

# IEEE 802.1aq Shortest Path Bridging Update Summary

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# Updates

- Making the .1aq ready for 1<sup>st</sup> WG Ballot for July. This was the plan Geneva was too tight to get all changes in.
- Updates on clauses:
  - 28 SPB data base driving change
  - 12 Management model driving changes
  - These two clauses contain the basis of the management model and protocol.
  - Revisiting the earlier clauses to align with these.

# Update on IETF IS-IS draft

- We are documenting in the IETF to make sure we do not collide code points for IS-IS where there is other work going on.
- We have decided to have our own document rather than combined. Many reasons !
- FYI Details can be read on :
- <http://www.ietf.org/mail-archive/web/isis-wg/current/threads.html>
- Search for “Layer 2 IS-IS” In Thread index.
- Ask if you have any questions.

# Clause 12 SPB auto-config

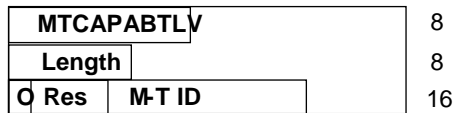
- Need to detail how SPB is configured and how it bootstraps.
- This was original intent but it affects the management model in several clauses.
- How IS-IS is configured
- Adding a new bridge to an SPB-Domain
- Adding a new ECT to an SPT-Domain

# Next Steps

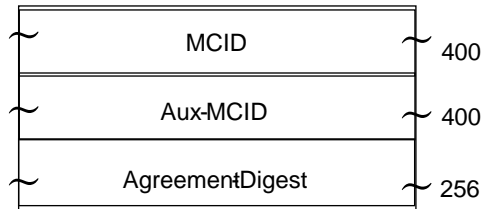
- Ballot resolution - ready for WG Balloting July 2010
- Remove IS-IS over LAN from this version
  - Beyond the scope of current SPB
- Finish and align Digest sections.
  - Agreement Digest
  - MCID
- Add application scenarios – Appendix
  - Typical SPBV and SPBM

# IS-IS Data Objects

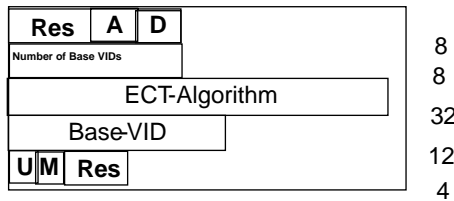
a) Multi Topology aware capability TLV



b) Hello PDU SPB Digest sub TLV

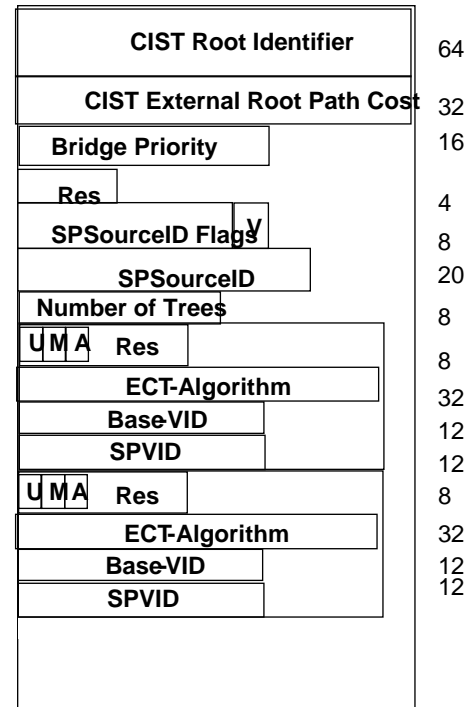


c) Hello PDU Base VID sub TLV



Per Bridge

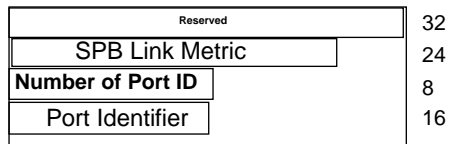
d) SPB Instance sub TLV



Per Bridge

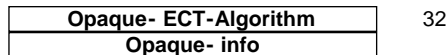
# IS-IS Data Objects

## e) SPB Link Metric sub TLV

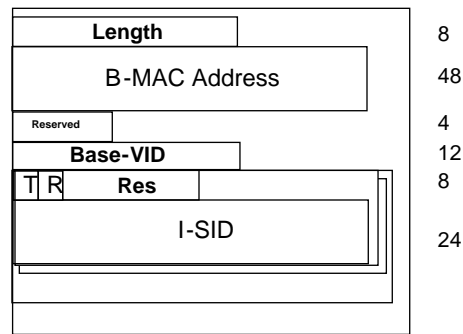


Per Adjacency

## f) SPB Opaque ECT Algorithm sub -TLV

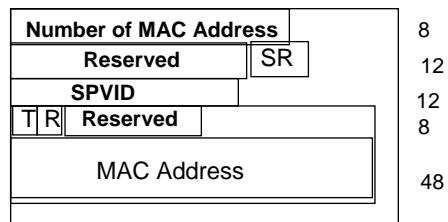


## h) SPBM Service Identifier and Unicast Address sub TLV



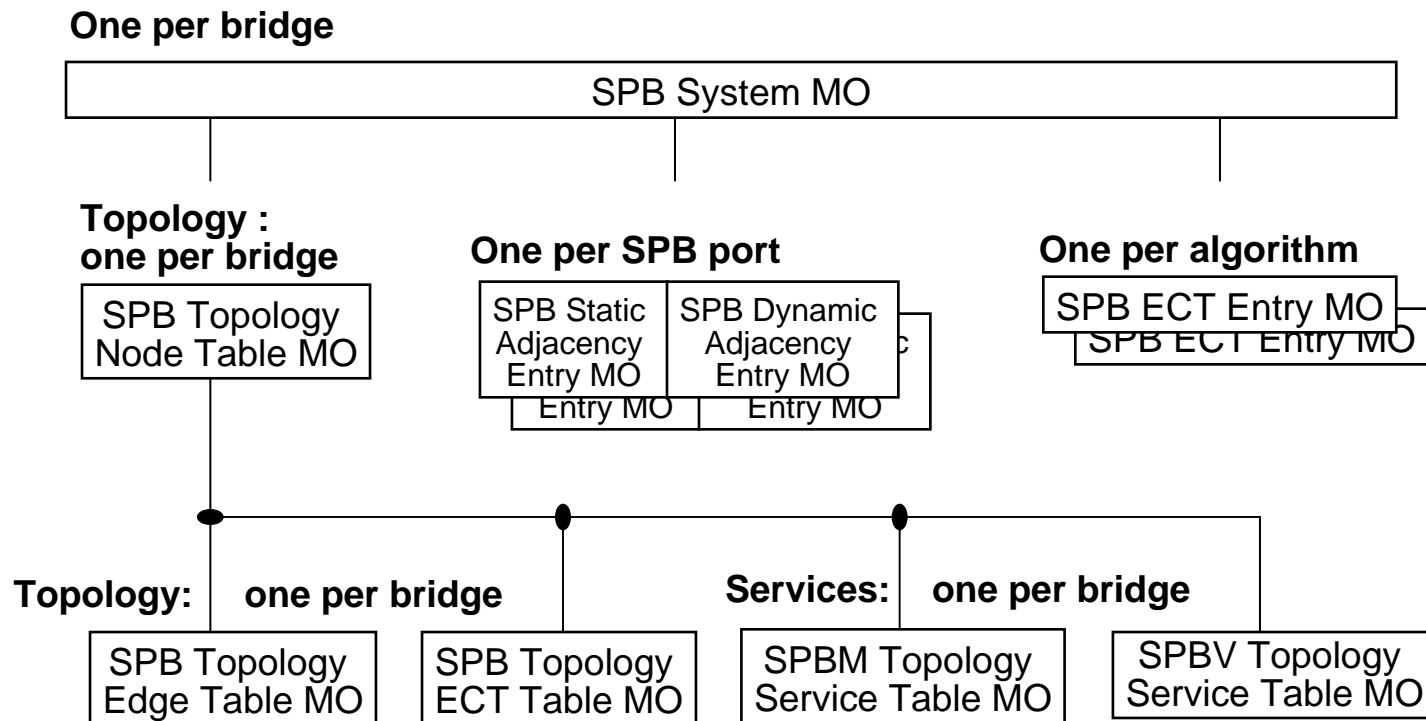
Per Bridge

## g) SPBV MAC Address subTLV



Per Bridge

# Relationship between SPB MOs *(b)*





# How to Configure SPB

## Clause 12.20.1

1. The SPB System Identifier used by all SPB instances on this bridge
2. The SPB System Name used by all SPB instances, identical to the ISIS System Name
3. Optional The Bridge Priority Default is Middle Priority
4. Optional SPB System Shortest Path Source Identifier, (default is auto allocation).
5. Optional The SPBV System Mode, identifying whether SPBV mode is enabled, and if so, whether the SPVID associated with this bridge is assigned, or is to be auto-allocated. Default On, Default Auto Allocated.
6. Optional The SPBM System Mode, identifying whether SPBM mode is enabled, and if so, whether the Shortest Path Source Identifier associated with this bridge is assigned, or is to be auto-allocated. Default On, Default Auto Allocated.

# How to Configure SPB continued

## Clause 12.20.2

1. Optional A Multi-Topology Identifier to support IS-IS MT operation. Default 0
2. The VLAN identifier of the Base VID used in the forwarding path. Default Independent learning.
3. Optional The identifier of the Equal Cost Tree algorithm to be used for this Base VID. Default ECT index 1
4. A flag identifying whether the operational mode of this Base VID is SPBV or SPBM.
5. Optional. The value of the SPVID to be used by this bridge if operating in SPBV mode. Default Auto-allocated

# How to Configure SPB continued

## Clause 12.20.4

1. Optional A Multi-Topology Identifier to support IS-IS MT operation. Default 0
  - The system interface index of the port.
  - Optional The value of the ieee802.1 SPB Link State metric for the link on this port. Default Computed
  - The SPB administrative state of this port.

# How to Configure SPBV continued

## Clause 12.10.3.3 Optional Learning Constraints

1. Entry Index—Entry index of the entry to be set;
2. The type of the Learning Constraint: S or I;
3. The value of the Learning Constraint, which is either:
  - An S Constraint value, consisting of a pair of VIDs; or
  - An I Constraint value, consisting of a VID and an Independent Set Identifier

# How to Configure SPBV continued

## **Clause 12.10.3.8 For Each SPVID**

1. VID—the VID of the entry to be set;
2. FID—the FID to which the VID is to be allocated. 0xFFF

## **Clause 12.12.2.2 FIDs to MSTI only once**

1. FID—the FID of the entry to be changed 0xFFF
2. MSTID—the MSTID to which the FID is to be allocated. 0xFFF

# Configuring SPBM

## Clause 12.16.5.2.2

- a) ComponentID—the number identifying the bridge component associated with this port. Default 1
- b) Port Number—that component's Port Number for the Bridge Port.
- c) Backbone-SID—24-bit I-SID value (6.11). The I-SID
- d) B-VID (optional)—12-bit VID (6.11).
- e) Default Backbone Destination (optional)—48-bit DA (6.11).  
Optional would only be used in the case if SPT algorithm. Otherwise a local address computed by SPBM
- f) Ingress, egress, both ingress and egress—a 2-bit selector that determines if frames on this VIP may. *Can we reuse this for TX and RX Otherwise we need an additional control here.?*
  - ingress to the PBBN but not egress the PBBN, egress to the PBBN but not ingress the PBBN, or
  - both ingress and egress the PBBN. This feature is used to support asymmetric VLANs (B.1.3).
- g) Local-SID (optional)—24-bit I-SID value (6.11). Default no local SID

# What about?

- SPB region?
  - Regions currently are dynamic. They have no enumeration. Simply if one node has the same configuration as the other then the region is formed. If the configuration differs by an important factor (determined by SPT Sets and Base VIDs that differ in the active set) then regions are different.
- Individual MAC Addresses
  - We can use allocated chassis MACs or Port Base MACs
- Group MAC Addresses
  - We can use MVRP addresses
  - We can use computed Group MACs SPBV

# Other Points

- Need to detail how SPBV handles out of SPVIDs.
- Update VID translation text
- Use Cases
- PICs
- Clause 17 update



# Acknowledgments

- Many people have contributed to the upcoming version
- Peter Ashwood-Smith
- Nigel Bragg
- Janos Farkas
- Mick Seaman
- Panos Saltsidis
- Paul Unbehagen