Simple TWAMP (STAMP) Extensions for Segment Routing Networks

draft-gandhi-ippm-stamp-srpm-00

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Agenda

- Requirements and Scope
- History of the Draft
- Summary
- Next Steps

Requirements and Scope

Requirements:

- Delay and Loss Performance Measurement (PM)
  - ✓ Links and End-to-end P2P/P2MP SR Paths
  - ✓ Applicable to SR-MPLS/SRv6 data planes
- Support stand-alone direct-mode loss measurement

Scope:

- STAMP [RFC 8762]
- STAMP TLVs [draft-ietf-ippm-stamp-option-tlv]

History of the Draft

- Feb 2019
  - Draft was published - *draft-gandhi-spring-twamp-srpm-00*
- Mar 2019
  - Presented *draft-gandhi-spring-twamp-srpm-00* at IETF 104 Prague in SPRING WG
- May 2019
  - Added STAMP TLV for Return Path
- July 2019
  - Presented *draft-gandhi-spring-twamp-srpm-01* at IETF 105 Montreal in IPPM WG
    - Slide 9 Titled - Applicability of STAMP
- Nov 2019
  - SPRING Chairs announced in the meeting the agreement with IPPM chairs to progress the draft in SPRING WG
  - Presented *draft-gandhi-spring-twamp-srpm-04* at IETF 106 Singapore in SPRING WG
- Mar 2020
  - Moved STAMP support to *draft-gandhi-spring-**stamp**-srpm-00*
  - Keep TWAMP Light support as informational in *draft-gandhi-spring-**twamp**-srpm-08*
- Jul 2020
  - Presented *draft-gandhi-spring-stamp-srpm-01* at IETF 108 in SPRING and IPPM WG
- October 2020
  - Split draft into *draft-gandhi-**spring**-stamp-srpm-03 and draft-gandhi-**ippm**-stamp-srpm-00*

STAMP Control Code Field

In a Query: Sender Control Code

0x0: Out-of-band Response Requested.
This is also the default (current) behavior.

0x1: In-band Response Requested.
Indicates that this query has been sent over a bidirectional path and the probe response is required over the same path in reverse direction.

0x2: No Response Requested.

- With this, the reflector node does not require any additional SR state for PM (recall that in SR networks, the state is in the probe packet and signaling of the parameters is avoided).
- Also applicable to non-SR paths.

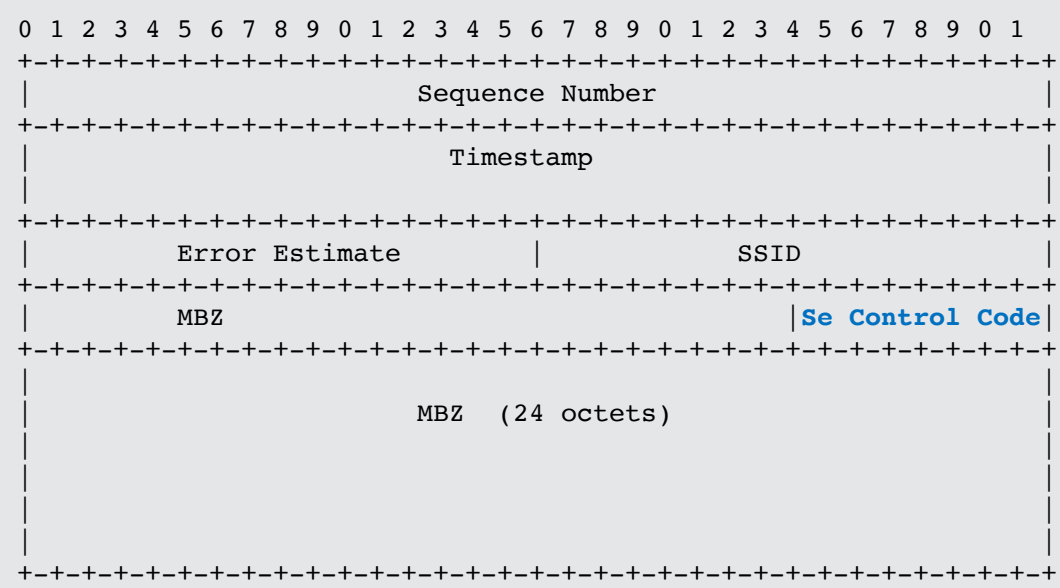

Figure: Sender Control Code in STAMP DM Message

Destination Address in STAMP Node Address TLV

Destination Node Address (value TBA1):

- Indicates the address of the intended recipient node of the query message.
- The reflector node **MUST NOT** send response if it is not the intended destination node of the query.
- Useful when query is sent with 127/8 destination address.

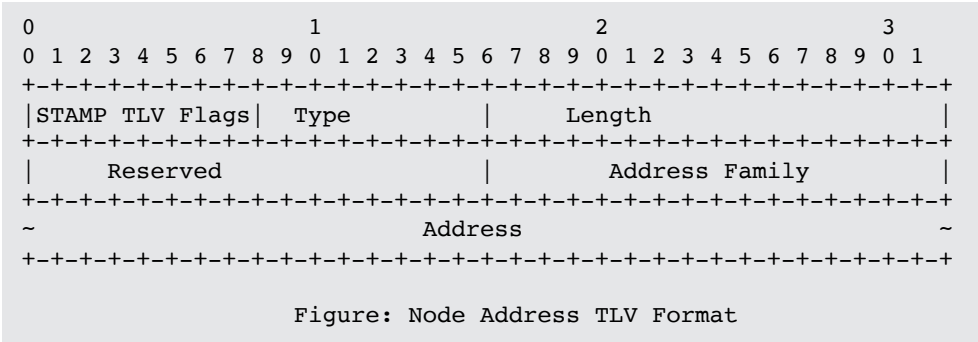

Figure: Node Address TLV Format

Return Address in STAMP Return Path TLV

Return Path (value TBA2):

Sub-TLVs Types:

- Type (value 1): Return Address. Target node address of the response; different than the Source Address in the query
- Type (value 2): SR-MPLS Label Stack of the Reverse 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 Reverse SR Path
- Type (value 5): SRv6 Binding SID [draft-ietf-pce-binding-label-sid] of the Reverse SR Policy

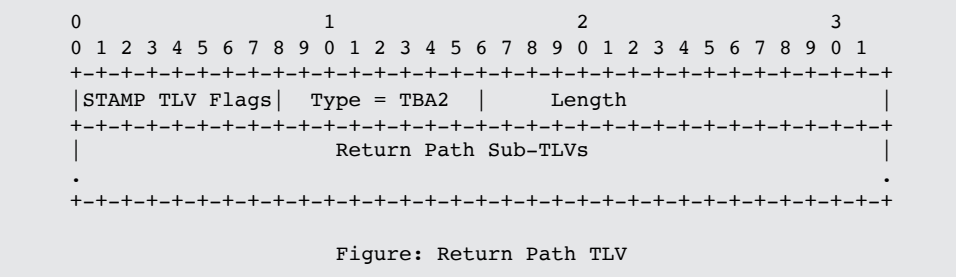

Figure: Return Path TLV

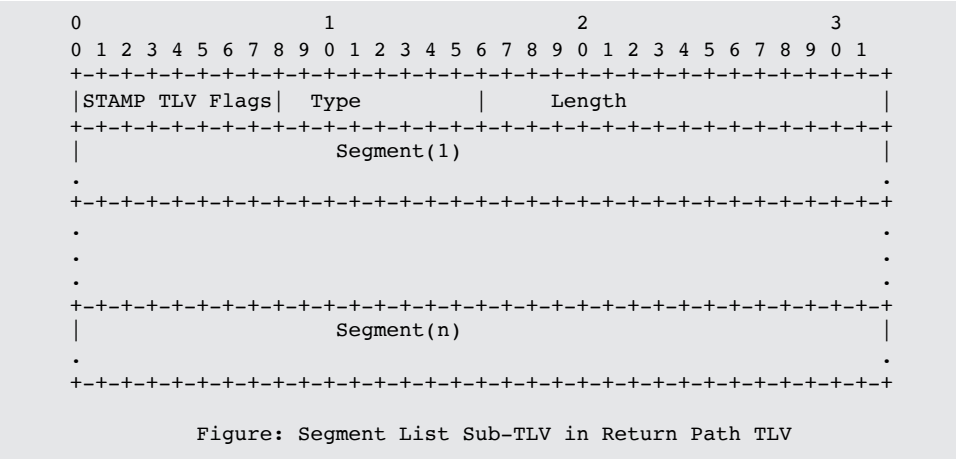

Figure: Segment List Sub-TLV in Return Path TLV

Stand-alone Direct-mode LM Message Format for STAMP

- Stand-alone Direct-mode Loss Measurement (LM) message defined
  - Hardware efficient counter-stamping
    - Well-known locations for transmit and receive traffic counters
  - Stand-alone LM message, not tied to DM
- Direct-mode LM message format is also defined for authenticated mode
- User-configured destination UDP **Port2** is used for identifying LM probe packets
- Does not modify existing STAMP (which is for DM) procedure as different destination UDP is used for LM

Next Steps

- Welcome your comments and suggestions
- Implementation exists
- Request IPPM WG adoption

Thank you