P802.1Qca – D0.1 Editor's Notes

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Outline

› Recap

› D0.1
  – Updates
  – New items

Recap

45. Path Control and Reservation
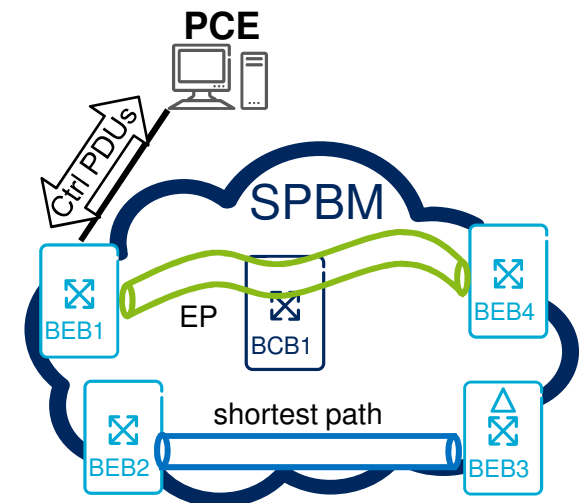
› 45.1 Explicit and constrained paths

  – IS-IS establishes explicit and constrained paths

› 45.2 Reservation

  – IS-IS performs reservation

  – IS-IS support for SRP (Gen2)

› 45.3 Redundancy

› 45.4 Distribution of control parameters for time synchronization

› 45.5 Distribution of control parameters for time scheduling

Explicit Path – Non-learning Use Case Examples

› Protection, e.g. 1+1
  - EP1 and EP2 controlled by PCE
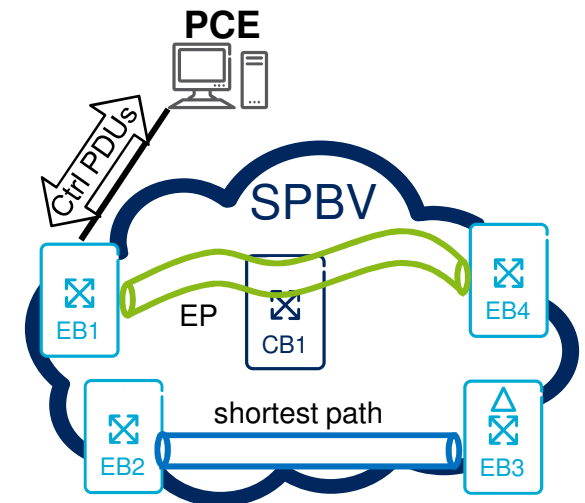 - Base VID → TE-MSTI
  - Base VID → EP ECT-ALGORITHM
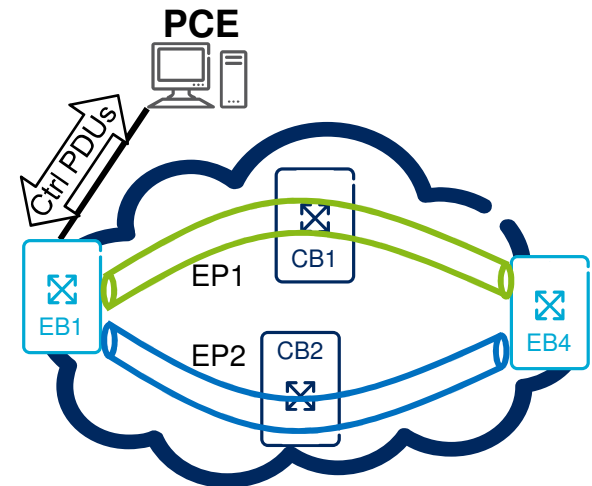
› SPBM
  - EP controlled by the PCE
  - Base VID → TE-MSTI
    › (could be SPBM MSTI)
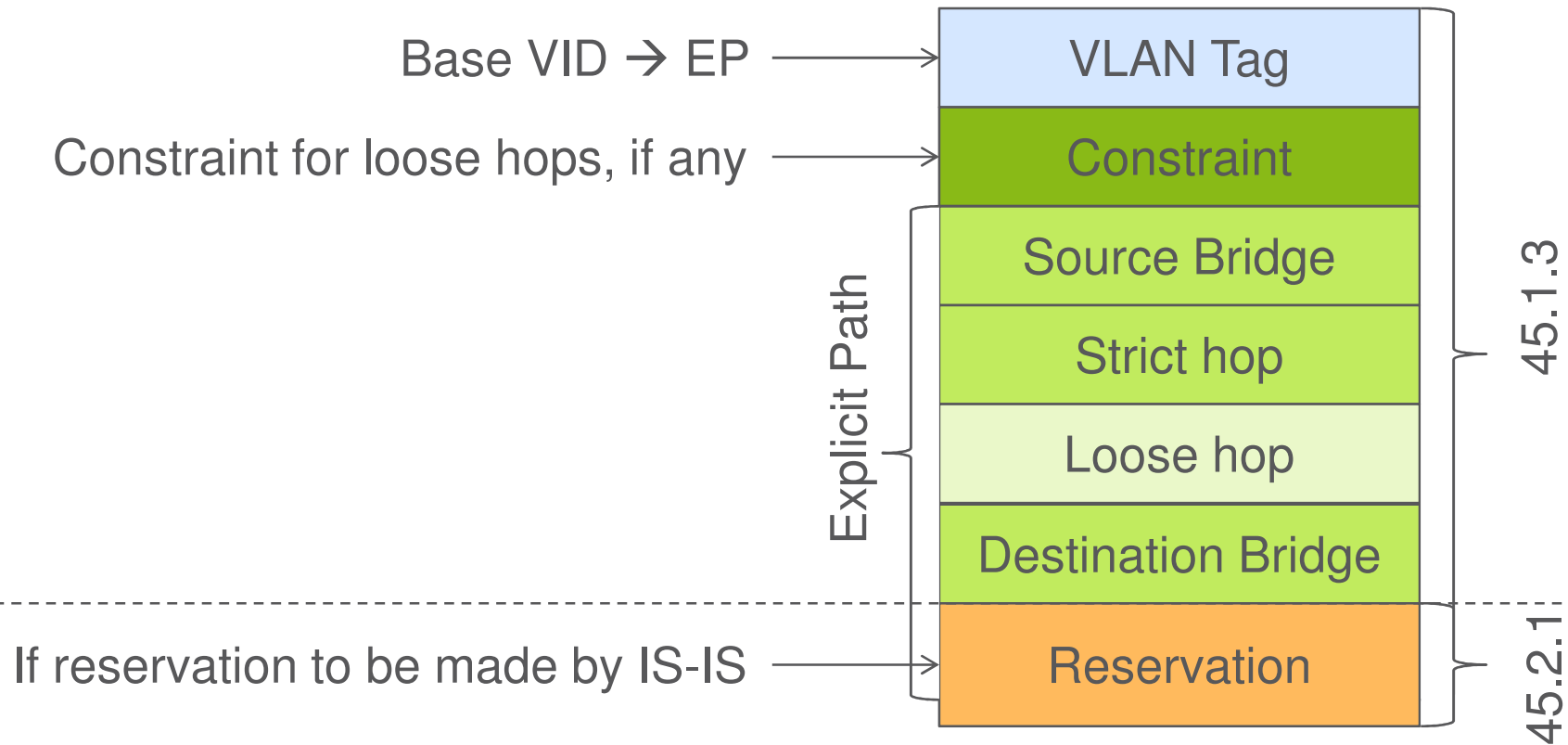 - Base VID → EP ECT-ALGORITHM

Explicit and Constrained Path – Learning Use Cases?

› Do we have learning use cases?

› Certain traffic on an EP in an SPBV Domain?

› Simple Constrained Routing (CR)?
  – Give different color to wireless and wireline links
  – Color constraint can be assigned to VLANs
  – CR automatically maintains the paths

› Which MSTI then?
  – Base VID → SPBV MSTI

Point-to-point Explicit Path

Base VID → EP

Constraint for loose hops, if any

Explicit Path

If reservation to be made by IS-IS

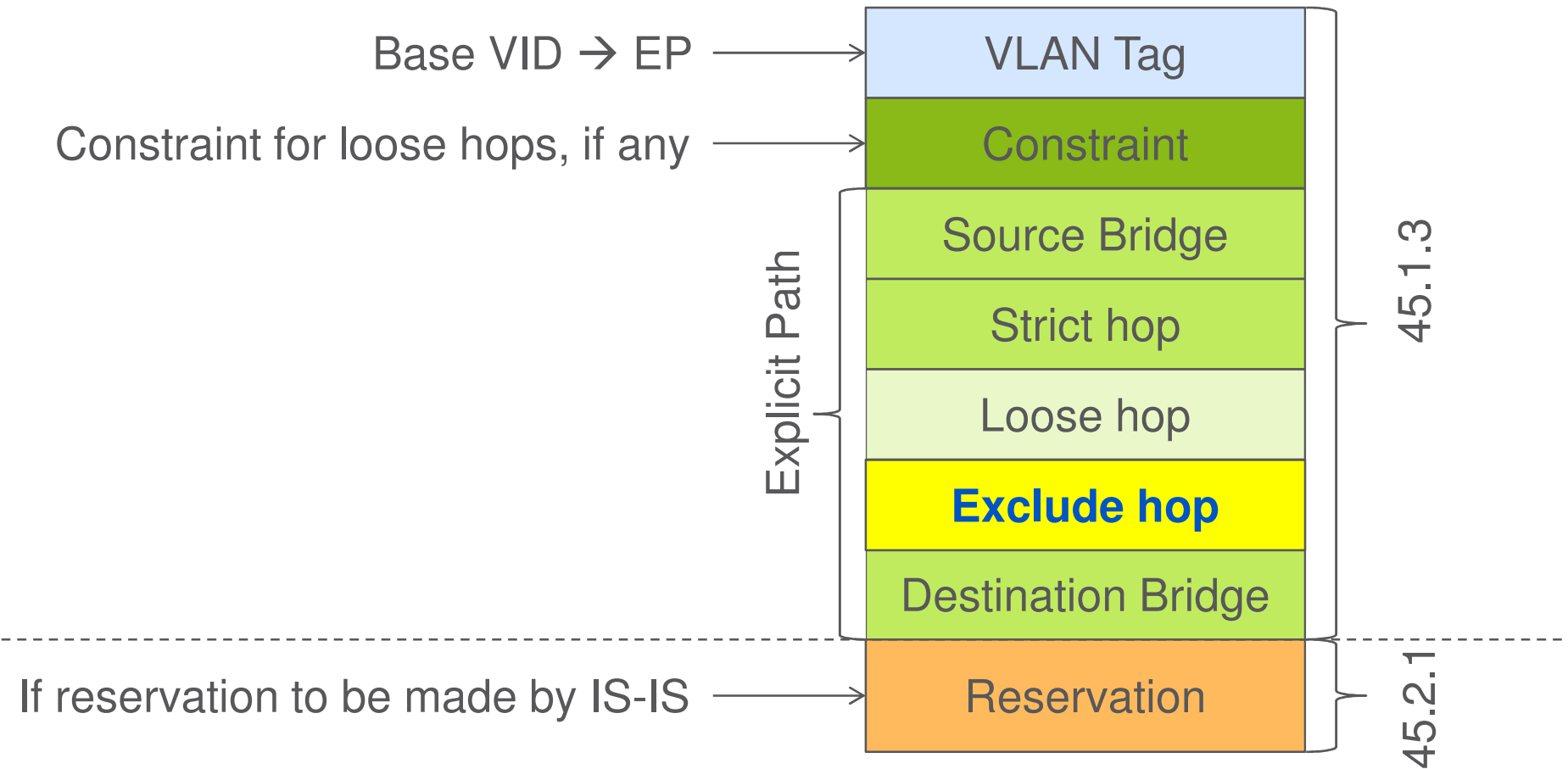|	
VLAN Tag	
Constraint	45.1.3
Source Bridge	
Strict hop	
Loose hop	
Destination Bridge	
Reservation	45.2.1

D0.1 Updates and New Items

D0.1

› 45.1 Explicit and constrained paths

- 45.1.1 Constrained paths
- 45.1.2 Explicit paths
- 45.1.3 Point-to-point explicit path
- 45.1.4 Explicit tree
- 45.1.5 Notification on path status

new

› 45.2 Reservation

› 45.3 Redundancy

- Loop Free Alternates

› 45.4 Distribution of control parameters for time synchronization

› 45.5 Distribution of control parameters for time scheduling

Exclude Hop

Base VID → EP ────────→ VLAN Tag

Constraint for loose hops, if any ────→ Constraint

Explicit Path

Source Bridge

Strict hop

Loose hop

Exclude hop

Destination Bridge

45.1.3

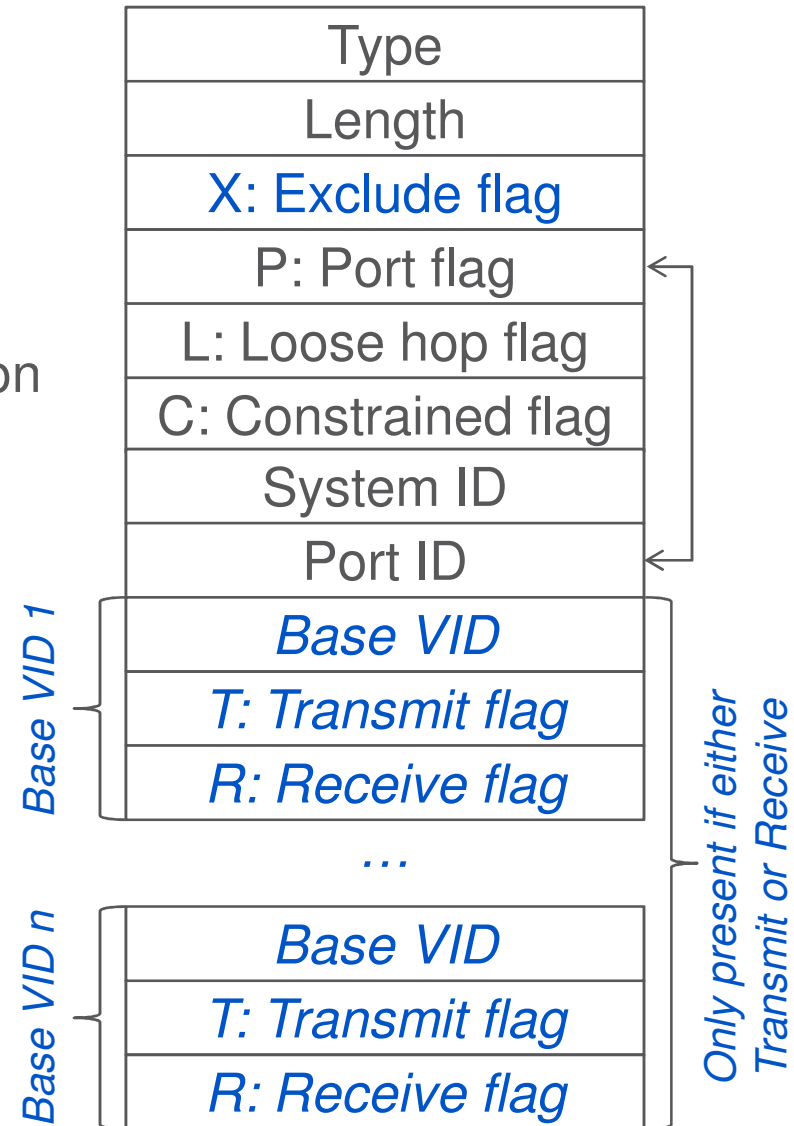If reservation to be made by IS-IS ────→ Reservation

45.2.1

Explicit Tree

› A tree can be given by its edges

› A port of a bridge gives the LAN it is attached to
  – It determines a unique edge if the LAN is point-to-point
  – Otherwise, the shared media LAN is part of the tree

› A tree can be given by a set of System ID + Port ID tuples

› Alternatively, we could use the Edge description of the Computed Topology Digest (items a)-c) in 28.4.6)
  – Note that it uses Bridge ID and we decided to go for System ID

› **Should be a tree always fully specified?**

› Explicit Tree (ET) sub-TLV is described in D0.1
  – Builds upon the EP Hop sub-TLV, see next slide
  – see ET sub-TLV in two slides

EP Hop sub-TLV
Figure 45-5

› T/R – Transmit/Receive for asymmetric VLANs, e.g. rooted multipoint

  – **Default**: Both Transmit and Receive on all VLANs associated with the Explicit Path/Tree

  – Only the deviation from default has to be given:

    › Base VID

    › Transmit flag

    › Receive flag

Type
Length
X: Exclude flag
P: Port flag
L: Loose hop flag
C: Constrained flag
System ID
Port ID
Base VID
T: Transmit flag
R: Receive flag
…
Base VID
T: Transmit flag
R: Receive flag

Base VID 1

Base VID n

Only present if either Transmit or Receive

Explicit Path/Tree sub-TLV

› Explicit Path sub-TLV
Figure 45-3

Type
Length
Format ID
Number of hops
VLAN tag 1

…

VLAN tag n
sub-TLV 1

…
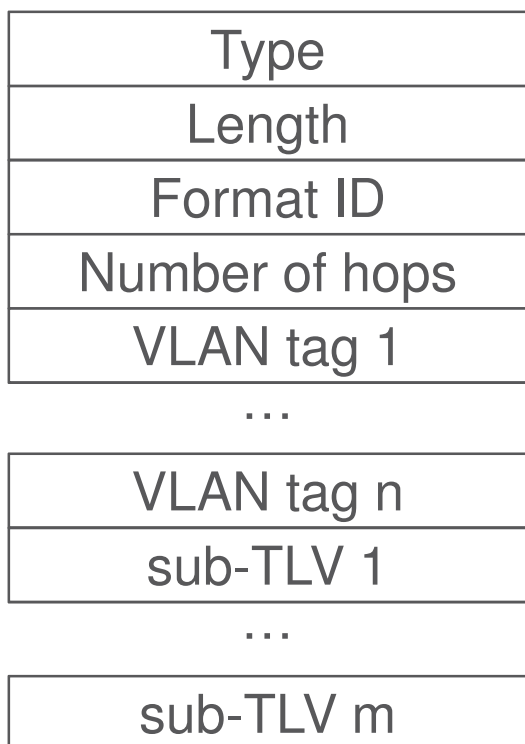
sub-TLV m

› Explicit Tree sub-TLV
Figure 45-6

Type
Length
Format ID
Number of nodes
VLAN tag 1

…

VLAN tag n
sub-TLV 1

…

sub-TLV m
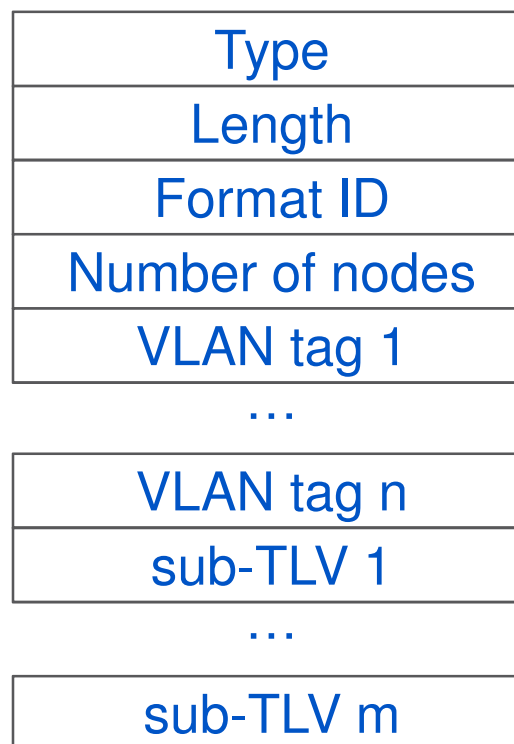
› An Explicit Path is also an Explicit Tree

› Still may be beneficial to have distinct types to ease parsing

New Items

Notification on Path Status

› How do we know that paths have been set-up?

› Shortest paths?

› Explicit Paths?

› More details in:
  http://www.ieee802.org/1/files/public/docs2013/ca-farkas-path-status-notification-0513-v01.pdf

Questions on Constrained Paths

› Constrained path: PCE delegates some part of the computation to the SPT Bridges

› How to treat a constrained path?

› As an Explicit Path?

› Similarly to a shortest path, i.e. automatically updated by IS-IS?

– e.g. colored links

› Allow both?

› Something in between?

45.2 Reservation

› New: 45.2.2 Notification on reservation

› More details on page 9 in
http://www.ieee802.org/1/files/public/docs2013/ca-farkas-path-status-notification-0513-v01.pdf

45.3 Redundancy

› New: 45.3.1 Loop free alternates for unicast data flows

› Loop Free Alternates (LFA) is a simple basic scheme for leveraging redundant paths

› It is an add-on to active topology control

› More details in: http://www.ieee802.org/1/files/public/docs2013/ca-farkas-LFA-SPBM-unicast-0513-v01.pdf

45.4 Time Synchronization Parameters

› Added based on http://www.ieee802.org/1/files/public/docs2012/as-garner-bmca-clock-attributes-1112.pdf

45.5 Scheduling Parameters

› Added based on http://www.ieee802.org/1/files/public/docs2012/Qbv-cummings-dynamic-config-0712-v1.pdf