# TRILL OAM- Status, Updates and Next Steps

March, 2013

## Status

- Requirement document move to IESG for publication as RFC
  - draft-ietf-trill-oam-req-05
- Framework document in WG status and -01 published
  - draft-ietf-trill-oam-framework-01
- -02 Fault management draft published
  - draft-tissa-trill-oam-fm-01
- -00 Performance Management draft published
  - draft-mizrahi-trill-loss-delay-00

# Next steps for Framework document

- Identify group of Volunteers (around 5) to review the document
- Complete the review by March 30<sup>th</sup>
- Publish updated version of the draft Mid April
- Request for WG Last call Mid April

## Next steps for Fault Management document

- Request for WG adoption
- Identify group of Volunteers (around 5) to review the document
- Complete the review by April Mid
- Publish updated version of the draft End April
- Request for inter SDO review End April/Early May
- WGLC July.

## **Our Goal**

- Utilize 802.1ag OAM framework
- Utilize 802.1ag OAM messages where applicable
  - Re-use LBM (Loopback Message), CCM (Connectivity and Continuity Monitoring).
  - New TRILL specific additions: Path Trace, Multicast Tree Verification
- This creates a common OAM framework between 802.1 and TRILL
- This allow customers and end users to perform nested "OAM tests" to easily troubleshoot connectivity problems between 802.1 and TRILL.

## TRILL OAM Frame Structure

- Below is the proposed TRILL OAM frame structure
- Client PDU fragment, may or may not be present based on the technology

#### **Forwarding Header**

**Encapsulation** Header

**Client PDU** fragment

**OAM** 

**OAM PDU** 

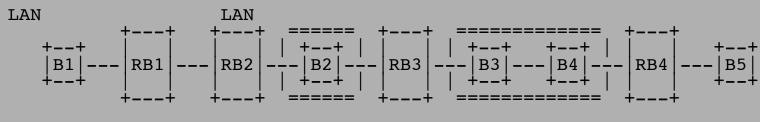
- 1.Addresses MEP (end Points) 2. Drives Forwarding
- decisions
- 1.Influence **Forwarding** decisions

2.Fixed size (128 bytes for TRILL) 1.Drives OAM **Functions** 

#### OAM Ether Type.

- Clearly Identify the OAM channel
- Allows different technologies to easily integrate OAM channel

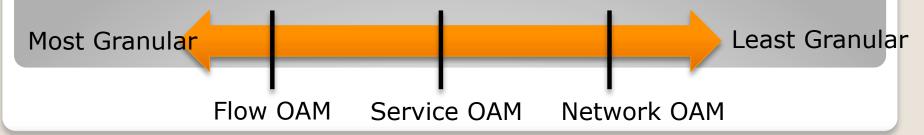
# **OAM Layering**

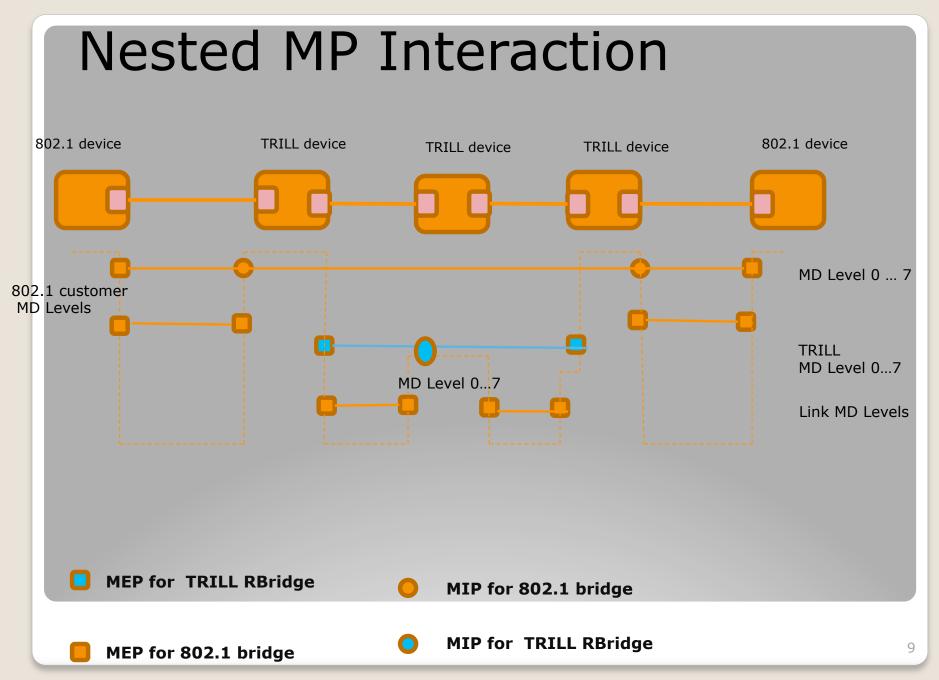


- a. Ethernet CFM (Client Layer) on path over the TRILL campus
- b. TRILL OAM (Network Layer) >-----<
- c. Ethernet CFM (Transport Layer) on interior Ethernet LANs
- d. BFD (Media Independent Link Layer)
  #--# #-----#
- e. Link OAM (Media Dependent Link Layer)
  \*---\* \*---\* \*---\* \*---\* \*---\*
- Legend: > MEP o MIP # BFD Endpoint \* Link OAM Endpoint

# Network, Service and Flow OAM

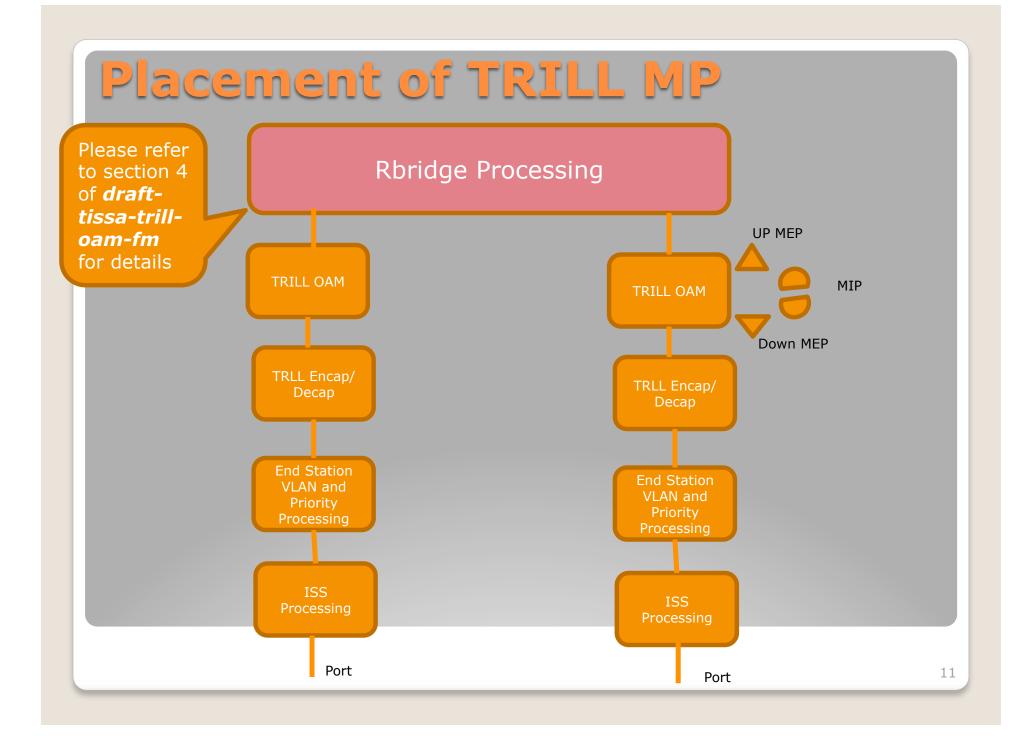
- Network OAM: functions in the context of a representative 'test' VLAN or finegrained label.
- Service OAM: functions in the context of the end station service VLAN or finegrained label.
- Flow OAM: functions performed in the context of end station service VLANs or fine grained labels and user flows.





# TRILL OAM Addressing Model

- MP (Maintenance Points) are placed on each port
- Use the shared addressing model
  - IE, all MP within an Rbridge use the same nickname.
- If connectivity to a physical interface needed to be tested, use CFM, which lies below TRILL





RBridge
(Processing of TRILL and
Native Frames, MP
Addressing, Identification of
OAM frames)

TRILL OAM Processing

802.1Q VLAN Processing

Logical 802.1/802.3 Processing

NULL PHY (TRILL OAM Virtual Intf) Other Ports

Please see Section 7 of draft-tissa-trill-oam-fm for details of Backward compatibility method

### Reference

- Requirement document
  - https://datatracker.ietf.org/doc/draft-ietf-trilloam-req/
- Framework document
  - https://datatracker.ietf.org/doc/draft-salamtrill-oam-framework/
- Fault Management
  - https://datatracker.ietf.org/doc/draft-tissa-trilloam-fm/