CFM in Backbone Edge Bridges

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P802.1ag/D7.1 Figure 22-1

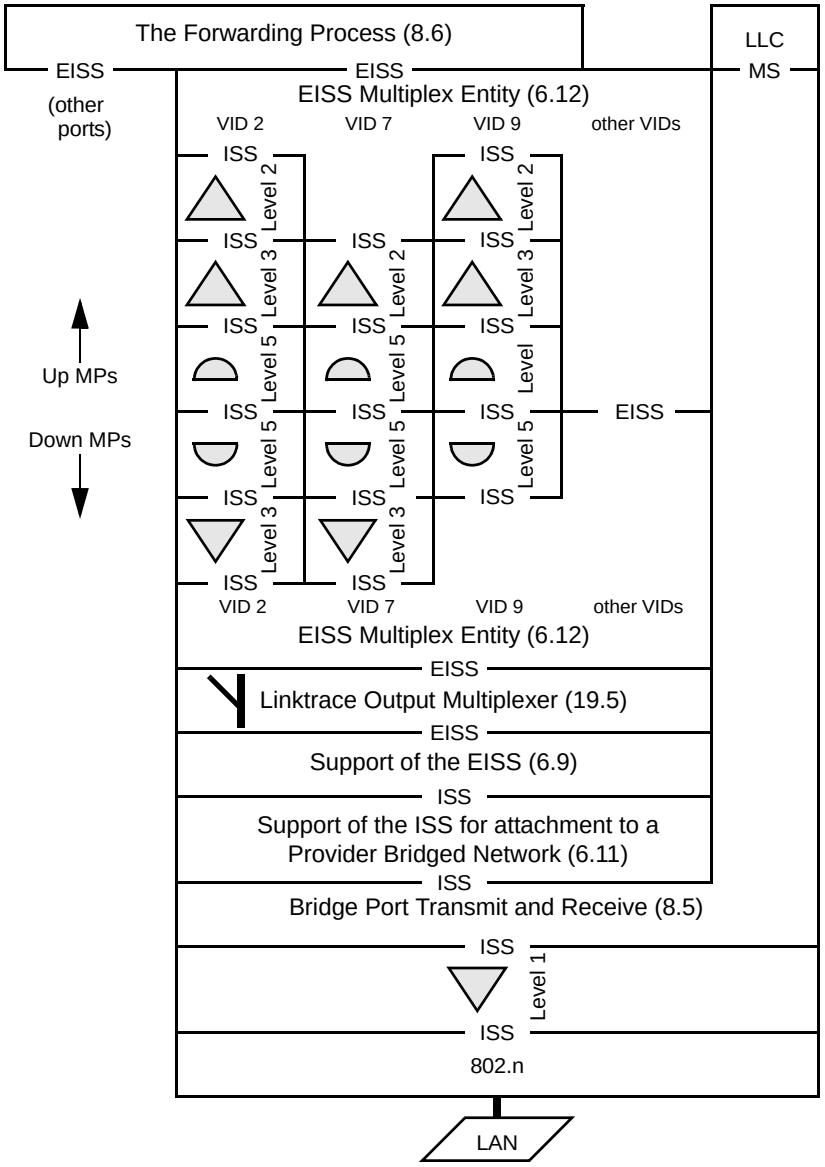
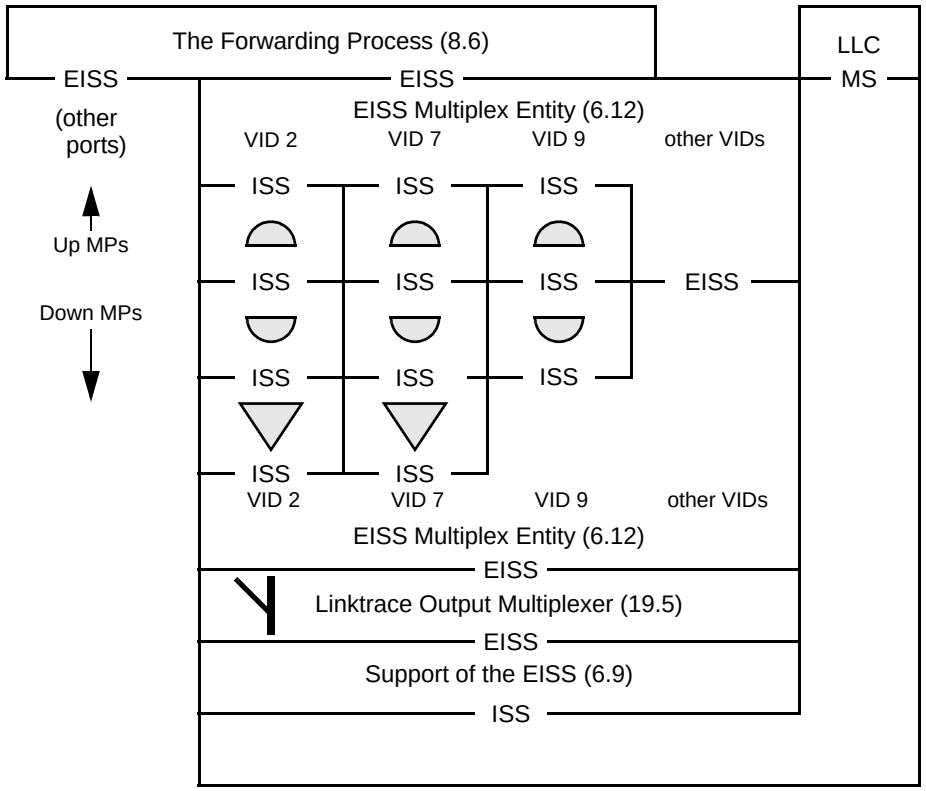


Figure 22-1—MEPs and MIPs distinguished by VID (incomplete picture)

Fig. 22-1 trimmed down to relevant parts



I-Component's EISS just below CFM stack

LOMs recast as ISS units to isolate CFM

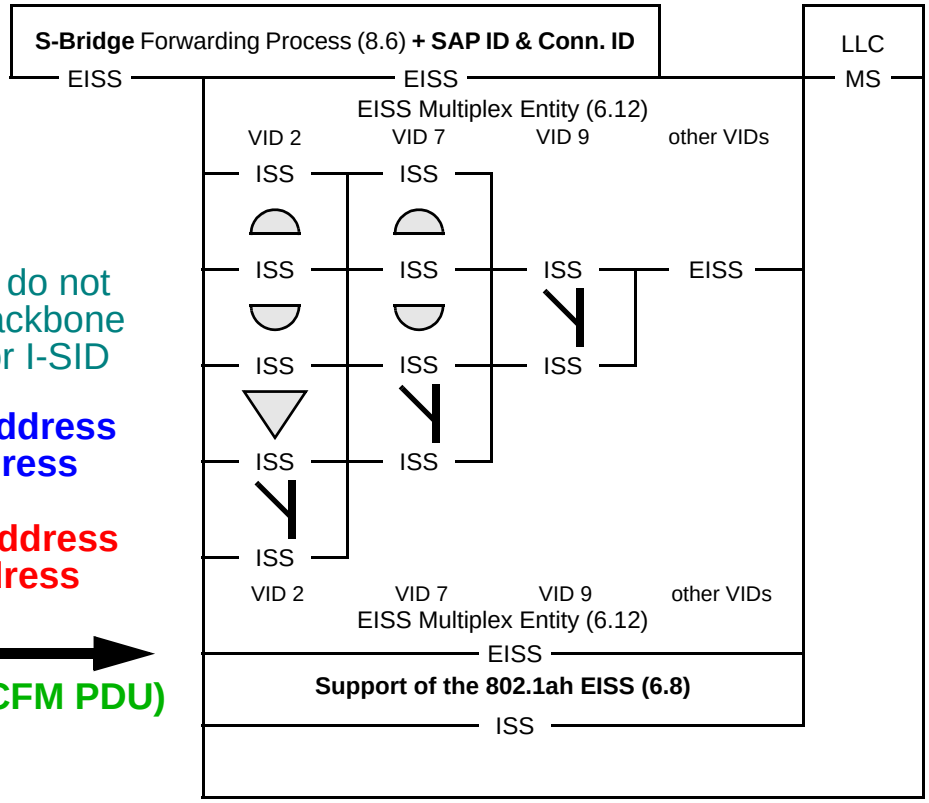
CFM Entities do not care about Backbone parameters or I-SID

Parameters:

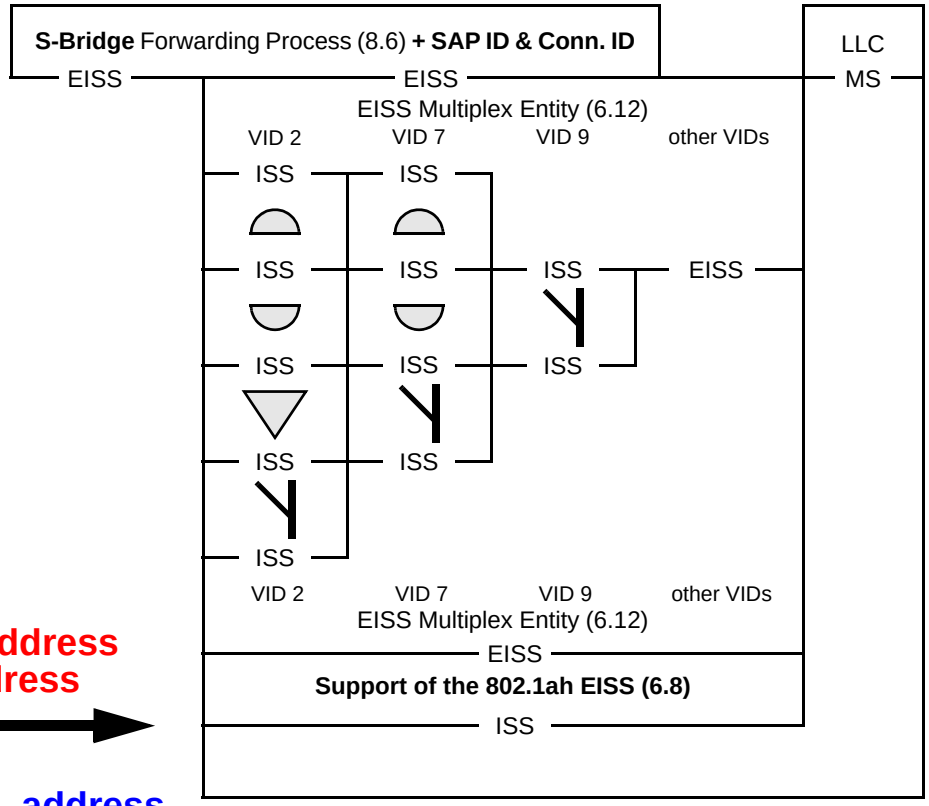
Customer destination_address
Customer source_address
S-VID
Backbone destination_address
Backbone source_address
I-SID

Customer Data (can be CFM PDU)

mac_service_ data_unit



I-Component's EISS below P802.1ah Support of EISS



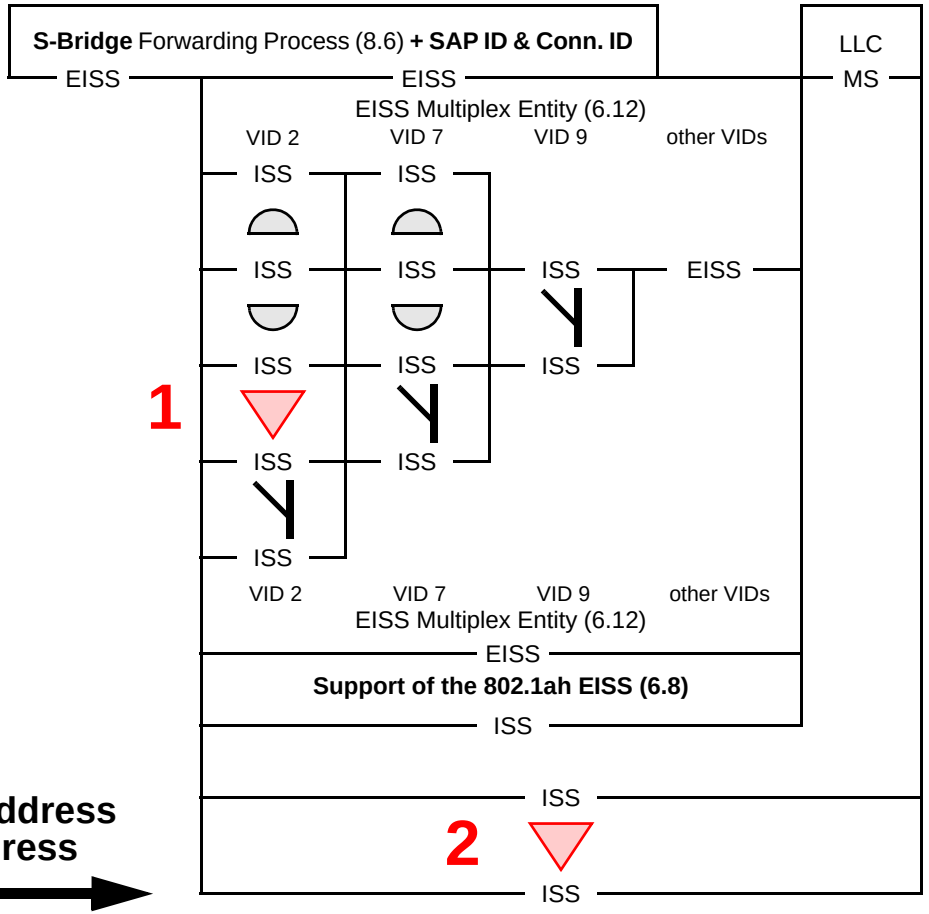
Parameters:

mac_service_data_unit

Backbone destination_address
Backbone source_address

I-SID
Customer destination_address
Customer source_address
S-VID
Customer Data (CFM PDU invisible)

I-Component's ISS below Provider Instance Port MEP



A MEP in position 1 cannot be visible to the neighboring Bridge's B-component, but it can be per-S(I)-service.

Parameters:

Backbone destination_address
Backbone source_address

mac_service_data_unit

I-tag or CFM PDU

A MEP in position 2 can be visible to the neighboring Bridge's B-component, but it cannot be per-S(I)-service.

I-Component's ISS between halves of EISS Support

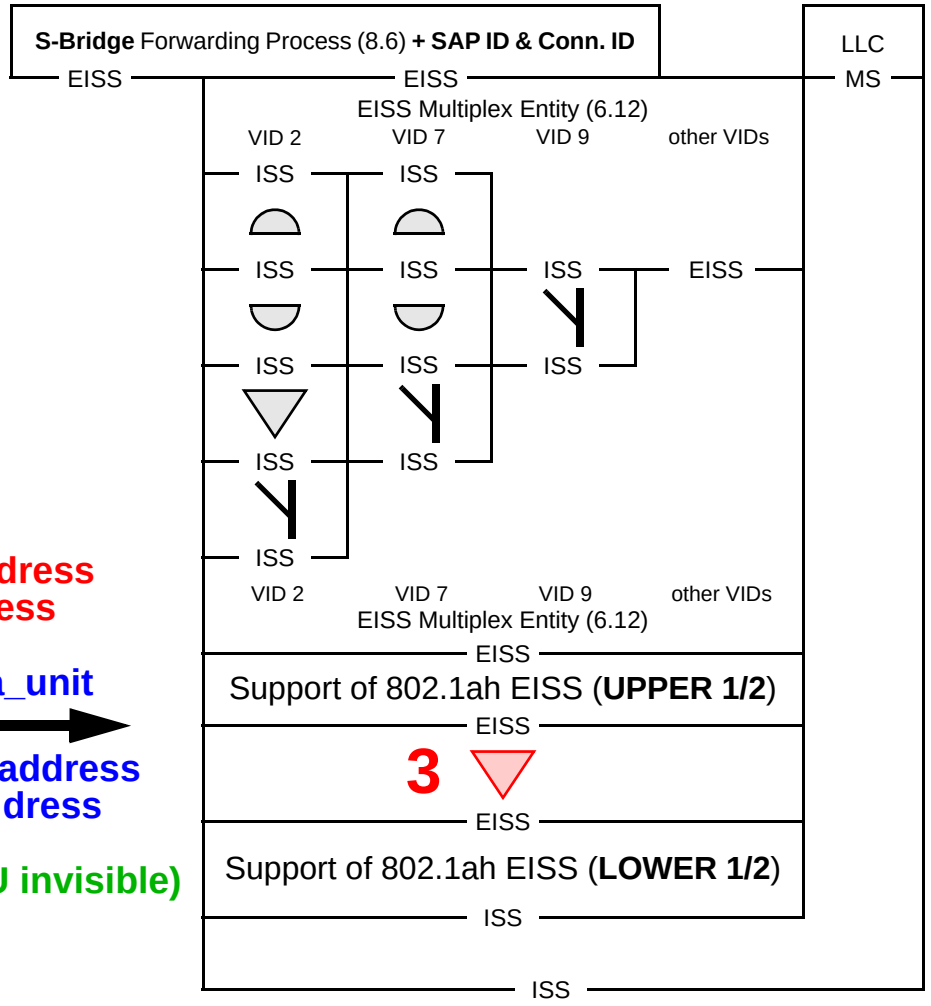
More about the "Type of mac_service_data_unit", later.

Parameters:

Backbone destination_address
Backbone source_address
I-SID
Type of mac_service_data_unit

mac_service_data_unit

Customer destination_address
Customer source_address
S-VID
Customer Data (CFM PDU invisible)



I-Component's ISS below new place for MEP

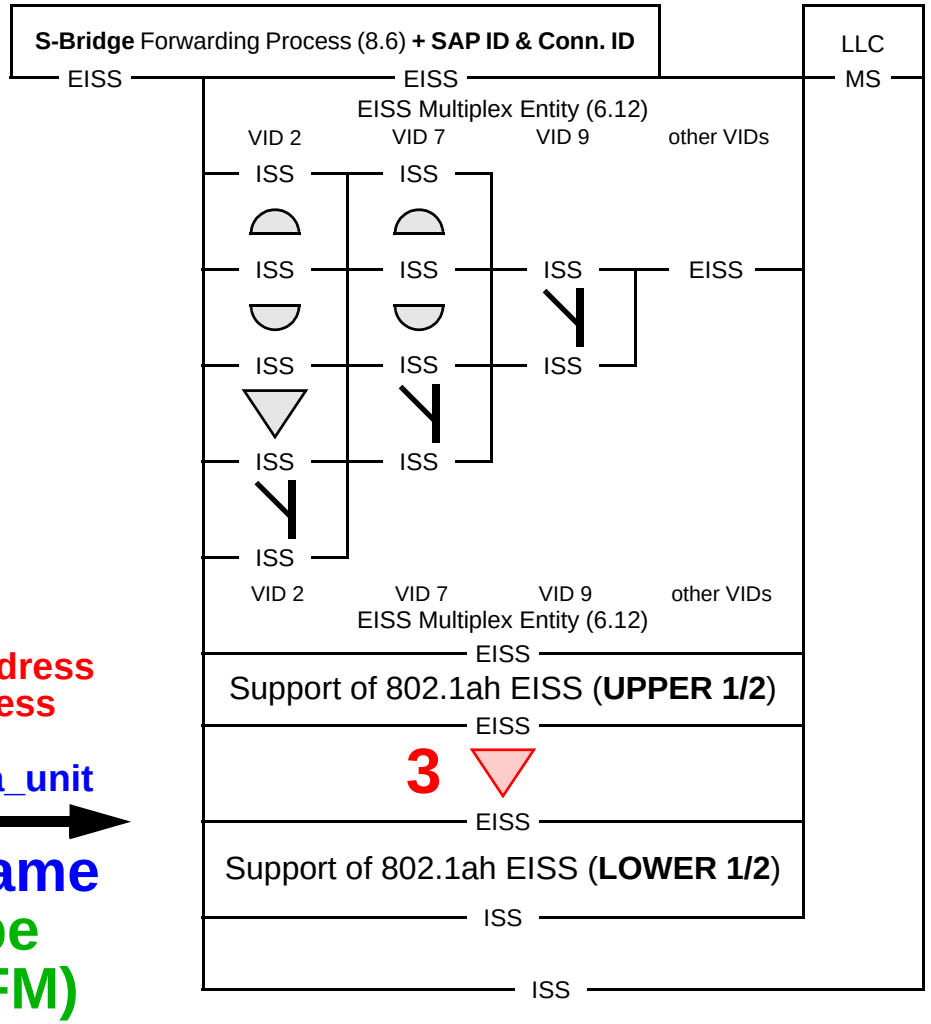
A MEP in position 3 can be visible to the neighboring Bridge's B-component, and can be per-S(I)-service.

Parameters:

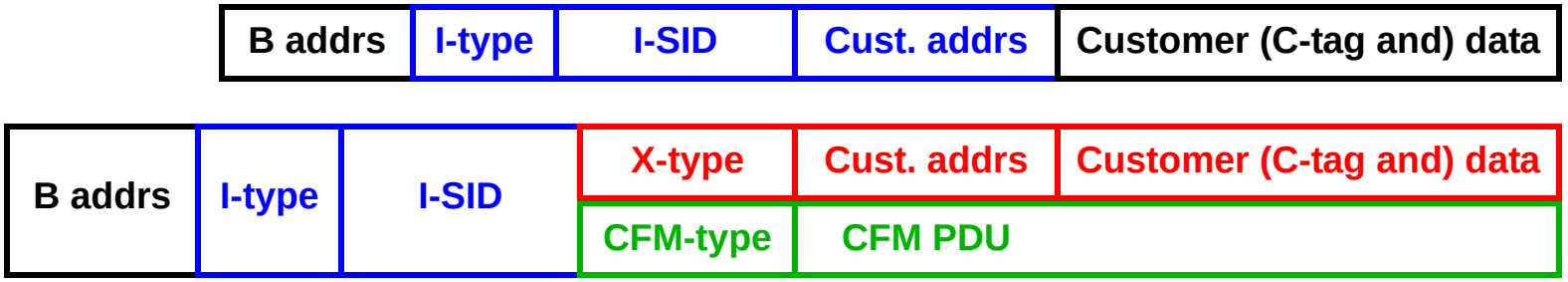
Backbone destination_address
Backbone source_address
I-SID
Type of mac_service_data_unit

mac_service_data_unit

Customer Frame or Ethertype (could be CFM)

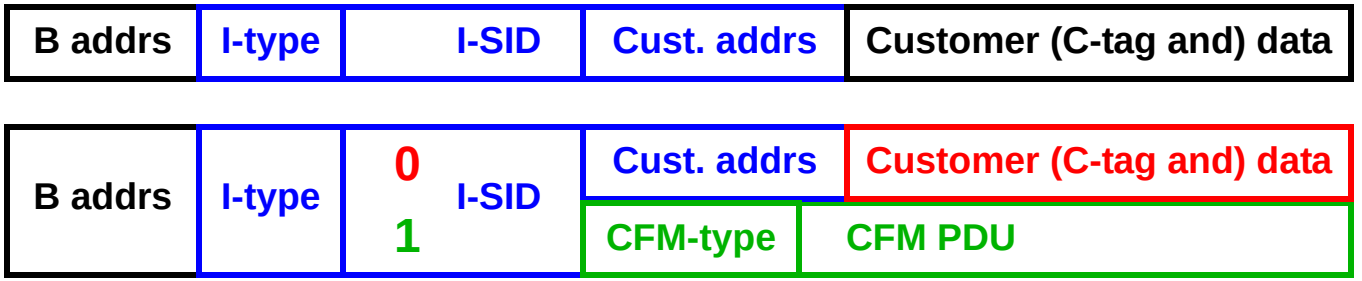


We could define this Position 3 MEP



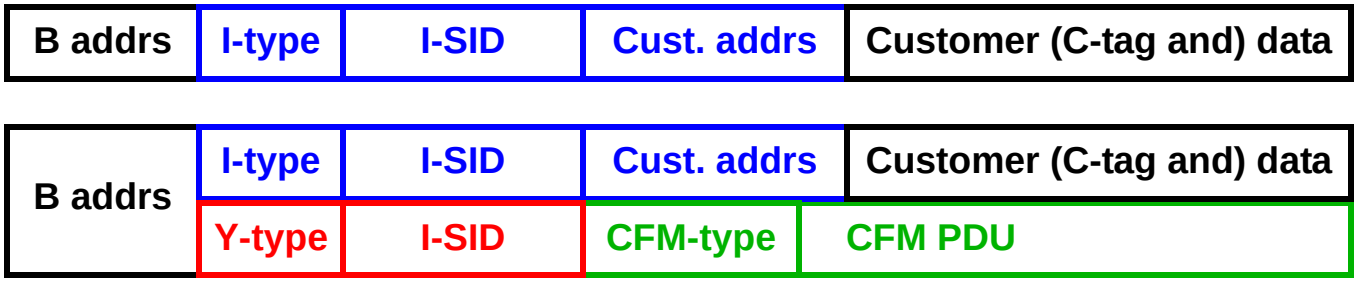
- **This would most logically be supported by:**
  - **Shortening the I-tag to include just the priorities and I-SID; and**
  - **Defining an Ethertype (the X-type) that says, "Here is an encapsulated frame".**
- **The "Type of mac_service_data_unit" in Slide 8 is not required, because there is always an Ethertype just past the I-tag; that is why this is the cleanest solution.**
- **But, we have fixed the I-tag format, so this option is not available.**

We could define this Position 3 MEP



- **We could use a bit in the I-tag that says, “Either an Ethertype or a whole frame follows”.**
- **The “Type of mac_service_data_unit” in Slide 8 is required to signal whether the mac_service_data_unit is a whole frame or an Ethertype PDU.**
- **This is not ideal, because it is awkward to parse a tag such that the Ethertype alone does not define the length.**

We could define this Position 3 MEP



- **We could use a new Ethertype (Y-type) for the I-tag that says, "An Ethertype follows the I-SID".**
- **The "Type of mac_service_data_unit" in Slide 8 is required to signal whether the mac_service_data_unit is a whole frame or an Ethertype PDU.**
- **This breaks the CFM model in a significant way, because CFM PDUs have a different encapsulation on the backbone than the data PDUs that they are supposed to protect.**

We could also not define this MEP

- That seems to leave us with the choices from Slide 6, either:
  - Per-service MEPs that cannot talk to MIPs in other Backbone Bridge's B-components; or
  - A single MEP for the Provider Instance Port that can talk to a MIP in another Backbone Bridge's B-component, but bundles some number of services together.
- Because the services are multiplexed into a single Provider Instance Port, and the PIP's MEP (position 2 in Slide 6) is physically adjacent to the per-service MEPs, no MIPs are actually needed at the PIP level.

Connections

- **This does not mean, at least in the long term, that CFM in the backbone cannot be aware of any granularity finer than the B-VLAN.**
- **The MEP in position 2 in Slide 6, operating on Backbone addresses and associated with only a default B-VLAN, could be defined to operate:**
  - **Per-I-SID;**
  - **Per group of I-SIDs serving the same set of service instances; or**
  - **Per B-VLAN.**
- **Associations of I-Components smaller than a B-VLAN are "connections", and can be managed by CFM. (See ag-nfinn-ccm-addresses-012207-01.pdf.)**

Conclusion

- **CFM does not raise a requirement to define a new form of the I-tag.**