Encapsulation of Simple TWAMP (STAMP) for Pseudowires in MPLS Networks

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Agenda

• Requirements and Scope
• Summary of Procedure
• Next Steps
Requirements and Scope

Requirements:
- Encapsulation of STAMP test packets for MPLS PWs
  - Packets with or without IP/UDP header
  - STAMP test packets to follow the same (ECMP) path as data traffic

Scope:
- STAMP [RFC 8762]
- STAMP Extensions [RFC 8972]
- P2P and (In Future) P2MP MPLS PWs
Reference Topology

\[
\begin{align*}
| & \text{--- Pseudowire ---} | \\
| & \text{T1} & \text{T2} | \\
| & / & \backslash | \\
+----------- STAMP Test Packet +----------- \\
| & \text{S1} & \text{---} | R1 | \\
| & \text{<} & \text{---} | \text{---} | \\
+----------- Reply Test Packet +----------- \\
\backslash & \backslash | \\
T4 & T3
\end{align*}
\]

STAMP Session-Sender  STAMP Session-Reflector

T1, T2, T3, T4: Timestamps as described in [RFC8762]
• Session-Sender test packets are encapsulated with MPLS header using the same label stack as the PW traffic.

• Existing PW Generic Associated Channel (G-ACh) Type for IPv4 or IPv6 to encapsulate the Session-Sender test packets with IP/UDP header.
Session-Sender test packets are encapsulated with MPLS header using the same label stack as the PW traffic.

New PW Generic Associated Channel (G-ACh) Type for STAMP Sender (value TBD1) to encapsulate the Session-Sender test packets without IP/UDP header.

Figure: Example Session-Sender Test Packet without IP/UDP Header
• Session-Reflector test packets are encapsulated with MPLS header using the same label stack as the traffic in the reverse direction of a bidirectional PW.

• Existing PW Generic Associated Channel (G-ACh) Type for IPv4 or IPv6 to encapsulate the Session-Reflector test packets with IP/UDP header.

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Figure: Example Session-Reflector Test Packet with IP/UDP Header
STAMP Session-Reflector Test Packet without IP/UDP Header

- Session-Reflector test packets are encapsulated with MPLS header using the same label stack as the traffic in the reverse direction of a bidirectional PW.

- New PW Generic Associated Channel (G-ACh) Type for STAMP Reflector (value TBD2) to encapsulate the Session-Reflector test packets without IP/UDP header.

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| Payload = Test Packet as specified in Section 3 of RFC 8972 in Figure 2 and Figure 4 |
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Figure: Example Session-Reflector Test Packet without IP/UDP Header
STAMP Session-Reflector Test Packet

- Session-Reflector test packet is sent with an IP/UDP header if the Session-Sender test packet is received with an IP/UDP header, otherwise, it is sent without an IP/UDP header.
- Session-Sender and Session-Reflector test packet formats do not have a way to discriminate them.
  - With IP/UDP Header:
    - Different destination UDP port numbers in the Session-Sender and Session-Reflector test packets discriminate them.
  - Without IP/UDP Header:
    - Different G-ACh types in the Session-Sender and Session-Reflector test packets discriminate them.
Next Steps

- Welcome your comments and suggestions
- WG MPLS or PALS?
- Requesting WG adoption
Thank you