On the Use of the Customer ID Field

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802.17: A MAN Technology

- 802.17 is a public MAN technology
  - Needs to have carrier-grade features
- Providers have more stringent requirements than those addressed by WGs such as 802.3
  - Ethernet was designed for use in private LANs
- Providing per-customer traffic isolation is a key requirement for supporting SLAs
- It is critical for 802.17 to address these requirements

Carrier Requirements in the MAN

- Per-customer statistics
- Separation of traffic from different customers
- Allow overlapping VLANs
  - Provider should not have to worry about the contents of the customer's packets
- Optional support for traffic separation is an objective supported by the 802.17 WG

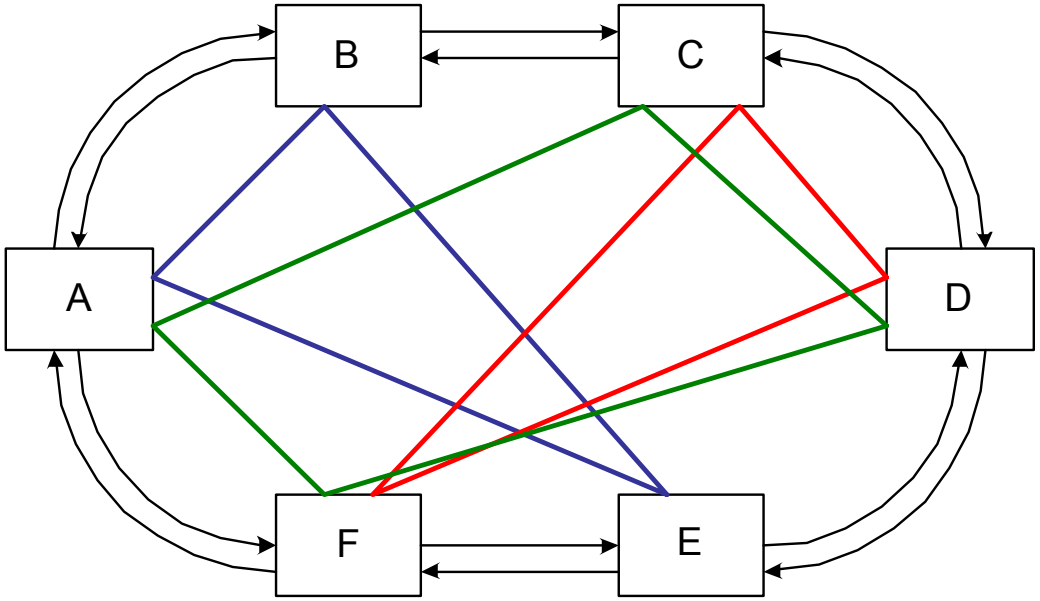
Per-customer Statistics

- Maintain packet counts for each customer at every node on the ring
  - Needed for customer support, trouble tracking, performance evaluation, and billing
  - Even more important for a carrier's carrier
- Such statistics are maintained by other MAN technologies
  - e.g. SONET OAM&P by monitoring the overhead bytes
- This is a MAC-level function
  - Statistics must be maintained in the transit path, not just at the endpoints
- Should be an optional function

Customer Traffic Separation

- A MAC entity should not receive traffic that is destined to Customer IDs that it doesn't support
- A MAC-level function because it impacts receive rules

Traffic Separation Example



- Each color represents a different customer
- A node should not pick up broadcast traffic from a customer that it is not configured for
  - Node A should not pickup unicast or broadcast traffic colored red

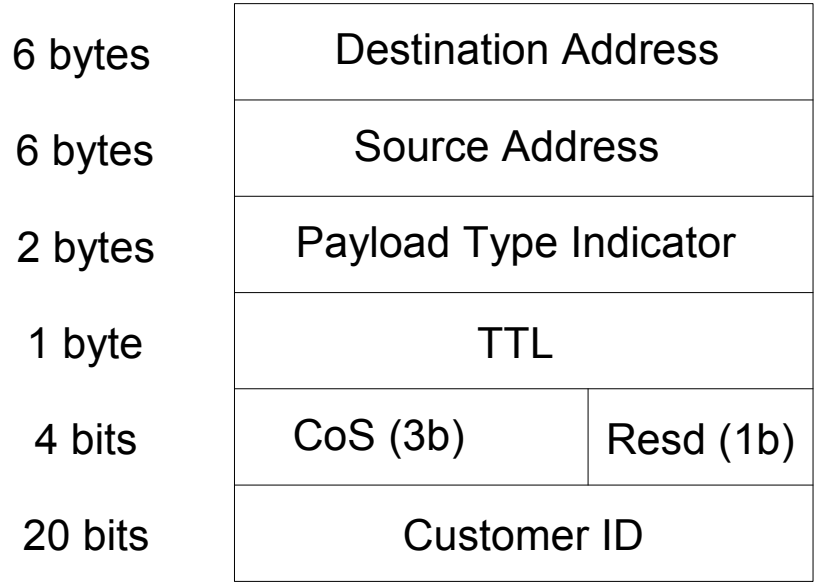
Overlapping VLANs

- Allow overlapping VLANs from different customers
- Isolates the service provider from any changes in the customer network
- This would be a side-benefit of using Customer IDs
- Does not have to be a MAC-level function
  - May be done using vMAN IDs as done in a proprietary fashion today

How Big Should the Field Be?

- Need to ensure that number of customers that can be supported scales for the forseeable future
- 20-bits would allow support for up to 1 million customers on a single ring

Frame Format



- 20-bit Customer ID is part of the MAC header
- The RPR HEC must cover these 20 bits since they are examined on the transit path

Impact on the MAC

- An optional function
- MAC should be able to maintain per-Customer ID statistics
- Customer traffic separation requires that the MAC receive rules be modified to use the Customer ID as well

Conclusions

- Configuration of the Customer ID is done above the MAC
- However, the 802.17 MAC must support certain customer-based functions needed by providers
  - Statistics
  - Traffic separation
- The Customer ID field is needed in the 802.17 header