

# Simple Two-Way Active Measurement Protocol Extensions for Hop-By-Hop and Edge-To-Edge Measurements

*draft-gandhi-ippm-stamp-ioam-00*

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# Agenda

- Requirements and Scope
- Summary of Procedure
- Next Steps

# Requirements, Goals and Scope

## Requirements:

- Performance Measurement Using STAMP
  - One-Way and Two-Way Hop-By-Hop and Edge-To-Edge Measurement
    - Reflect one-way measurement to the Session-Sender

## Goals:

- Leverage existing implementation on midpoint nodes
- Symmetric STAMP packet size in both directions
- Avoid IPv6 and MPLS protocol extensions
- **New IPv6 and MPLS extension headers use generic STAMP TLVs**

## Scope:

- STAMP [RFC 8762]
  - STAMP Extensions [RFC 8972]
- IPv6 Specification - IPv6 Options [RFC 8200]
- MPLS Network Action Sub-Stack Solution [draft-ietf-mpls-mna-hdr]

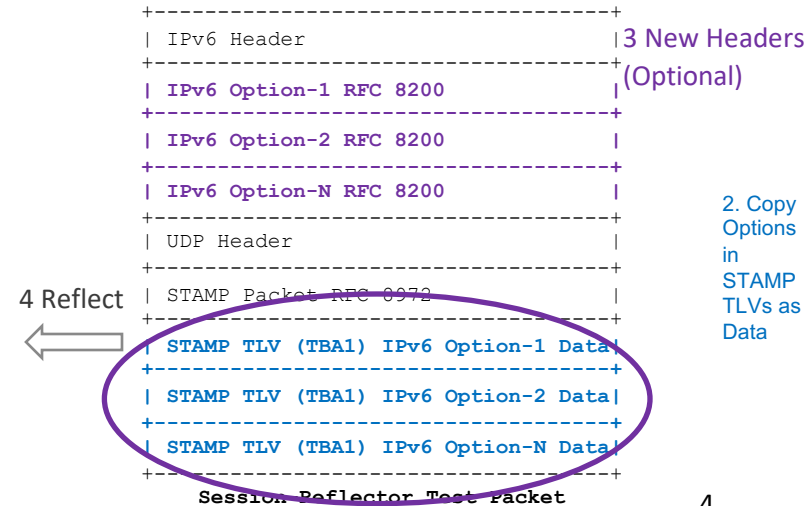
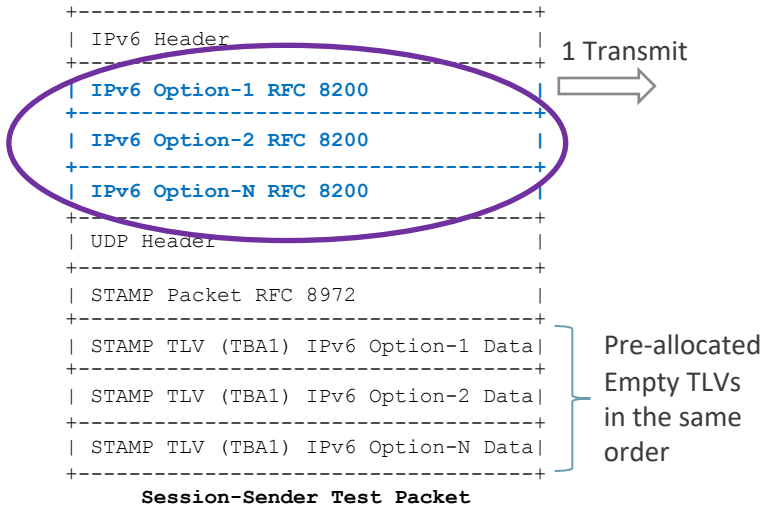
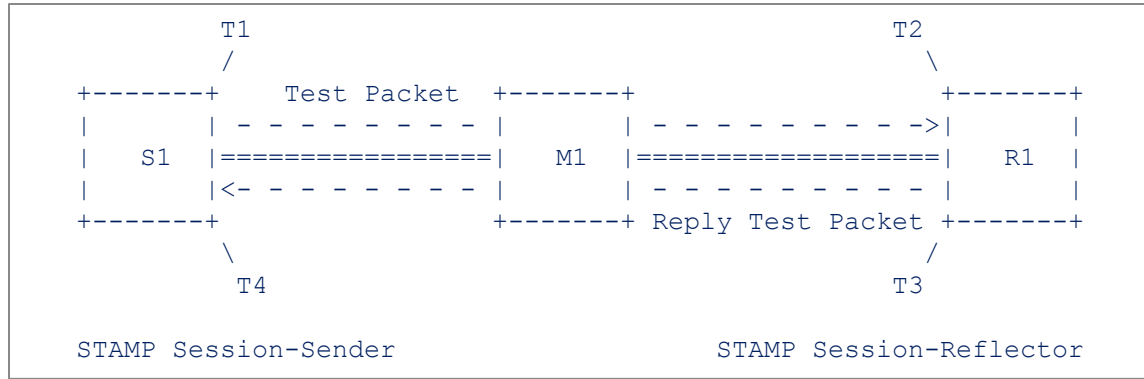
### IPv6 Option Examples:

1. In-situ OAM IPv6 Options [RFC 9486]
  - a. Data Fields for In-Situ OAM [RFC 9197]
  - ~~b. IOAM Direct Exporting [RFC 9326]~~
2. IPv6 Alternate-Marking Method [RFC 9343]
  - a. Alternate-Marking Method [RFC 9341]
3. Enhanced VTN/VPN/NRP ID
  - a. draft-ietf-6man-enhanced-vpn-vtn-id

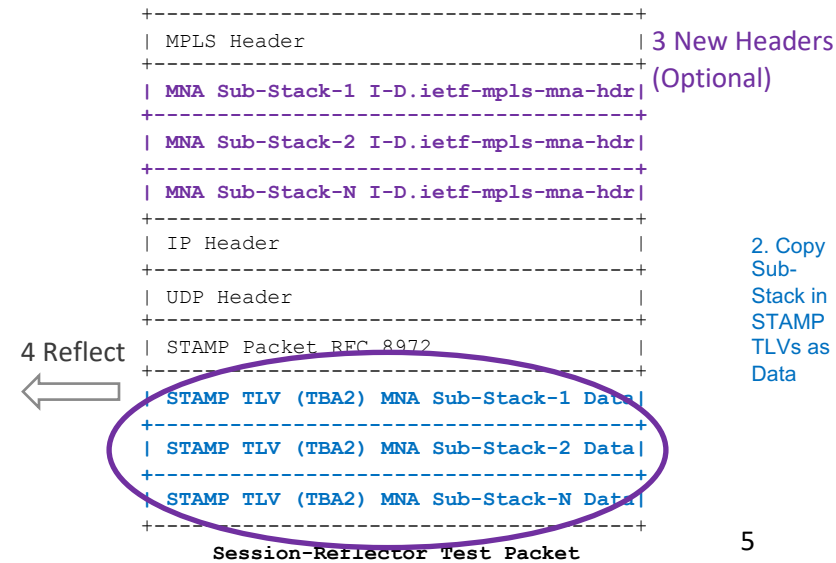
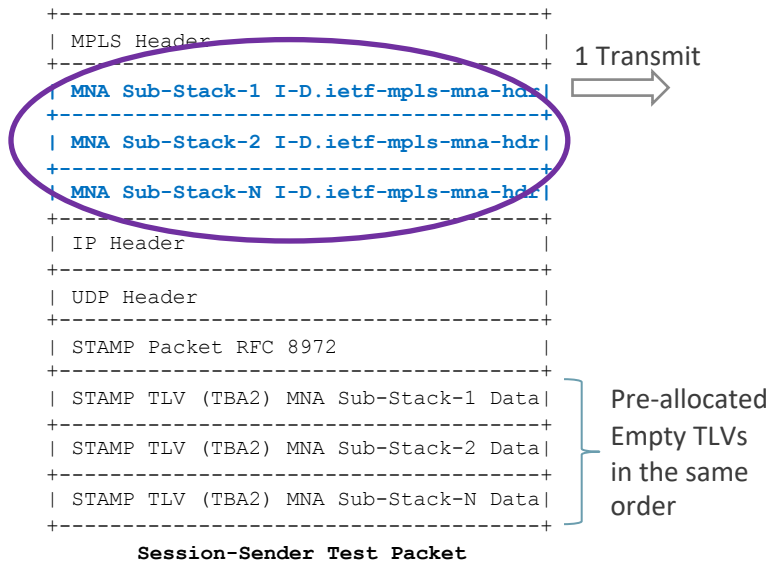
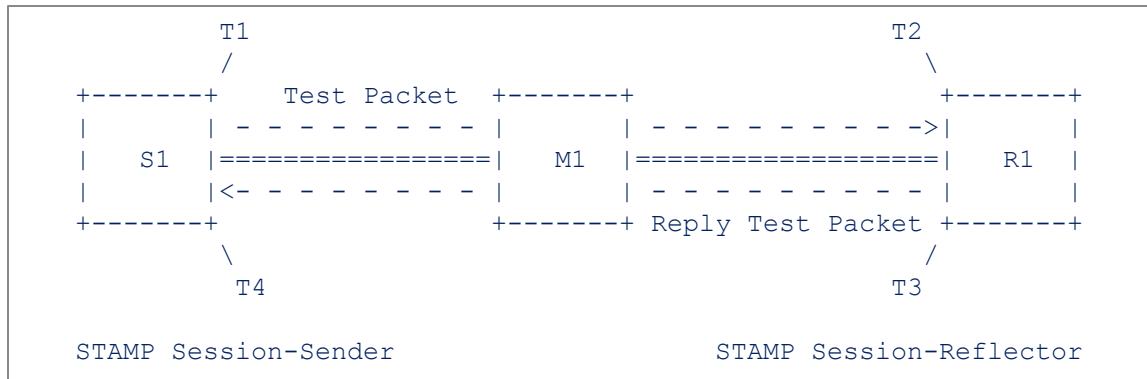
### MNA Examples:

1. MNA Network Resource Partition Selector (Network Slicing)

# STAMP Reference Topology (IPv6 Data plane)



# STAMP Reference Topology (MPLS Data plane)



# Comment 1: One-Way Measurement Mode with STAMP

1. Measurement only required in the Session-Sender to the Session-Reflector direction
  - a) Measurement is NOT required in the Session-Reflector to the Session-Sender direction
2. New Sub-TLV “Extension Header Control” (Type TBA3) is defined for STAMP TLV “Reflected Test Packet Control TLV” [draft-mirsky-ippm-asymmetrical-pkts]
  - a) When Session-Sender Test Packet is received with “Extension Header Control” Sub-TLV, Session-Reflector will not add (IPv6/MNA) Extension Headers in the Header of the Session-Reflector Test Packet
  - b) Session-Reflector will still copy the (IPv6/MNA) Extension Headers from the Session-Sender Test packet into the Session-Reflector Test packet STAMP TLVs (Type TBA1 and TBA2) (if they were received in the Session-Sender Test Packet)
  - c) Symmetric STAMP test packet size in both directions maintained

## Comment 2: One STAMP TLV Carry all Extension Headers

- Why not combine the multiple IPv6 Option Data STAMP TLVs into one IPv6 Data STAMP TLV?
- Similarly, why not combine the multiple MNA Sub-Stack Data STAMP TLVs into one MPLS Data STAMP TLV?
- In this way, the STAMP Session-Reflector doesn't need to parse the received IPv6 Extension Header or MPLS MNA Sub-Stack, it just mirrors part of the received STAMP test packet and leaves all the parsing work to the STAMP Session-Sender
- Reflector may not need to return all Extension Headers in STAMP TLVs, for example, no need to add IOAM Direct Export Option in STAMP TLV. Hence, Sender may not request it by not adding the STAMP TLV for it.

# IANA Requests for New STAMP TLV Types

Value	Description	Reference
TBA1	Reflected IPv6 Option Data	This document
TBA2	Reflected MNA Sub-Stack Data	This document

## STAMP TLV Types

Value	Description	Reference
TBA3	Extension Header Control	This document

Sub-TLV Type for Reflected Test Packet Control TLV



# STAMP Documents in other WGs

1. Performance Measurement Using Simple TWAMP (STAMP) for Segment Routing Networks
  - <https://datatracker.ietf.org/doc/draft-ietf-spring-stamp-srpm/>
  - Loopback mode defined for STAMP
  - Enhanced loopback mode for STAMP - add timestamp and forward packet
2. Encapsulation of Simple TWAMP (STAMP) for Pseudowires in MPLS Networks
  - <https://datatracker.ietf.org/doc/draft-gandhi-mpls-stamp-pw/>
  - Generic Association Channel (G-Ach) Types for STAMP
  - Presenting in MPLS Session on Thursday

Welcome your comments and suggestions

## Next Steps

- Thank you, Greg, Tianran, Xiao Min for your review comments and suggestions
- Welcome Tianran as co-author
- Update the draft with the suggestions
- Welcome further comments and suggestions
- Request WG adoption

Thank you