}}$  (12.24.4.2)
  - VDP resourceWaitDelay(41.2.5.8) = WTM \* TG
  - VDP respWaitDelay(41.2.5.10) = WTM\*TG + (2R+1)(RTM\*TG)
- VDP Keep Alive Timer: Default ~10.5 sec, KTE = evbSysVdpDfltReinitKeepAlive = RKA = 20
  - VDP Keep Alive Interval Multiplier (KTM) =  $2^{KTE} = 2^{\text{schVdpOperReinitKeepAlive}}$  (12.24.4.2)
  - VDP reinitKeepAlive (41.2.5.7) = KTM \* TG
  - VDP toutKeepAlive (41.2.5.14) = KTM\*TG + (2R+1)(RTM\*TG)



# **BACKUP SLIDES**

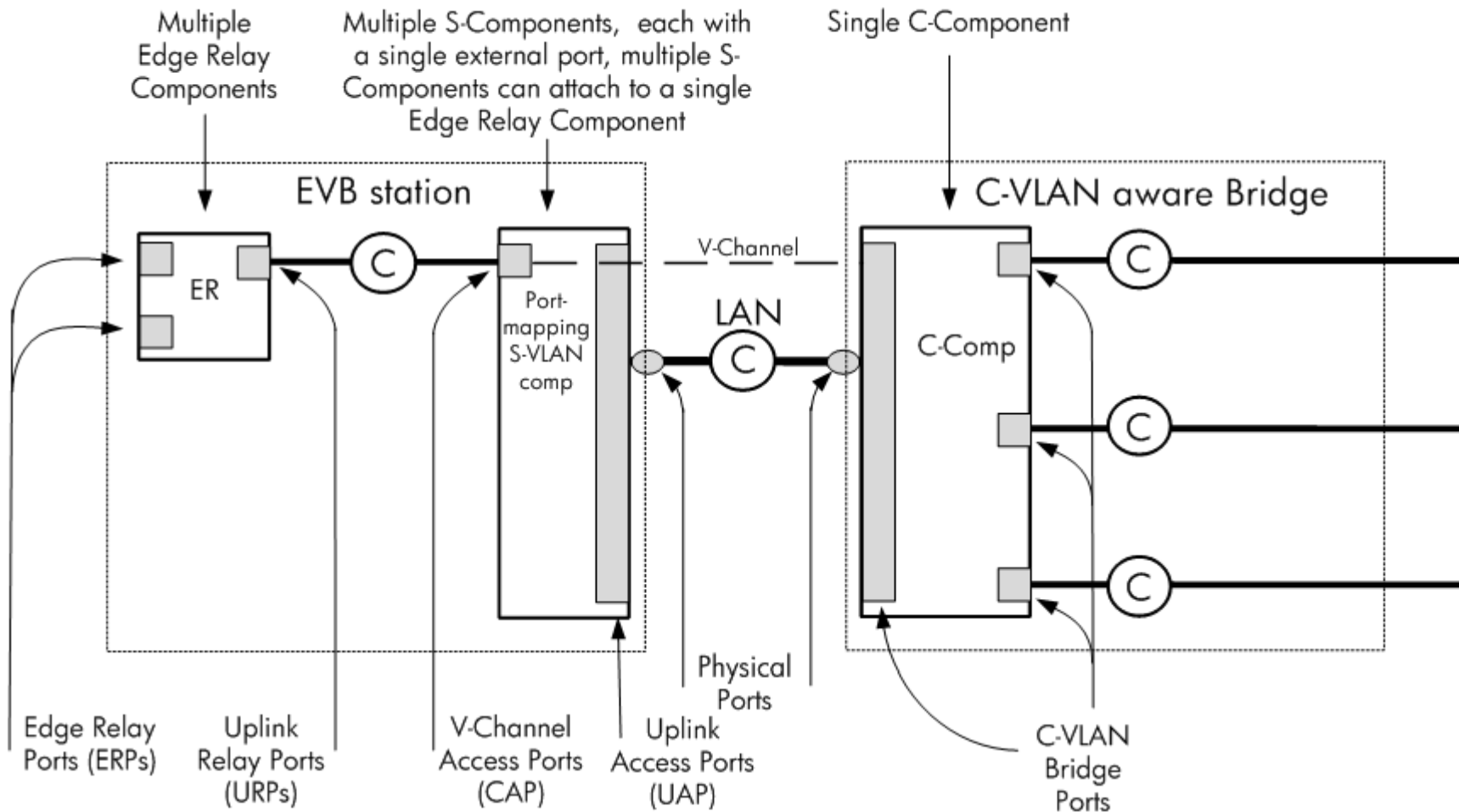
# **A FEW USELESS EVB PORT CONFIGURATIONS**

# C-VLAN Bridge Port to URP



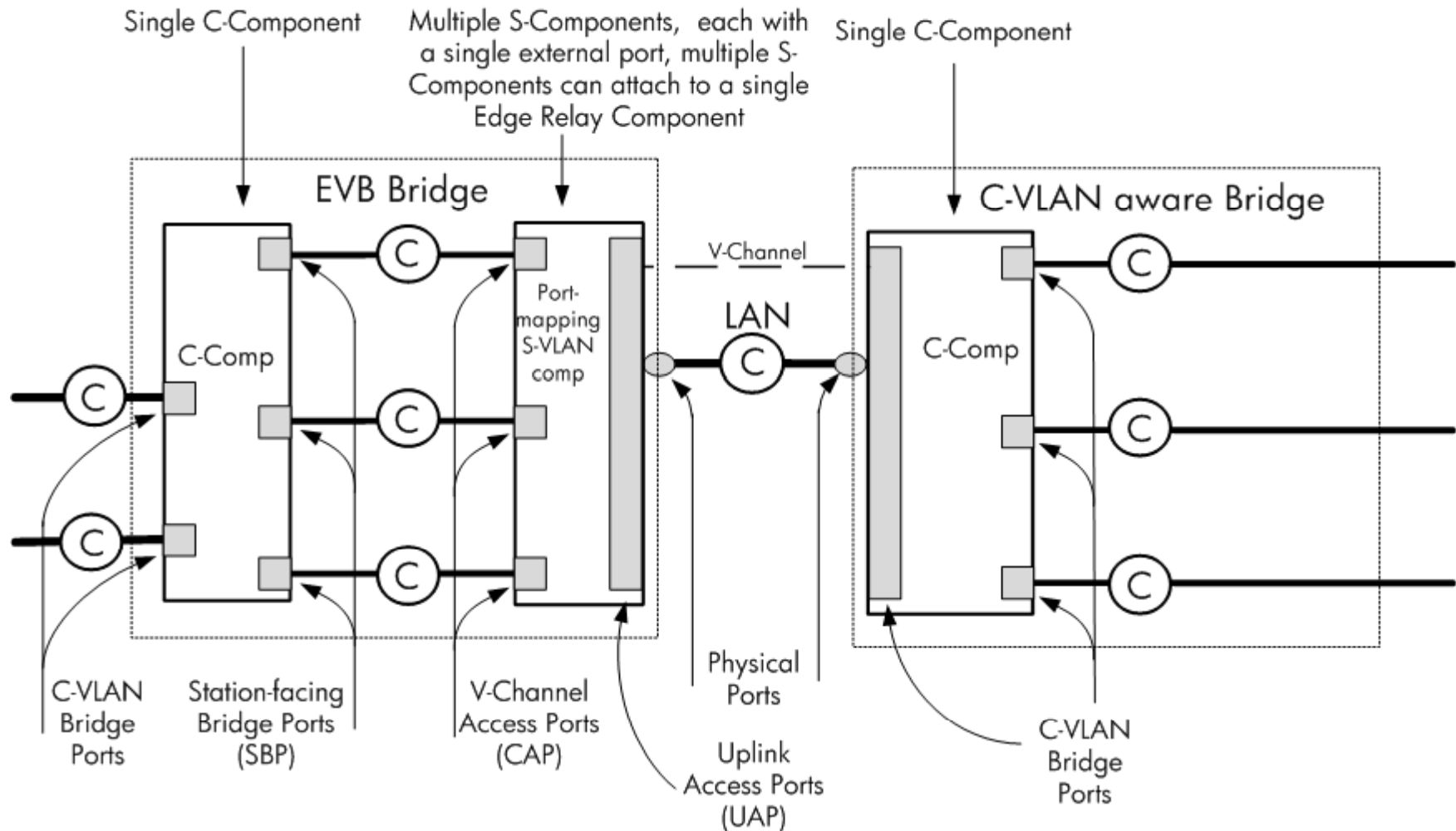
- Un-modified C-VLAN Bridge connected to EVB station

# C-VLAN Bridge Port to UAP (station)



- Un-modified C-VLAN Bridge connected to EVB station with Port-mapping S-VLAN component

# C-VLAN Bridge Port to UAP (Bridge)



- Un-modified C-VLAN Bridge connected to EVB Bridge UAP (SBP is same effect)

# The C-VLAN Bridge Port to EVB port connections useless

- An EVB station executes VDP. Since a C-VLAN Bridge Port does not execute VDP, all attempts to Associate will fail. We will never establish a VSI and so never transfer any data.
- Since an EVB Bridge and EVB station are under different administrators we should not allow the presence of an EVB station to determine the EVB Bridge port type.
  - Instead, we treat the boundary between the EVB station and EVB Bridge as a demarcation between autonomous systems.
  - For the EVB station to have network access through VDP the network administrator must enable the EVB protocols by setting the Port Type.
  - Alternatively, the EVB Bridge may have pre-designated ports for EVB station attachment or network attachment.
  - This is also why in normal situations the EVB station should not send STP frames or MRP frames. Both of these may affect the topology of the DCN which is under a different administration.
  - The EVB Bridge should be able to protect itself from the EVB station

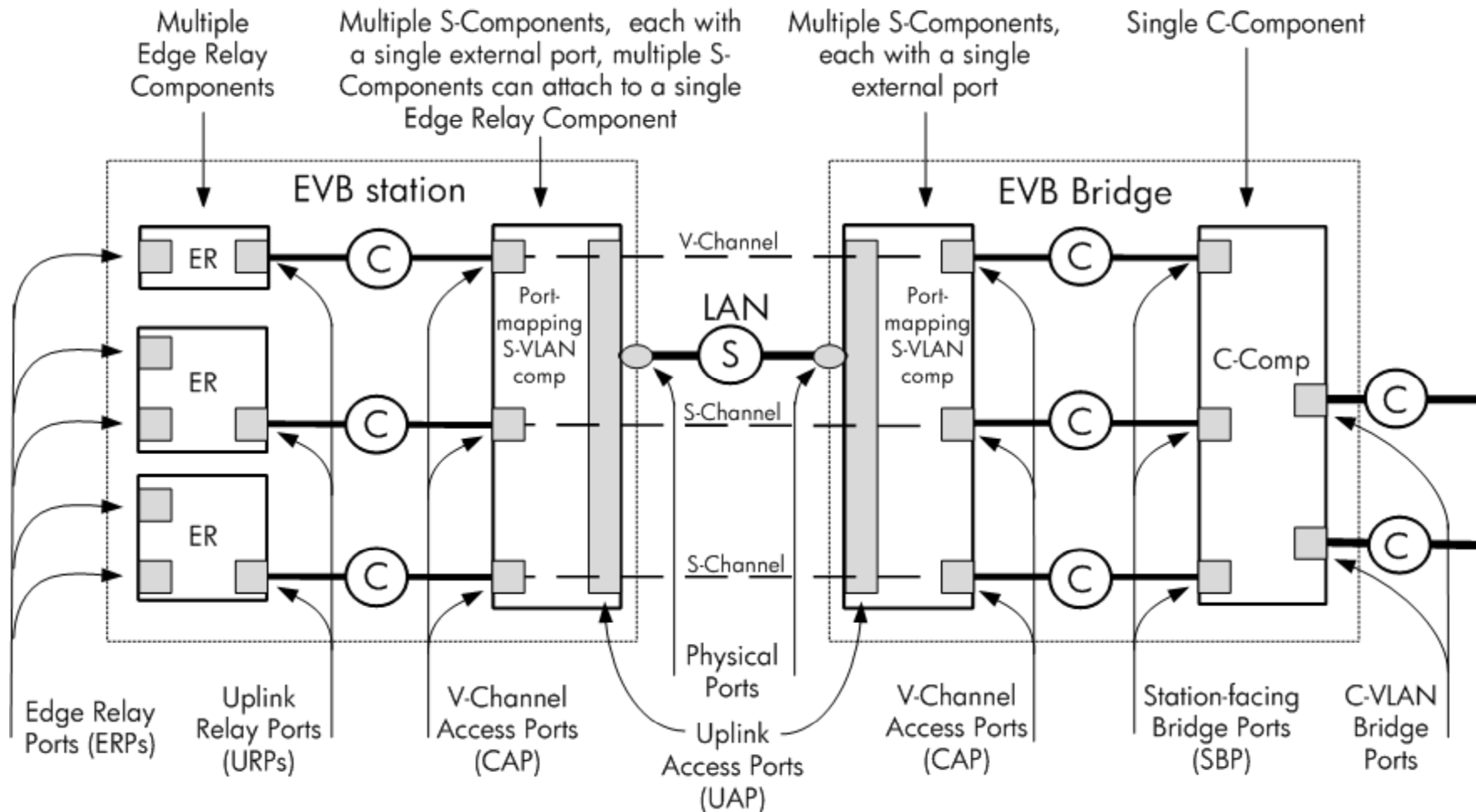
# Agreements and recommendations

- EVB call attendees agreed that we did not need to describe the invalid C-VLAN Bridge Port to EVB port attachments in the 802.1Qbg standard.
- EVB call attendees agreed to place an editor's note in the text to inform the readers that the external port types are hard set by either system configuration or by management to allow the enforcement of different administrations between the EVB stations and EVB Bridges.

# **DRAFT 1.3: THE UNIFIED MODEL**

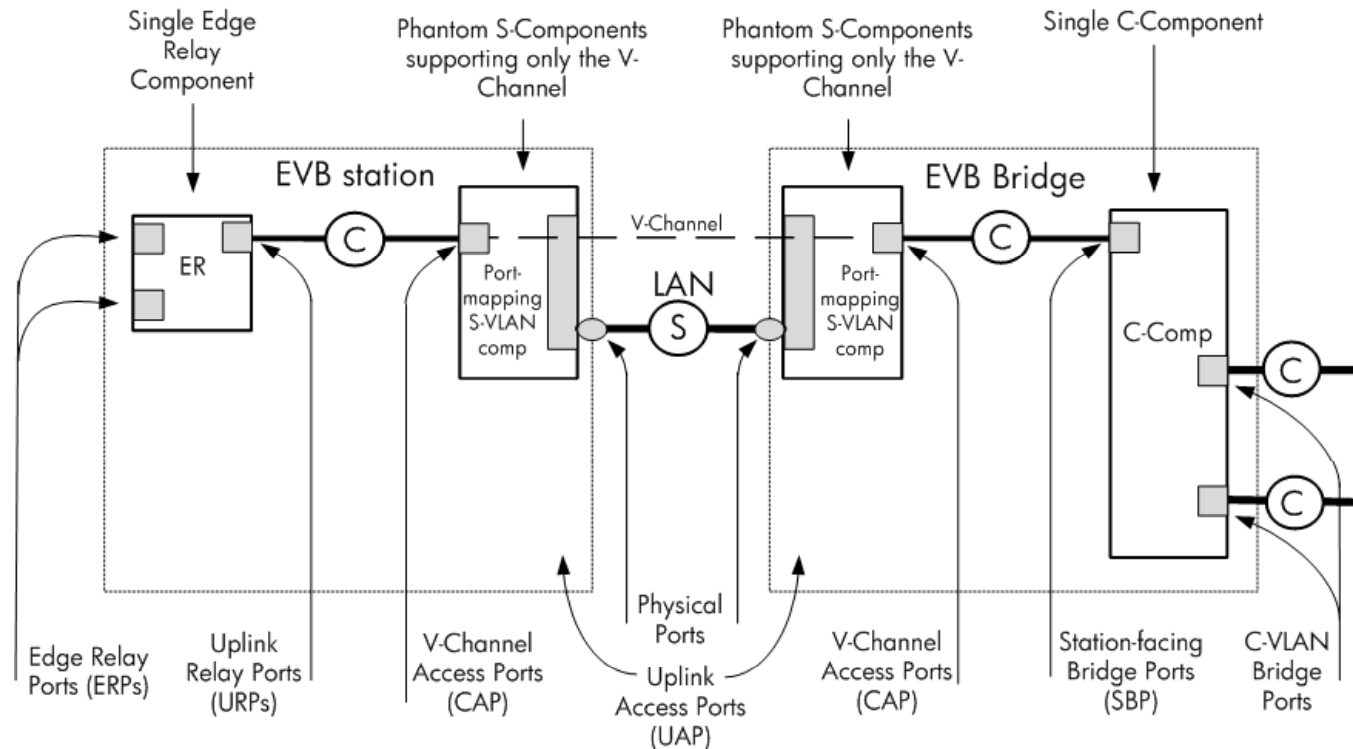


# UAP to UAP (draft 1.3 model)



- Both EVB station and Bridge are S-Channel capable and advertise a CDCP TLV and one EVB TLV on the V-Channel.
- When a new S-Channel is requested by the EVB station and enabled by the EVB Bridge (by CDCP exchange) a new EVB TLV will be started per S-Channel.
- Four relay combinations could be considered: Both EVB station and Bridge have real Port-mapping S-VLAN components, either the EVB station or Bridge has a “phantom Port-mapping S-VLAN component”, or both EVB station and Bridge have “phantom Port-mapping S-VLAN components”.

# Phantom Port-mapping S-VLAN comps



- Supports only the V-Channel which is un-S-tagged
- Priority tag generation can be disallowed by setting Service Access Priority Selection == Disable on all UAPs
- UAPs don't generate S-Tagged frames since the default S-VID=1 is a member of the UAP Un-tagged set and since only a single CAP (and therefore single S-VID=1) exists in each "Phantom port-mapping S-VLAN component".
- Real S-Comps supporting only a V-Channel can reject any S-Tagged frames at the UAPs by setting "Admit only Untagged or Priority Tagged frames". This will prevent processing a frame containing an S-TAG with the default VLAN.
- This leaves the case where a mis-configuration has resulted in priority tagged frame generation. In this case a real Port-mapping S-VLAN comp will strip the priority tag while a "phantom" will pass it. If the ER and SBP are set to "Admit only C-tagged frames" the priority tag will be discarded at the ER or C-Comp, otherwise the priority tag will be treated as un-C-tagged. Of course this is a mis-configuration anyway.

# CDCP and phantom S-comps

- Four configurations are reduced to one:
  - Real Port-mapping S-VLAN components
  - EVB station or Bridge with Phantom and mate with Real
  - Both EVB station and Bridge Phantom
- In all four cases the CDCP TLV is advertised (unless management is in manual mode) and build the nearest Non-TPMR LLDP database

CDCP TLV allows us to indicate the capabilities of the Port-mapping S-VLAN components on each side. If the variable AdminChnCap = 1 then we are only capable of the V-Channel. If either side advertises ChnCap = 1, then the other side operates only with ChnCap = 1.

- If we need to know the difference between a Phantom S-Comp and a Real S-Comp with ChnCap = 1, then we could add a bit to the TLV indicating this, however it is not clear the added information is needed.

# Reserved Addresses and phantom S-comps

- Phantoms don't filter S-VLAN reserved addresses, therefore
- With phantoms S-Comp reserved addresses will deliver to ER or C-Comp
  - ER or C-Comp will always filter C-Comp reserved addresses
  - No hello packets or MRVP packets from Port-mapping S-Comps so these are unimportant
  - LLDP database levels will all be under the same IF Index, however will still be distinct based on address. Since we are not changing the physical configuration to move to S-Channels we will either have all LLDP databases under the ER/C-Comp IF Index or under the Port-mapping S-VLAN index, but will not change.

# Two Real S-Comps

- Here the V-Channel can only use the default priority at the S-Comp since we have not included a mechanism to signal S-Comp priority on the V-Channel.
- The V-Channel has control of the ER or C-Comp priority through C-tags.
- If we need to add S-Comp priority signaling then we can:
  - Solution 1: recognize this as a restriction of the V-Channel and if the default S-Comp priority is not sufficient build a new (S-tagged) S-Channel to carry the data
  - Solution 2: allow the S-Comps to move to S-tags on the V-Channel when both sides indicate ChnCap > 1 or the existence of a real S-comp. They also must back down to no S-TAGs as soon as either side advertises ChnCap = 1.
  - Solution 3: support subclause 6.20 on C-tags at the UAP

# Management Model

- The ComponentID was removed from the EVB structures so the Port-mapping S-VLAN components are not required in the Bridge Base Tables.
- For Phantom S-Comps we do need to build all the EVB objects, including the UAP and S-Channel interface objects.
- We therefore always have enough management structure to support CDCP and the V-Channel

# One way to resolve the “phantom” component comments

- Simply remove the Port-mapping S-VLAN component from the conformance definitions in 5.19 and 5.20 while keeping the V-Channel requirement.
- Continue with the current draft description

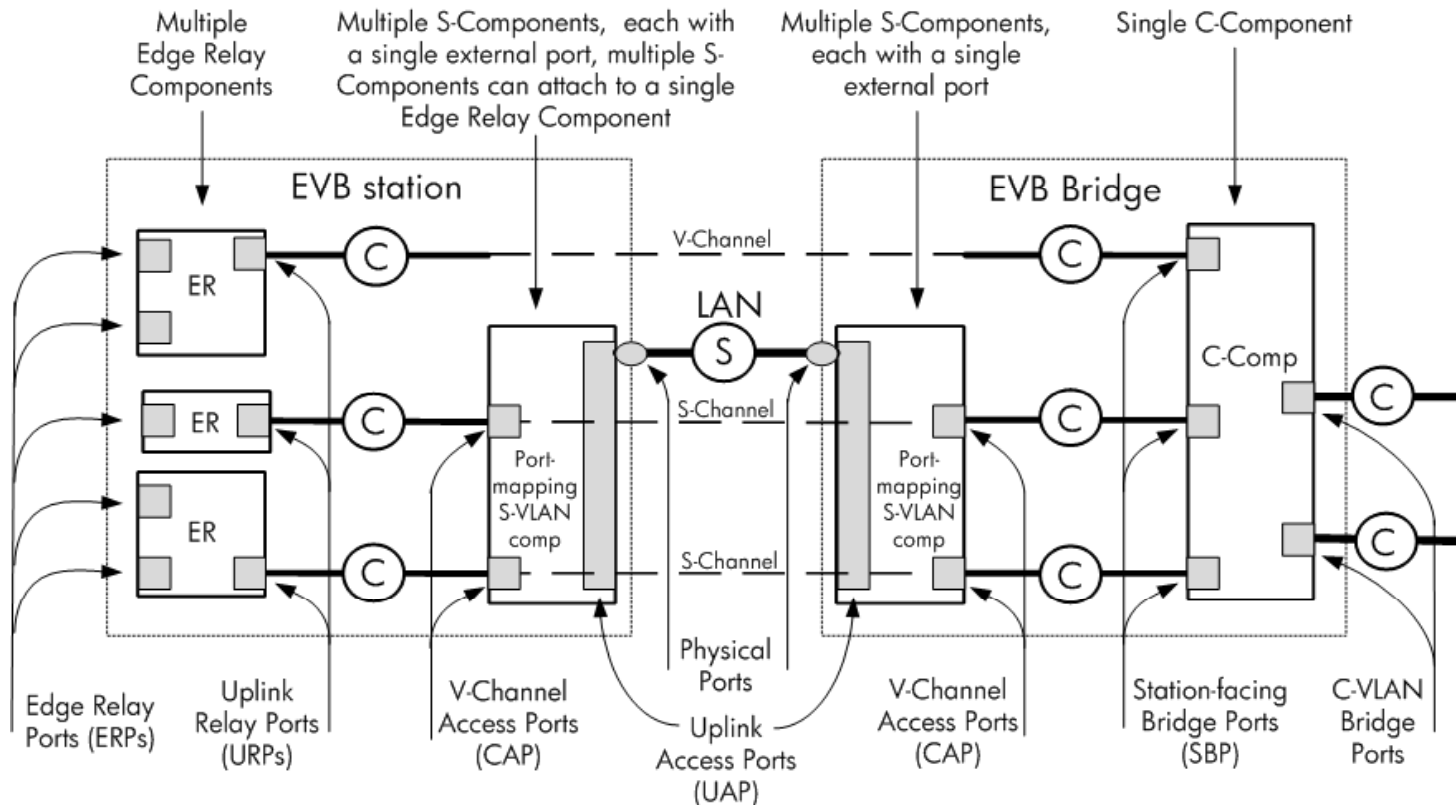
# **MULTI-CONFIGURATION MODEL**



# Multi-configuration model

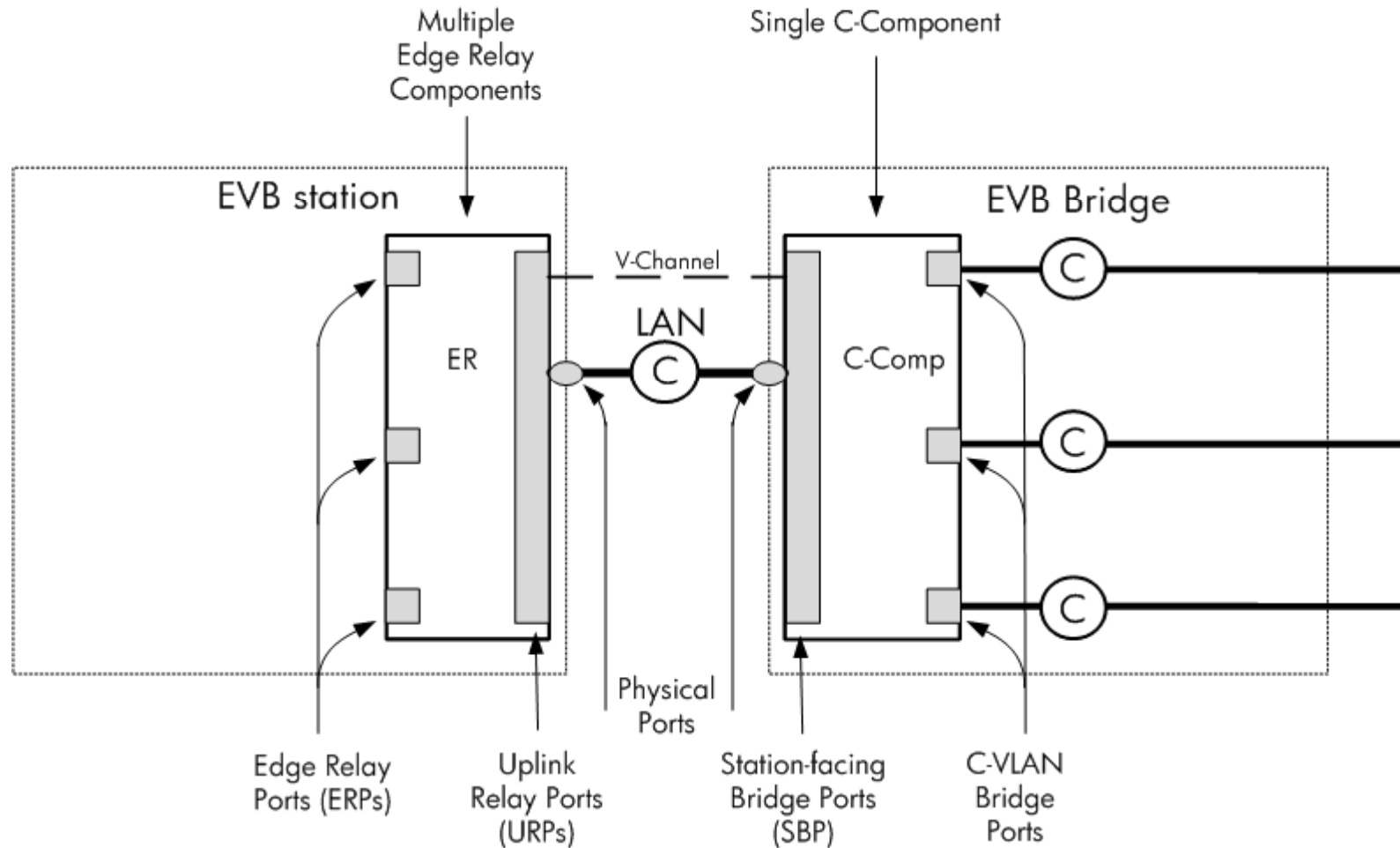
- Here we could look at models with and without S-Comps
- Valid external port types on the EVB Bridge
  - UAP
  - SBP
  - C-VLAN Bridge Port
- Valid external port types on the EVB station
  - UAP
  - URP
- If we support auto-config:
  - all combinations will exist, though some may only exist during transitions from one configuration to another

# This model is NOT VALID



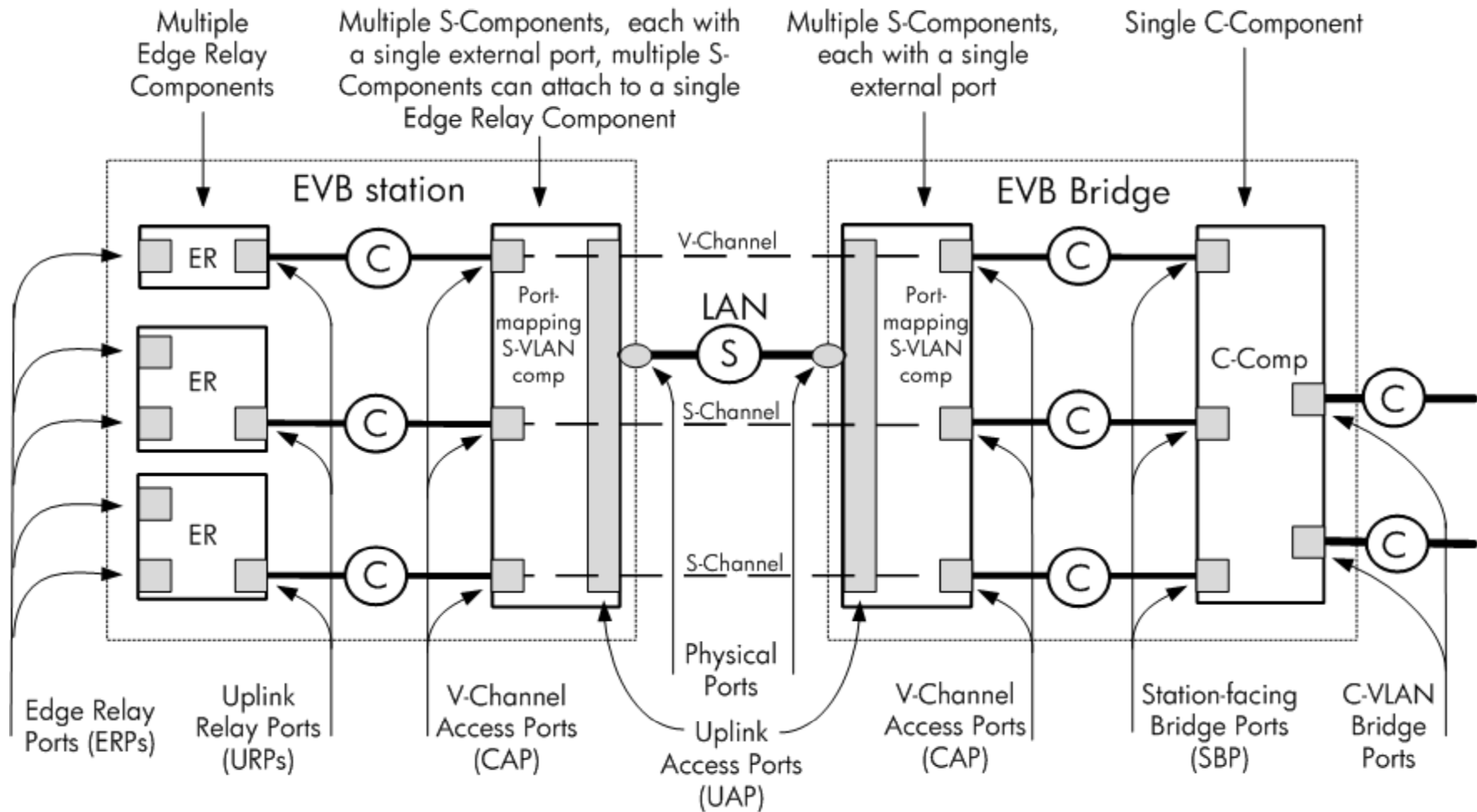
- It is not possible to have this configuration since the V-Channel must share the LAN, but has no multiplexing component
- Implies if we start without S-Comps then we must tear down all communication channels when we move to S-Channels

# URP to SBP (no S-Channel support)



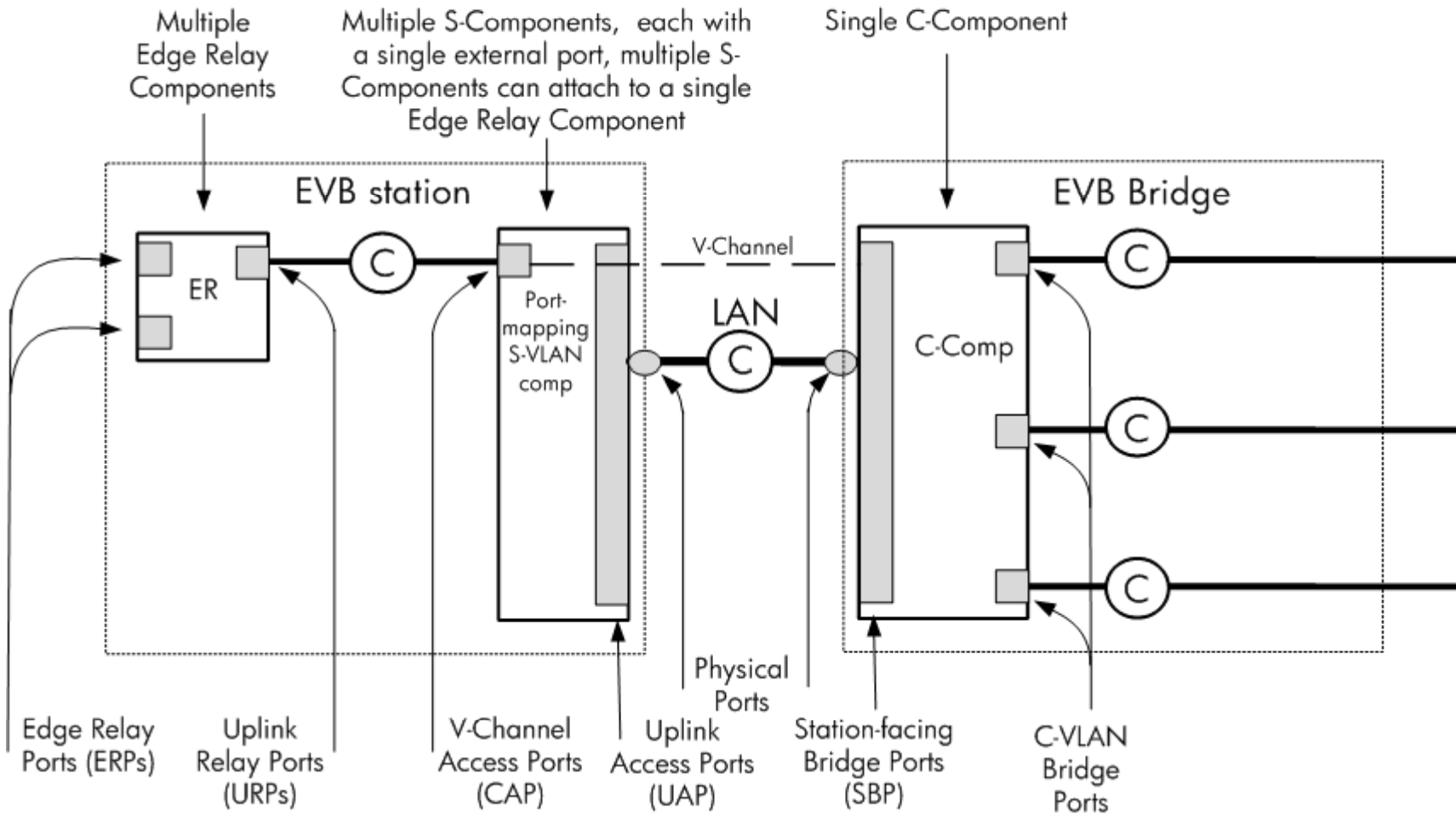
- Neither EVB station or Bridge are S-Channel capable so neither advertises a CDCP TLV and both advertise one EVB TLV on each V-Channel.
- This case was eliminated in the current draft by describing a UAP with a “default Channel”.

# UAP to UAP (S-Channel Support)



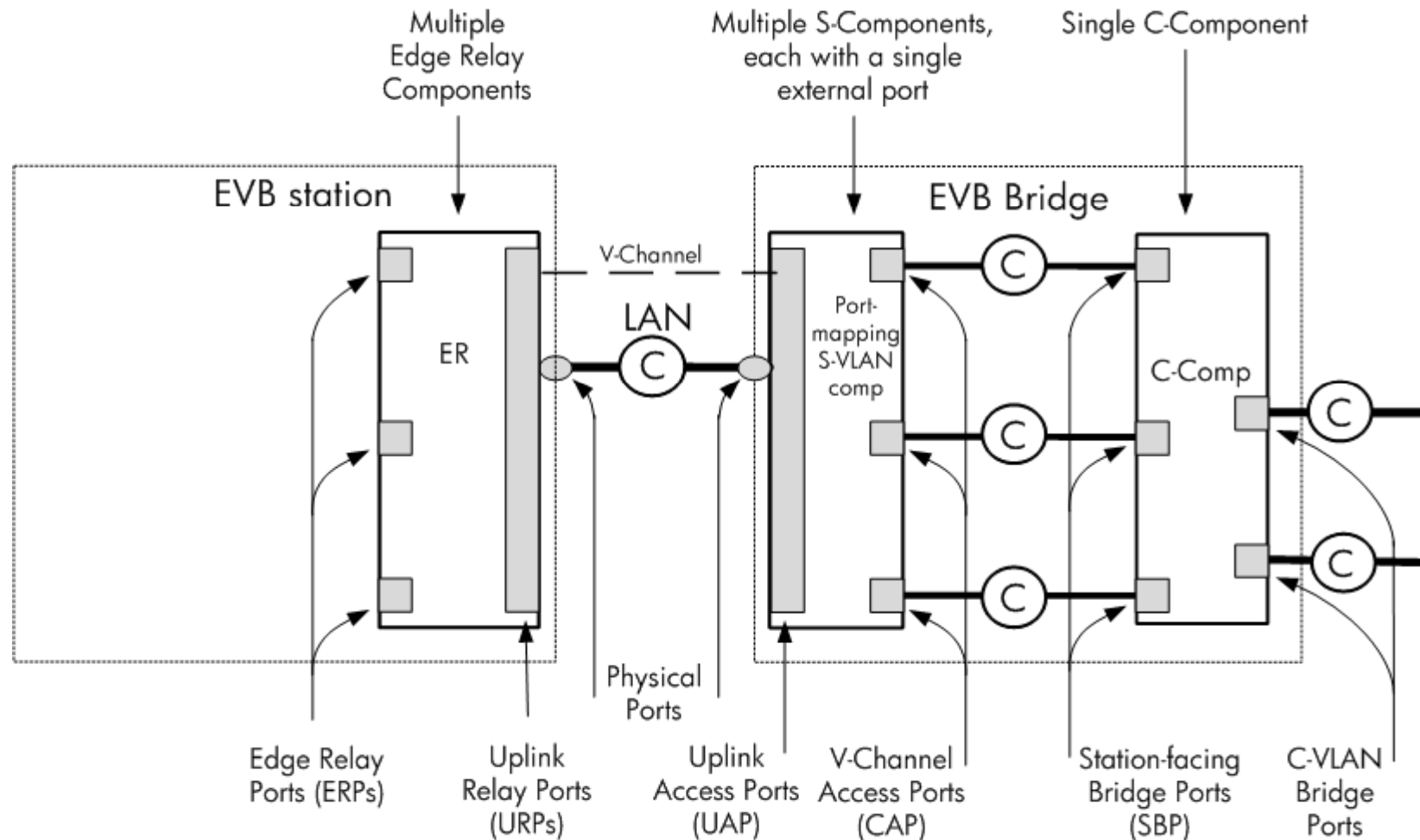
- Both EVB station and Bridge are S-Channel capable and advertise a CDCP TLV and one EVB TLV on the V-Channel.
- When a new S-Channel is requested by the EVB station and enabled by the EVB Bridge (by CDCP exchange) a new EVB TLV will be started per S-Channel.
- Four relay combinations could be considered: Both EVB station and Bridge have real Port-mapping S-VLAN components, either the EVB station or Bridge has a "phantom Port-mapping S-VLAN component, or both EVB station and Bridge have "phantom Port-mapping S-VLAN components".

# UAP to SBP (no S-Channel support)



- EVB station is S-Channel capable so it advertises one CDCP TLV (per LAG) and one EVB TLV (per V-Channel). The Bridge is not S-Channel capable and does not advertise CDCP however it advertises an EVB TLV on each SBP.
- This case was eliminated in the current draft by describing a UAP with a “default Channel”.

# URP to UAP (no S-Channel support)



- EVB Bridge is S-Channel capable and advertises CDCP TLV and one EVB TLV on V-Channel, however the EVB station is not S-Channel capable so only advertises one EVB TLV (per ER per LAG group)
- This case was eliminated in the current draft by describing a UAP with a “default Channel”.

