

Simple TWAMP (STAMP) Extensions for Segment Routing Networks

draft-gandhi-ippm-stamp-srpm-02

Rakesh Gandhi - Cisco Systems (rgandhi@cisco.com) - Presenter

Clarence Filsfils - Cisco Systems (cfilsfil@cisco.com)

Daniel Voyer - Bell Canada (daniel.voyer@bell.ca)

Mach(Guoyi) Chen - Huawei (mach.chen@huawei.com)

Bart Janssens - Colt (Bart.Janssens@colt.net)

Agenda

- Requirements and Scope
- Summary of Extensions
- Next Steps

Requirements, Goals and Scope

Requirements:

- In-band Performance Measurement for links and SR paths

Goals:

- Avoid provisioning and maintaining each test session on Session-Reflector - Stateless mode
- Avoid control protocol for signaling dynamic parameters

Scope:

- STAMP [RFC 8762]
- STAMP Extensions [RFC 8972]

Updates Since Version-00

Updates:

- ✓ Updated terminology to align with STAMP
- ✓ Moved direct measurement messages to *draft-gandhi-ippm-simple-direct-loss*
- ✓ Moved Control Code to Return Path TLV
- ✓ Various editorial changes to address review comments

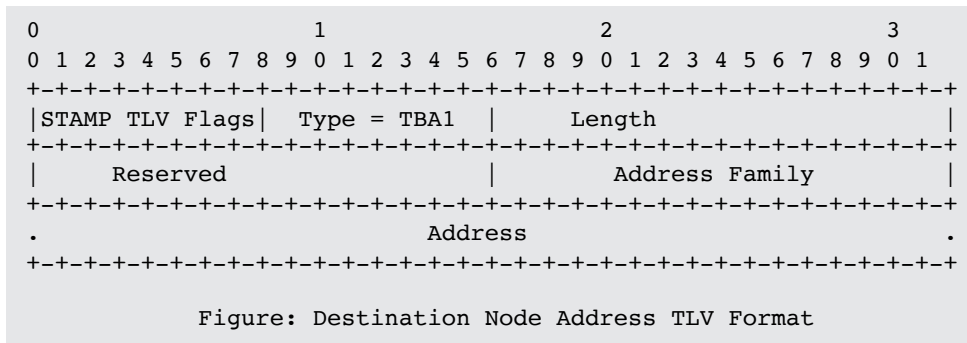
Open Items:

- None

STAMP Destination Node Address TLV

Destination Node Address TLV (value TBA1):

- Indicates the address of the intended destination of the Session-Sender test packet
- Session-Reflector that supports this TLV, **MUST NOT** send reply if it is not the intended destination of the Session-Sender test packet
- Useful when test packet is sent with 127/8 destination address (e.g. sweeping ECMP paths)



STAMP Return Path TLV

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

Return Path Sub-TLVs Types:

- Type (value 1): Return Path Control Code. Reply test packet based on the control code flags
 - 0x0: No Reply Requested
 - 0x1: In-band Reply Requested
- Type (value 2): Return Address. Destination address for the reply; different than the Source Address in the Session-Sender test packet
- Type (value 3): SR-MPLS Label Stack of the Return SR Path
- Type (value 4): SR-MPLS Binding SID [draft-ietf-pce-binding-label-sid] of the Return SR Policy
- Type (value 5): SRv6 Segment List of the Return SR Path
- Type (value 6): SRv6 Binding SID [draft-ietf-pce-binding-label-sid] of the Return SR Policy

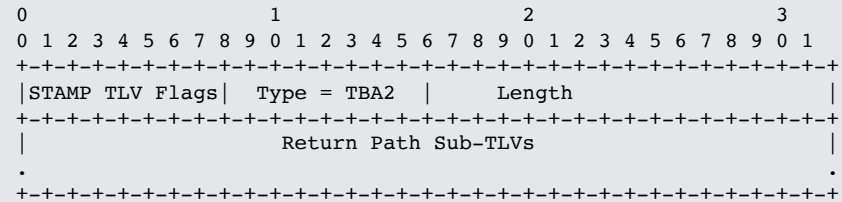


Figure: Return Path TLV

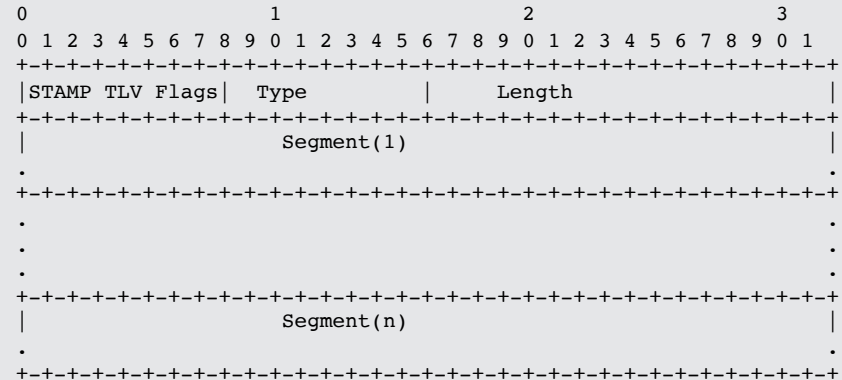


Figure: Segment List Sub-TLV in Return Path TLV

STAMP Return Path Control Code Sub-TLV - Usage

- Stateless mode of STAMP Session-Reflector as defined in RFC 8762 – per each test session
- In-band Reply Requested:
 - For link delay measurement
 - Session-Reflector transmits test packet in-band on the same incoming link in the reverse direction
 - Link can be Virtual, LAG or LAG member
 - Avoid maintaining each test session (session id, source-address) on Session-Reflector
- No Reply Requested:
 - The Session-Reflector does not transmit reply test packet to the Session-Sender and terminates the Session-Sender test packet

STAMP Return Address Sub-TLV - Usage

- Stateless mode of STAMP Session-Reflector as defined in RFC 8762 - per each test session
- STAMP Session-Reflector reply test packet may be transmitted to a different node than the Session-Sender
- For this, the Session-Sender can specify in the test packet the receiving destination address for the Session-Reflector reply test packet

STAMP Return Path Segment List Sub-TLVs - Usage

- Stateless mode of STAMP Session-Reflector as defined in RFC 8762 – per each test session
- For SR path, Session-Reflector reply test packet may need to be sent in-band on a specific return SR path
- Dynamically computed SR paths can change based on topology change, link/node failure, etc. in the network
- Avoid signaling and maintaining dynamic state on Session-Reflector for the return path for each STAMP test session (each session-id, source-address)
 - Order of 10K SR Policy (that can have multiple candidate-paths and each candidate-path can have multiple segment-lists)

Next Steps

- Welcome your comments and suggestions
- Requesting WG adoption

Thank you