

Simple TWAMP (STAMP) Extensions for Segment Routing Networks

draft-gandhi-ippm-stamp-srpm-02

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Agenda

- Requirements and Scope
- Summary of Extensions
- Next Steps

Requirements and Scope

Requirements:

- Support in-band Performance Measurement
- Support links and SR paths

Goals:

- Avoid per session provisioning on Session-Reflector
- Avoid control-channel signaling for sessions
- Very high scale for number of sessions and faster detection interval
 - Support hardware implementation

Scope:

- STAMP [RFC 8762]
- STAMP Extensions [RFC8972]

STAMP - Session-Sender Control Code Field

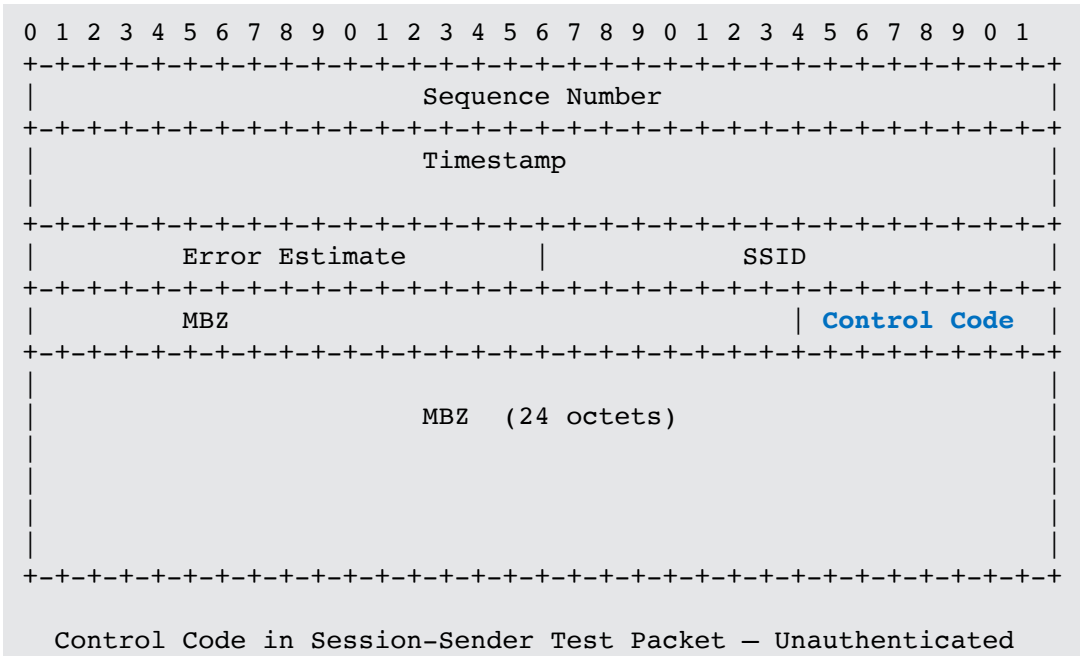
Session-Sender Control Code (8-bit) Flags:

0x0: Existing default behavior as defined in RFC 8762.

0x1: In-band Reply Requested.

Indicates that this test packet has been sent over a bidirectional path and the reply is required in-band over the same path in the reverse direction.

0x2: No Reply Requested.



STAMP - Session-Sender Control Code Field - Usage

- Two-way measurement mode for links
 - Reflector needs to send reply on the same link (**in-band**) (symmetric delay on forward and reverse link)
 - Link can be LAG (bundle) member
- Not scalable to configure for each (session id, source-address) on session-reflector (can have an order of 1K links)
 - Cannot always send reply on the same incoming interface as the STAMP test packet reply may need to be IP routed

STAMP - Return Path TLV

Return Path TLV (value TBA2) to carry one Sub-TLV for return path:

Sub-TLVs Types:

- Type (value 1): Return Address. Destination node address for the reply; different than the Source Address in the test packet
- Type (value 2): SR-MPLS Label Stack of the Return SR Path
- Type (value 3): SR-MPLS Binding SID [draft-ietf-pce-binding-label-sid] of the Reverse SR Policy
- Type (value 4): SRv6 Segment List of the Return SR Path
- Type (value 5): SRv6 Binding SID [draft-ietf-pce-binding-label-sid] of the Reverse SR Policy

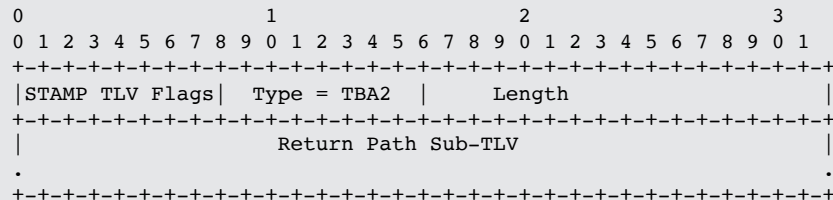


Figure: Return Path TLV

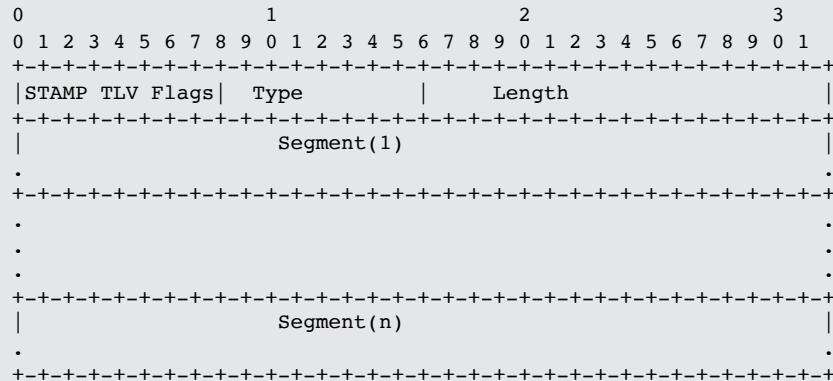


Figure: Segment List Sub-TLV in Return Path TLV

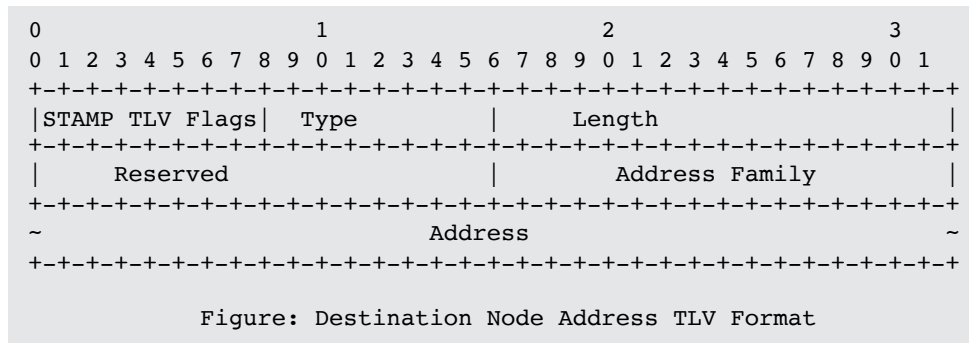
STAMP - Return Path TLV - Usage

- For Bidir SR Policy, reply test packet needs to be sent (**in-band**) on the reverse SR Policy
- Bidir SR Path (forward and reverse) dynamically computed using CSPF by the head-end node
 - Path can change often based on topology change, link/node failure in the network, etc.
- No signaling in SR, possible to use PCE
- Need per session state on session-reflector node to store reverse paths (each session-id, source-address)
 - order of 10Ks SR Policy (that can have active and standby candidate-paths and each can have multiple segment-lists)

STAMP - Destination Node Address TLV

Destination Node Address TLV (value TBA1):

- Indicates the address of the intended recipient node of the session-sender test packet.
- The Session-Reflector node **MUST NOT** send reply if it is not the intended destination node of the test packet.
- Useful when test packet is sent with 127/8 destination address (e.g. sweeping ECMP paths).



Next Steps

- Welcome your comments and suggestions
- Requesting WG adoption

Thank you