STAMP Extensions for Reflecting STAMP Packet MPLS Extension Headers

draft-gandhi-ippm-stamp-mpls-hdr-02

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Agenda

- Requirements
- Summary
- Updates
- Next Steps

Requirements, Goals, and Scope

Requirements:

- STAMP Extensions to Reflect packet MPLS headers - In-Stack MNA and Post-Stack MNA
  - ✓ Hop-by-hop and edge-to-edge measurements
  - ✓ Two-way and one-way measurements

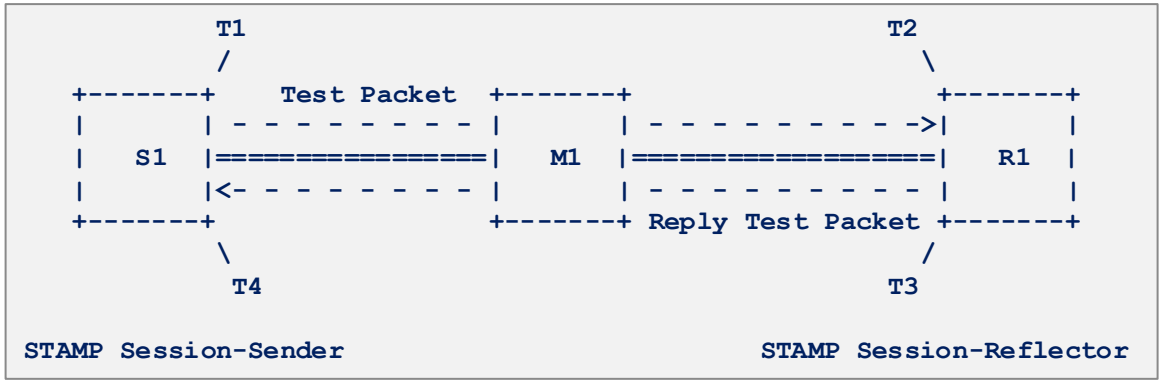
Goals:

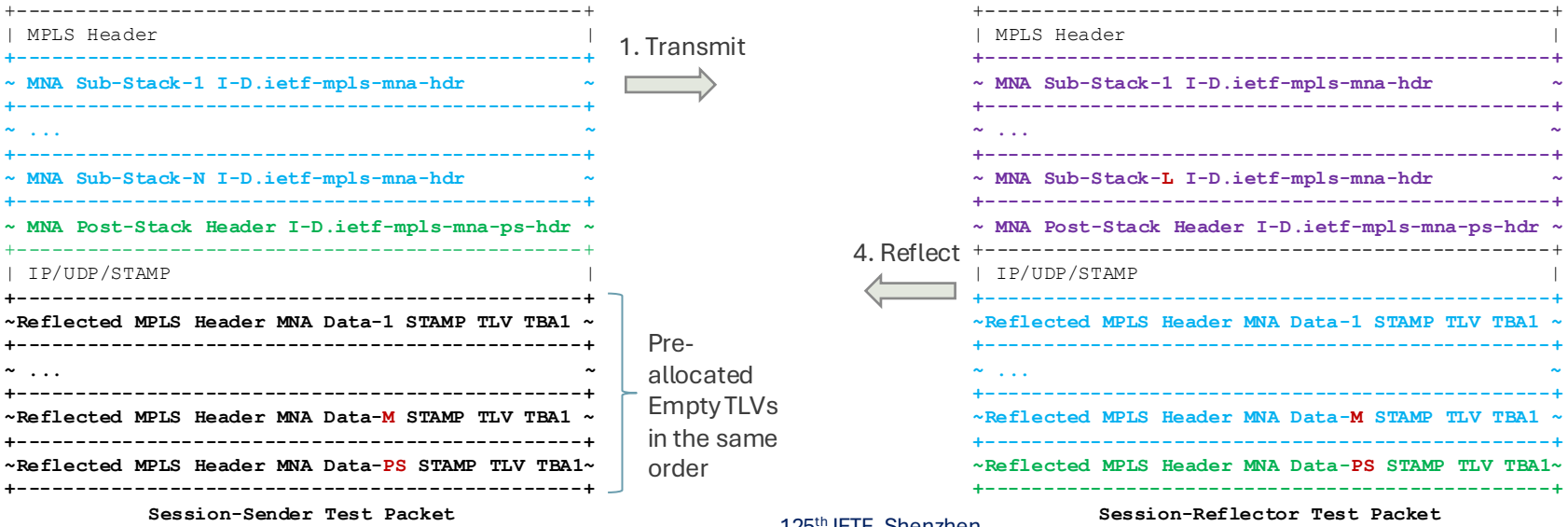
- Leverage the existing implementation of MNA on midpoint nodes
  - ✓ Midpoint nodes are agnostics to STAMP protocol

Scope:

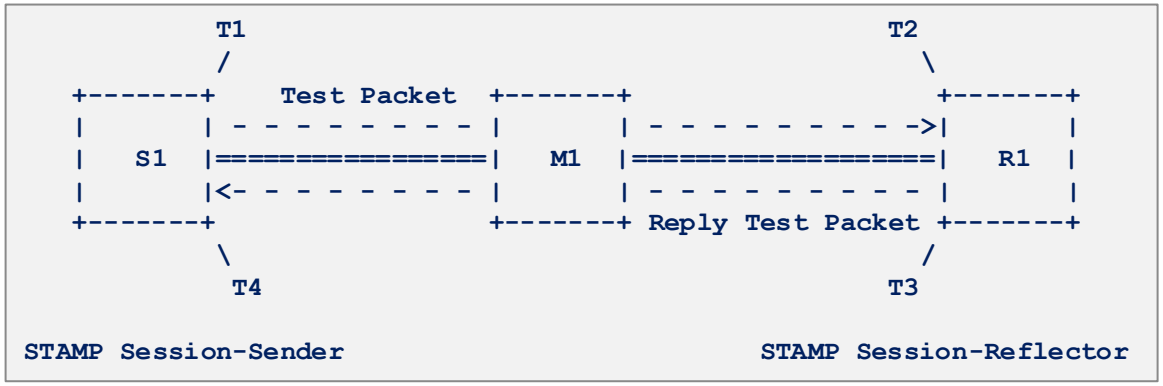
- STAMP [RFC8762] and STAMP Extensions [RFC8972]
- In-Stack MNA Solution - [draft-ietf-mpls-mna-hdr]
- Post-Stack MNA Solution - [draft-ietf-mpls-mna-ps-hdr]
- Use Case: IOAM Using MNA – [draft-ietf-mpls-mna-ioam]

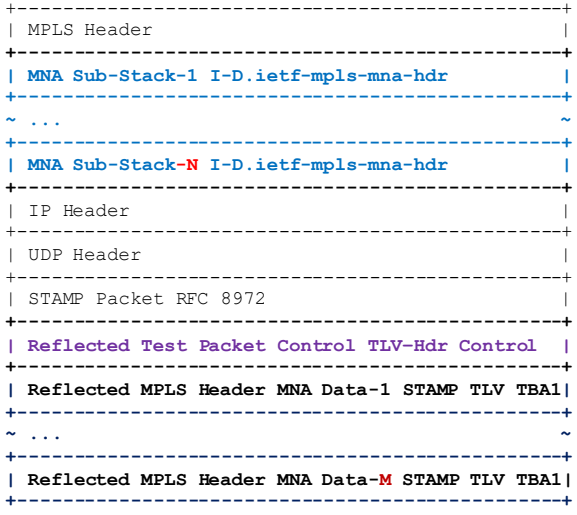
STAMP Extension for MPLS Data plane





STAMP Extension for MPLS Data plane (One-Way measurement)

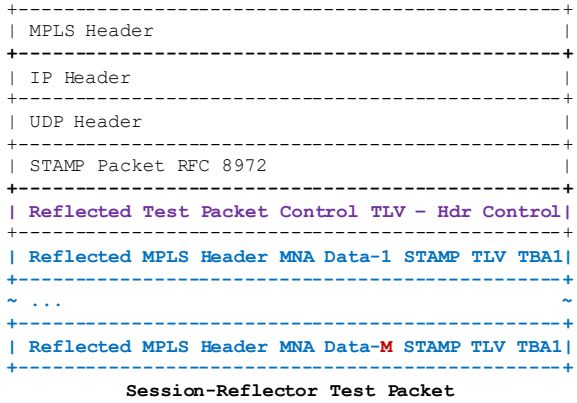




1. Transmit

Pre-allocated Empty TLVs in the same order

4. Reflect



3. New MNA Headers not added due to HDR Control TLV

2. Copy MNA in STAMP TLVs as Data

Updates

- Recall that draft-ietf-ippm-stamp-ext-hdr was split into two drafts:
  1. IPv4/IPv6 Data plane - draft-ietf-ippm-stamp-ext-hdr
  2. MPLS Data plane - draft-gandhi-ippm-stamp-mpls-hdr
- Addressed review comments from Greg – thanks Greg for the review!
- Added Section on “Receiving MPLS Header on the Session-Reflector”
  1. Applicable to “Hop-By-Hop” and “Ingress-to-Egress” scope MNA Sub-stacks received by the egress nodes
  2. Not applicable to the “Select” scope MNA Sub-stack which is removed by the transit nodes
  3. “An MNA-capable node performing Penultimate Hop Popping (PHP) that pops the forwarding label with only the NAS(es) remaining on the stack MUST NOT remove the NAS(es)” [draft-ietf-mpls-mna-hdr]

IANA Requests for New STAMP TLV Type

Value	Description	Reference
TBA1	Reflected MPLS Header MNA Data	This document

STAMP TLV Type

Value	Description	TLV Used	Reference
TBA2	MNA Header Control	Reflected Test Packet Control	This document

Sub-TLV Type for STAMP Reflected Test Packet Control TLV

STAMP Encapsulation - WG Draft in MPLS WG

Encapsulation of STAMP for LSPs and PWs in MPLS Networks

- https://datatracker.ietf.org/doc/draft-ietf-mpls-stamp-pw/

- Case 1: MPLS encapsulation added by the data plane dynamically to reach Session-Reflector target address
- Case 2: MPLS encapsulation crafted by the control plane explicitly to reach Session-Reflector node
- ✓ [draft-gandhi-ippm-stamp-mpls-hdr] reflects MPLS extension headers in both these cases

Next Steps

- Welcome your review comments and suggestions
- This draft was already part of an IPPM WG document
- Ready for IPPM WG adoption

Thank you!