PBB model enhancements

Supporting 802.1ah comment 176, 178, 181, 182, 186, 188

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Provider Instance Port *(Comment #176)*

Clauses 6.10 and 26.8/Figure 26-2 have different functional description of PIP

- 6.10: single clause 6.10 instance per PIP
- 26.8: multiple clause 6.10 instances per PIP; one per VIP (see slide 3)

Clause 6.15 functionality included also in clause 6.10

- duplication unnecessary in case of single clause 6.10 instance per PIP
- duplication non functional in case of multiple clause 6.10 instances per PIP
- delete duplicate functionality from clause 6.10 (see slide 4)

Clause 6.10 combines clause 6.9 functionality with MAC encapsulation

- duplication of specification unnecessary
- separate two independent functions (see slide 5)

802.1ah/D3.5 ignores clause 6.11/.1ad

- enhancement necessary
- add support of clause 6.10 ISS by additional technologies (see slide 6)
PIP Description C 26.8

I-Component

S-VLAN MAC Relay Entity

Multiple instances of C 6.10

Same Service Instance Multiplex Entity process in C 6.15 and C 6.10 ⇒ Duplicate!
Delete duplicated functionality from C 6.10 \(\Rightarrow\) C 6.10’
Separate C 6.9 functionality from MAC Encapsulation in C 6.10 (⇒ C 6.10’)

I-Component

S-VLAN MAC Relay Entity

- EISS Mux Entity (C 6.14)
- ISS
- ISS
- ISS

S-Tag
C 6.9, C 9.5b

Virtual Instance Ports

- MAC Encapsulation (C 6.10’)
- ISS

TY, B-SA
B-DA

I-Tag

Service Instance Multiplex Entity (C 6.15)

ISS

Provider Instance Port

S-Tag
C 6.9, C 9.5b

S-LAN-ISS

ISS

I-LAN-ISS

ISS

ISS

ISS

ISS

Customer Instance Ports

Split C 6.10’ into
- C 6.9/C 9.5b
- C 6.10’
Support I-ISS by additional technologies (C 6.11/802.1ad) (comment #181, #182)

**I-Component**

S-VLAN MAC Relay Entity

- **EISS**
  - EISS Mux Entity (C 6.14)
  - ISS
  - ISS
  - ISS (C 6.9, C 9.5b)

- **Virtual Instance Ports**
  - MAC Encapsulation (C 6.10)

- **S-ISS**
  - ISS
  - ISS
  - ISS

- **S-EISS**
  - ISS
  - ISS
  - ISS

- **I-ISS**
  - ISS
  - ISS

S-Tag

**Customer Instance Ports**

- **S-EISS**
  - ISS

- **S-ISS**
  - ISS

- **S-LAN-ISS**
  - ISS

- **S-LAN-ISS**
  - ISS

**Support of the ISS by additional technologies (C 6.11/1ad)**

**TYPE field is mandatory when ISS supported by additional technologies**

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Deploy C 6.11/1ad to support I-ISS
Customer Backbone Port \((Comment \#178, \#186)\)

Clause 26.8/Figure 26-2 does not present B-VLAN instances
Clause 26.8/Figure 26-2 does not present B-VLAN MEPs
- enhancement necessary (see slide 8)

Clause 6.11 includes clause 6.15 Srvc Instance Mux Entity functionality
Clause 26.8/Figure 26-2 includes clause 6.11 and 2x clause 6.15
- in total three instances of clause 6.15 functionality specified in CBP
- one instance is sufficient
- enhancement appropriate (see slide 8)

Clause 6.11 includes PBB Service Instance switch functionality
- similar to C-VLAN Component MAC Relay functionality in clause 15.4/.1ad
- aggregates service instances into one or more B-VLAN instances
- consistency in 802.1Q specifications
  - describe PBB Service Instance switch function similar to C-VLAN Component MAC Relay function (see slide 8)
Add B-VLAN Instances, delete duplicate functionality, depict Service Instance switch

Delete C 6.15 functionality from 6.11
Split remainder of C 6.11 into
- C 6.14,
- Nx C 6.Y,
- C 6.X

Do these MIPs have a function here?
Service Instance Switch Entity (C 6.X)

Connectivity similar to “C-VLAN Component MAC Relay” in 802.1ad
- point-to-point connectivity between CBP Port and zero or one Backbone Instance Port
B-VLAN Service Instance Multiplex Entity (C 6.Y)

Clause 6.15 function with the following additions:

- all-group MAC address Translation
  - all-group MAC address in I-LAN $\Leftrightarrow$ I-SID group MAC address (OUI: 802.1ah, remainder: I-SID)
- optional I-SID & Default Backbone Destination MAC address Translation table
  - port I-SID $\Leftrightarrow$ backbone I-SID
  - port I-SID group MAC address $\Leftrightarrow$ backbone I-SID group MAC address
- Alternative: reduce dependency of I-SI with B-VLAN
  - backbone I-SID group MAC address (scope is B-VLAN) only
  - service instances deploy all-group MAC address and CFM-group MAC addresses (no changes to CFM!)
  - CBP Translates all-group and CFM-group MAC addresses into backbone I-SID group MAC address, and vice versa
  - seamless interoperability with networks supporting I-SIs with point-to-point trunks/tunnels, backwards compatibility restored

(All)Group MAC address translation may be prevented

- Deploy clause 6.15 function unmodified
- Add extra Backbone MAC Encapsulation function
  - Same as present in PBB (minimum) (see slide 12)
Add MAC Encapsulation to Backbone VLAN (Comment #188)

Additional MAC Encapsulation takes away Service Instance dependency with B-VLAN
- PBB SI can deploy all-group address; no need for <802.1ah.ISID> group MAC address in SI
- no need for MAC address Translation any longer; replaced by MAC encapsulation
- true “Backbone-MAC” address
- current B-MAC is a “Service-MAC” address
PBB *(minimum: S-VLAN, B-VLAN, no I-Service Instance)*

**BEB**

S-VLAN MAC Relay Entity

- **EISS Mux Entity** (C 6.14)
- **ISS**
- **ISS**
- **ISS**

I-Tag
- C 6.9, C 9.5c

B-SA
- MAC Encapsulation (C 6.10”)

B-DA

B-ISS
- **ISS**

B-EISS

S-ISS
- **ISS**
- **ISS**

S-LAN-ISS
- **ISS**
- MAC encaps (C 6.10”)

S-Tag

Customer Instance Ports

- **S-ISS**
- **EISS**
- ISS

S-EISS
- EISS Mux Entity (C 6.14)
- ISS
- ISS

S-Tag

- ISS

- S-ISS

- EISS Mux Entity (C 6.14)

- ISS

- ISS

B-ISS
- **ISS**

B-EISS
- **ISS**
- **ISS**

B-ESA
- **ISS**

B-DA

**S-EISS**
- EISS Mux Entity (C 6.14)
- ISS
- ISS