TWAMP Light Extensions for Segment Routing Networks

draft-gandhi-ippm-twamp-srpm-00

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Agenda

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

Requirements and Scope

Requirements:

- Delay and synthetic Loss Measurement
- Support stand-alone direct-mode Loss Measurement

Scope:

- RFC 5357 (TWAMP Light) defined probe messages
- User-configured IP/UDP path for probe messages

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
- 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-twamp-srpm-09* at IETF 109 in IPPM WG
- October 2020
  - Split draft into *draft-gandhi-**spring**-twamp-srpm-11 and draft-gandhi-**ippm**-twamp-srpm-00*

TWAMP Light - Session-Sender Control Code Field

In a Query: Session-Sender Control Code

0x0: Out-of-band Response Requested.
This is the existing 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 the reverse direction.

0x2: No Response Requested.

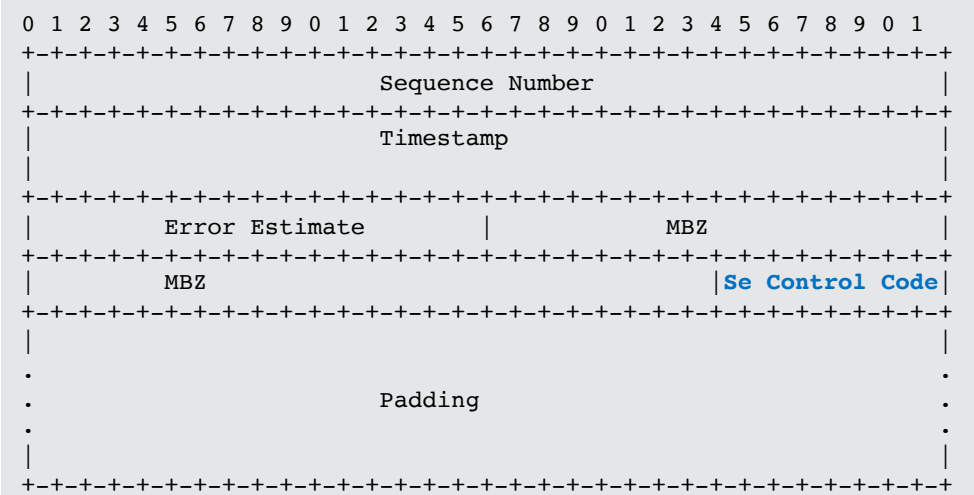
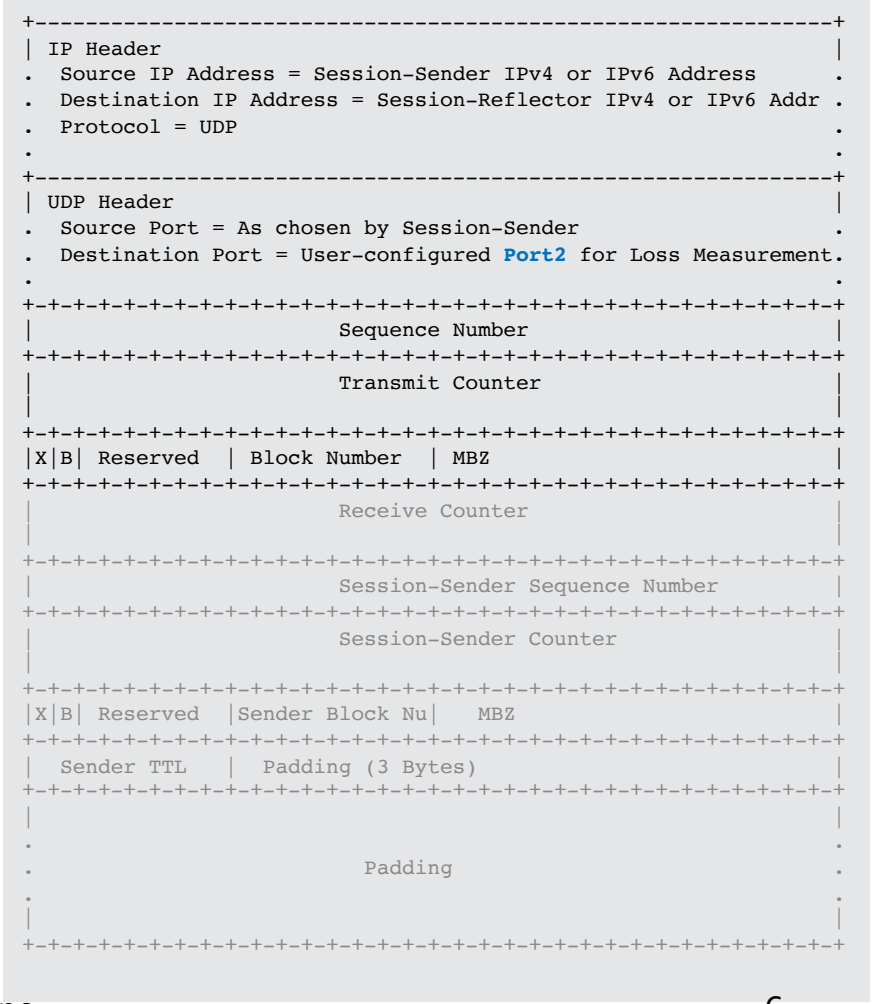


Figure: Control Code in TWAMP Light Query Message

- With this, the Session-Reflector node does not require any additional state for PM.

TWAMP Light - Stand-alone Direct-mode LM Message Format

- Stand-alone Direct-mode Loss Measurement (LM) query and response messages 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 direct-mode LM probe packets
- Does not modify existing TWAMP Light (which is for DM) procedure as different destination UDP port is used for direct-mode LM



IPPM Draft Review Comments

1. Extensions are not specific to SR, document should be renamed
2. Draft status:
   a) Draft defines extensions for TWAMP Light (is not a new protocol)
   b) Draft is currently informational. Should be proposed standard due to protocol extensions
   c) Update RFC 5357 due to new field (control code) in the message
3. Does not introduce any new security issue with this draft
4. Editorial
   a) Define Abbreviations (BSID, SRH, HMAC-SHA)
   b) Use Session-Sender, Session-Reflector terms
   c) Show entire test packet with session-sender control code field
   d) Indicate packet loss for synthetic vs. direct-mode loss
   e) Move Receive Counter and other Response message fields to Section 4.1 from 3.2
      - Explain how the counters and sequence numbers are used to do loss measurement
5. Extend ICMP for direct-mode loss measurement – out of scope

SPRING Draft Review Comments

1. Destination UDP port used has zero UDP checksum with IPv6 header
   - Add Reference for RFC 6936 in Security Section
2. Add references for well-known terms “Link” and “Congruent paths”
3. Add reference for Yang data model draft in provisioning model section
4. Liveness is to compute “connection loss” performance metric
   - Similar to the widely deployed synthetic packet loss metric
5. Editorial
   - Control-channel signaling -> TWAMP-control protocol
   - Indicate packet loss for synthetic vs. direct-mode loss
   - Use test packet term for query message
   - H/W timestamps required -> H/W timestamps recommended
   - IPv6 address ::1/128 or ::FFFF:127/104
   - Clarify - Section 4.1.4.2 and 4.2.2.2 depict the packet format with word “as needed” for inner IP Header.

Next Steps

- Welcome your comments and suggestions
- Request IPPM WG adoption

Thank you