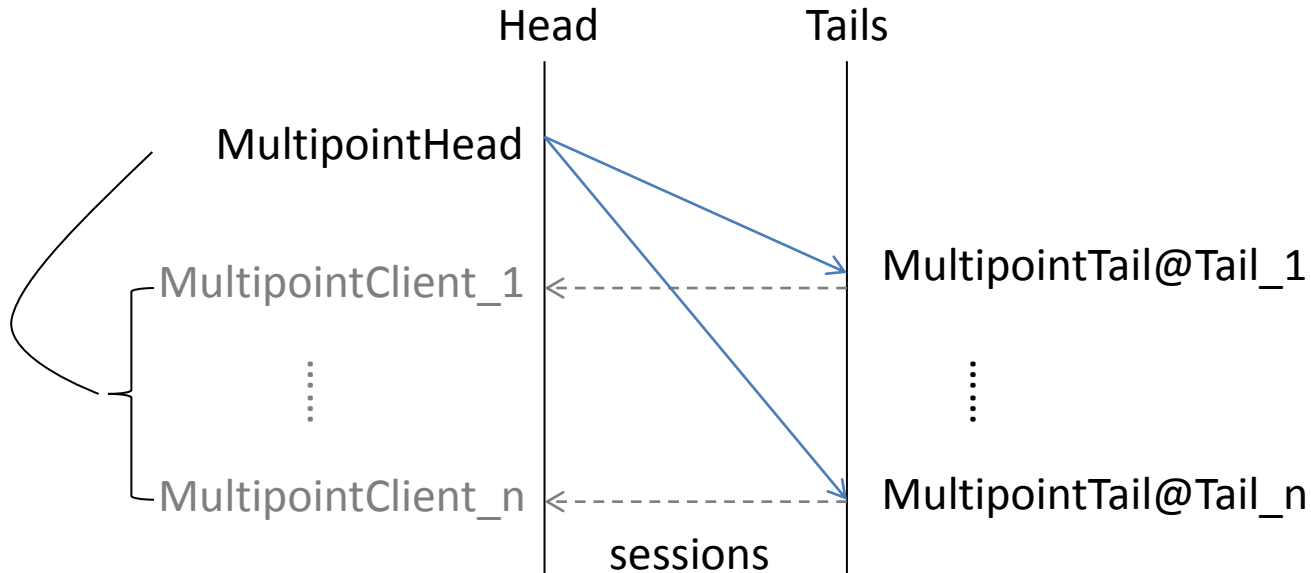# TRILL Support of P2MP BFD

draft-zhang-trill-p2mp-bfd-01

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P2MP BFD Session Model

- The head has a MultipointHead session that is bound to a multipoint path.
- The tail has a MultipointTail associated with a multipoint path.
- If the head needs to track the tail, it uses MultipointClient per tail that it cares about. All MultipointClient sessions for tails on a particular multipoint path are grouped with the MultipointHead session.
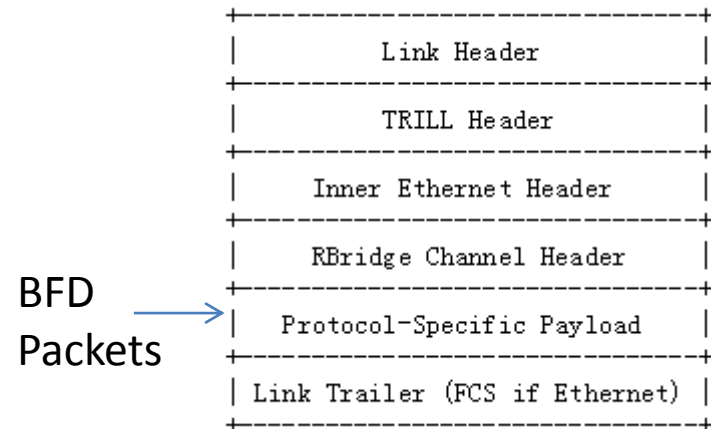
TRILL multicast

- TRILL switches (RBridges) can calculate multiple trees.
- When a failure is detected, the head performs global protection by switching from one tree to another.
- P2MP BFD is needed.

head
root

tree1

head
root

tree2
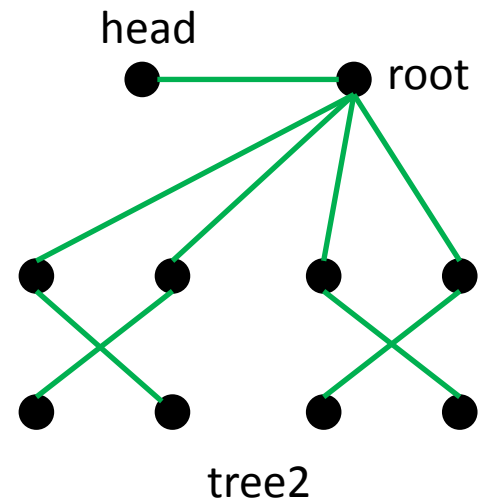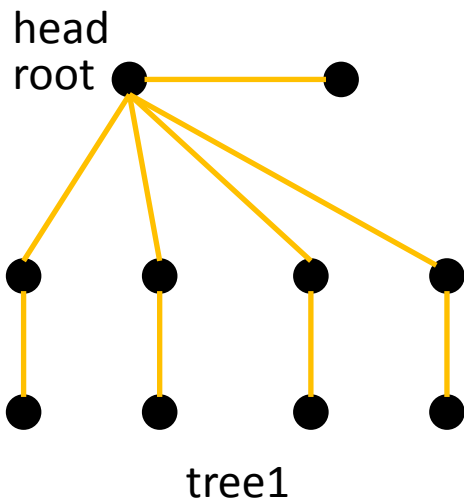
RBridge Channel

- In TRILL, BFD Control packets are forwarded in "RBridge Channel".

- The idea of RBridge Channel is to encapsulate control plane PDUs in data packets and forward them.

- Channel messages are identified by Ethertype and the multicast destination MAC address.

- An receiver RBridge will absorb channel messages as if it is the end-station.

```
+----------------------------------+
|           Link Header            |
+----------------------------------+
|          TRILL Header            |
+----------------------------------+
|      Inner Ethernet Header       |
+----------------------------------+
|     RBridge Channel Header       |
+----------------------------------+
|     Protocol-Specific Payload    |
+----------------------------------+
|  Link Trailer (FCS if Ethernet)  |
+----------------------------------+
```

BFD
Packets

Update TRILL P2P BFD?

- TRILL has already allocated two code points to be used in the "RBridge Channel Header" for P2P BFD [RFC7175].
  - BFD Control 0x002
  - BFD Echo   0x003
- RFC 7175 defines the checker: if the packet is a multicast packet (M bit =1), it is to be discarded by receivers.
- However, P2MP Control Packets need to be sent as multicast packets. So a new code point is allocated.
  - P2MP BFD Control [TBD]
- But a Tail replies unicast BFD Control packets to the Head, therefore the channel 0x002 will continue to be used.

P2MP capability announcement

- By announcing the new RBridge Channel code point [TBD] for the P2MP BFD Control, the originating RBridge also indicates its support for performing P2MP BFD.

- This is realized using the "RBridge Channel Protocols Sub-TLV" in LSPs [RFC7176].

Demux at the tail

- The head will set MyDiscr.
- What fields in the data packet should be used?
  - Ingress nickname
    - It identifies the head
  - VLAN
    - Multicast forwarding is VLAN aware
- So the tail uses [MyDiscr, ingress, vlan] for demux.

TRILL data packet

| egress nickname | ingress nickname | … | destination MAC | source MAC | … | VLAN | … |
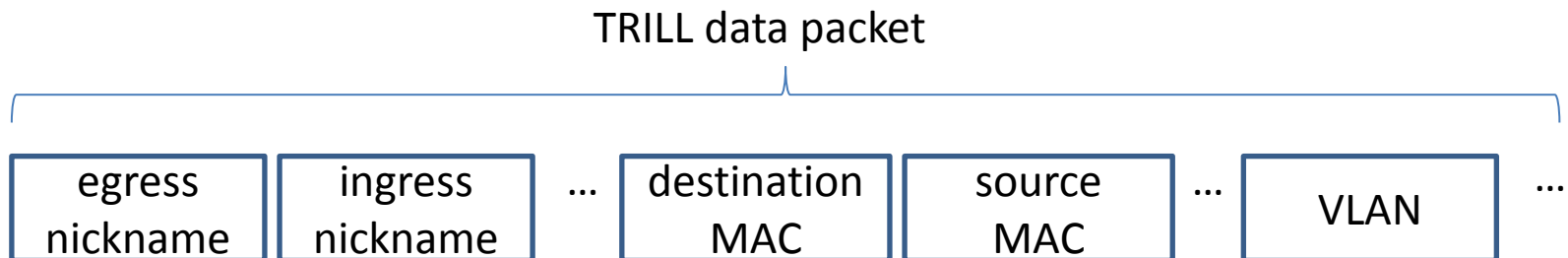
Next step

- Comments from BFD&TRILL are welcome.
- Ask for TRILL WG adoption.

Thanks!