Link/P2P L2 Circuits - Counter-stamping in Hardware

Probe c1:103 c2:203 | pk203 | pk202 | pk201 | Probe c1:100 c2:200 | pk200

HW

HW

Sender 1 —————— 2 Reflector

Probe c1:103 | pk103 | pk102 | pk101 | Probe c1:100 | pk100

Counter 1

Counter 2
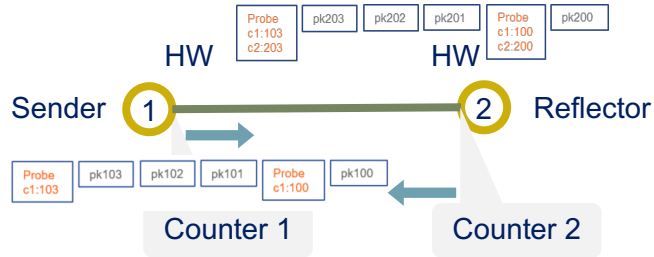
- Advertise extended TE metrics – link loss percentage
  - RFC 8570 (IS-IS)
  - RFC 7471 (OSPF)
  - RFC 8571 (BGP-LS)

- TX Packet Loss %

= 100* ((($C1(t) - C1(t-1)$) – ($C2(t) - C2(t-1)$) / ($C1(t) - C1(t-1)$))

= 100* (((103 – 100) – (203 – 200)) / (103 – 100))

= 0

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 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|     Type         |        Length       |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|A|   RESERVED    |                    Link Loss                  |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
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Direct Measurement TLV vs. Direct Loss Measurement Probe Packet

Attribute	Direct Measurement TLV	Direct Loss Measurement Probe Packet
Minimum bytes to load in write-able memory in hardware (not accounting multiple TLVs)	114 (Eth 18, IPv6 40, UDP 8, STAMP 44, TLV Type 4, Total = 114 Byte)	70 (Eth 18, IPv6 40, UDP 8, Seq 4, Total = 70 Byte)