P802.1ag CCM Addresses

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Unicast CCMs

- **ITU-T Y.1731 allows unicast CCMs.**
- **In P802.1ag/D7.1, unicast CCMs can result in the failure to recognize cross-connections. For example:**
  - **VLAN operating only unicast CCMs is cross-connected with a VLAN carrying P802.1ag multicast CCMs, both at the same MD Level.**
  - **The multicast CCMs can be dropped before they reach a MEP, because the unicast VLAN does not expect multicasts (e.g. PBT).**
  - **The unicast CCMs are ignored by the current definition of a P802.1ag MEP.**
  - **The cross-connect is not detected.**
- **This is a cross-connect, because both VLANs could carry locally administered MAC addresses that collide.**

Connections

- **Suppose that a set of devices utilizing a service instance are stations that each respond to a limited set of unicast and multicast addresses. Call this set a "connection".**
- **Suppose that two such connections share the same VLAN, but respond to disjoint sets of addresses.**
  - **In particular, the stations in no more than one of the connections respond to the broadcast MAC address.**
- **In this case, CCMs in those two connections could share the same VLAN, maintain the connectivity of the connections, and ensure against cross-connects.**

Connections

- **The key is that the addresses used by the MEPs correspond to the addresses used by the stations.**
- **To a Provider Backbone Network, an I-component is a station.**
- **In a Provider Backbone Network, a connection could comprise:**
  - **a single I-SID;**
  - **a collection of I-SIDs; or**
  - **any other combination.**
- **This choice is determined by the relationships between MAC addresses and I-SIDs, which could be configured.**

Connection MEPs

- **A Connection MEP differs from the existing MEP (now a "Service MEP") only in CCM addressing; all other parts of the MEP work the same.**
  - **A Connection MEP can be configured with any number of Continuity Check Initiators, each transmitting a stream of CCMs to a different unicast or multicast MAC address.**
  - **A Connection MEP's Continuity Check Receiver recognizes only those CCMs whose destination_address matches an entry in a configured list.**
  - **These addresses correspond exactly to the addresses received and/or transmitted to by the connection's end-points (stations).**
- **A Service MEP ignores the destination_address of a received CCM.**
  - **The Service MEP accepts all CCMs at the right MD Level.**

Connection MEPs and Service MEPs

- **Each Provider Instance Port of the I-component can have a Connection MEP that handles the same backbone addresses.**
  - **Each group of I-SIDs that share the same set of I-components can have its own backbone multicast MAC address.**
  - **The broadcast MAC address is not used.**
  - **Each of these groups has a different MAID.**
  - **Protection can be per-I-SID or per-group (using Connection MEPs) or per B-VLAN (using Service MEPs).**
- **If a VLAN carrying Connection MEPs' CCMs is cross-connected with a VLAN carrying Service MEPs' CCMs, the Service MEPs will report the cross-connect.**
  - **The Connection MEPs won't; unless the addresses collide.**

Proposal

- **We do not define Connection MEPs in P802.1ag; it is late, and there are still issues to be resolved.**
  - **E.g. do the Connection MEPs verify the source MAC addresses?**
- **We should change the Continuity Check Receiver definition to not filter CCMs by destination_address (see Slide 2).**