

PM on LAG

[draft-ietf-ippm-stamp-on-lag](#)

[draft-ietf-ippm-otwamp-on-lag](#)

Zhenqiang Li CMCC

Tianran Zhou **Huawei**

Jun Guo ZTE

Greg Mirsky Ericsson

Rakesh Gandhi Cisco

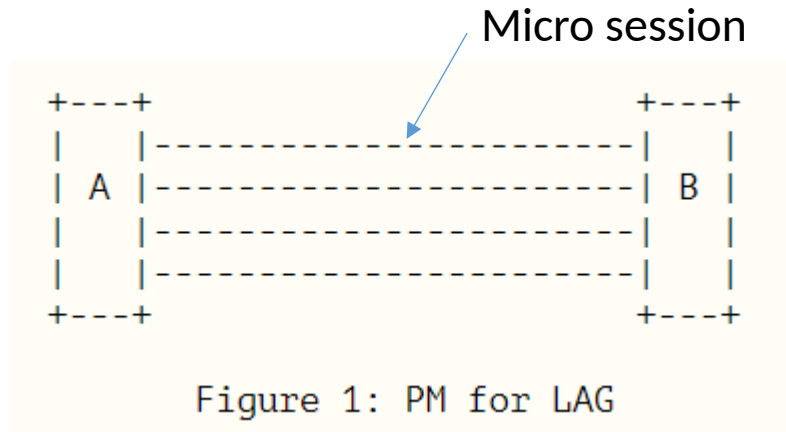
IETF 116 IPPM Working Group

Motivation

- LAG Scenario
 - Link delay of each LAG member link varies because of different transport paths.
 - LAG will introduce jitter for time sensitive traffic. We need to explicitly steer the traffic across the LAG member links based on the link delay, loss and so on.
 - That requires a solution to measure the performance metrics of every member link of a LAG.
- Existing active PM methods
 - The measured metrics can only reflect the performance of one member link or an average of some/all member links of the LAG.
- See BFD on LAG (RFC7130)

Solution Overview

- Extend OWAMP and TWAMP and STAMP to implement performance measurement on every member link of a LAG.
- The proposed method could also potentially apply to layer 3 ECMP (Equal Cost Multi-Path), e.g., with SR-Policy [RFC9256].
- Micro Session on LAG



- New command types to indicate the set of micro sessions of a LAG.
- Correlate the test packet to a particular micro session.
- Carry the member link information for validity check.

OWAMP/TWAMP Extensions

- Control message

Value	Description	Semantics Definition
TBD1	Request-OW-Micro-Sessions	This document, Section 3.1
Value	Description	Semantics Definition
TBD2	Request-TW-Micro-Sessions	This document, Section 4.1

- Test packet in unauthenticated mode

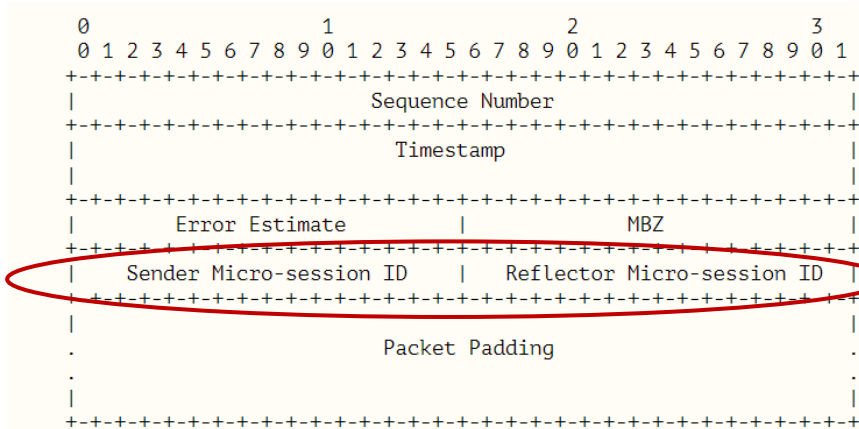


Figure 2: Micro Session-Sender Packet format in Unauthenticated Mode

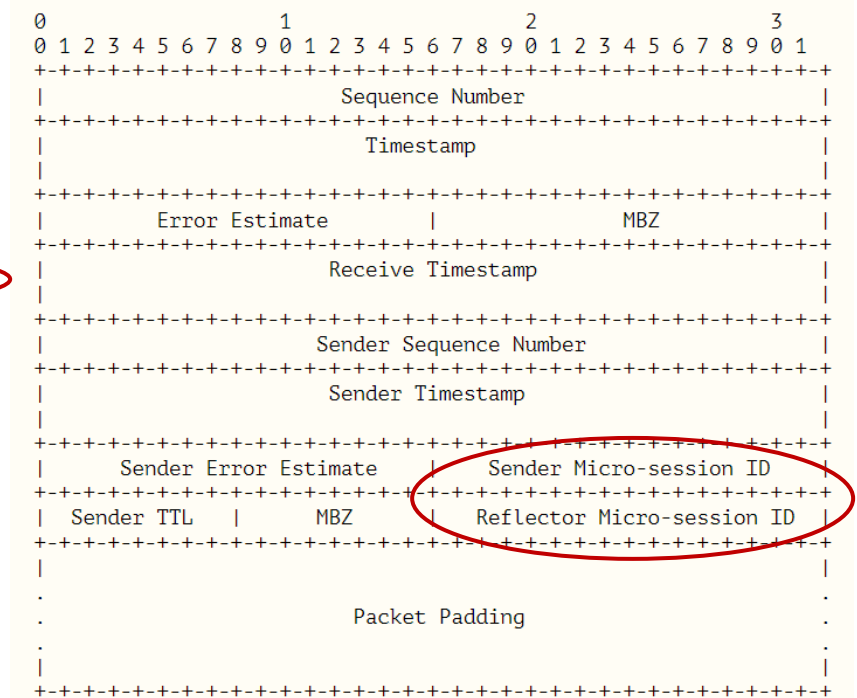


Figure 4: Micro Session-Reflector Packet Format in Unauthenticated Mode

OWAMP/TWAMP Extensions (Cont')

- Test packet in authenticated mode

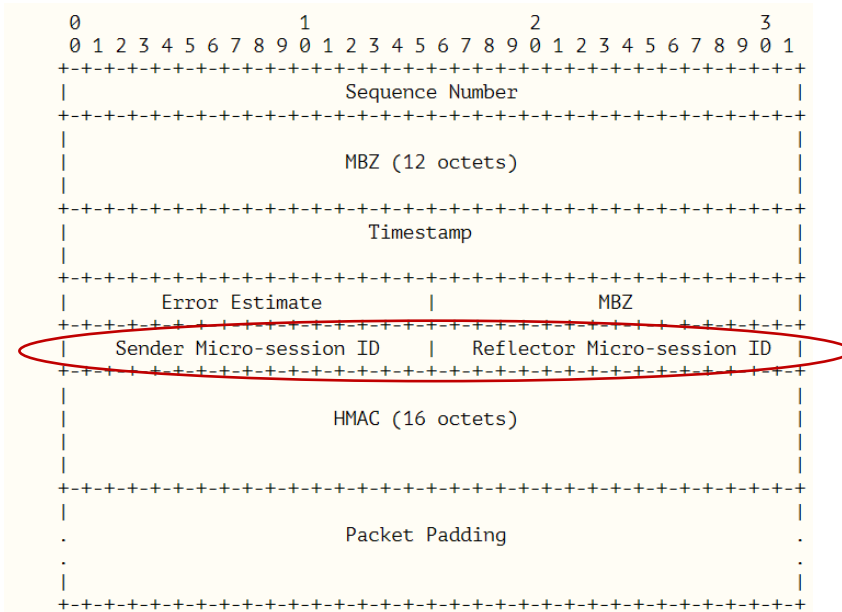


Figure 3: Micro Session-Sender Packet Format in Authenticated Mode

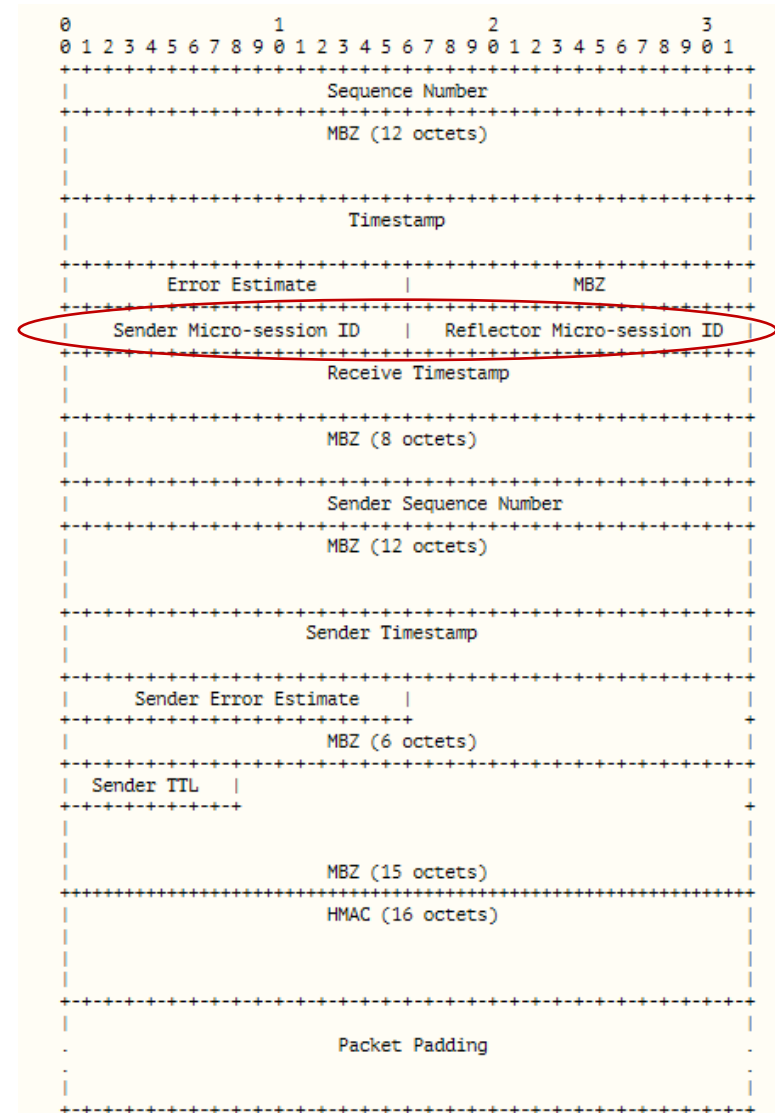
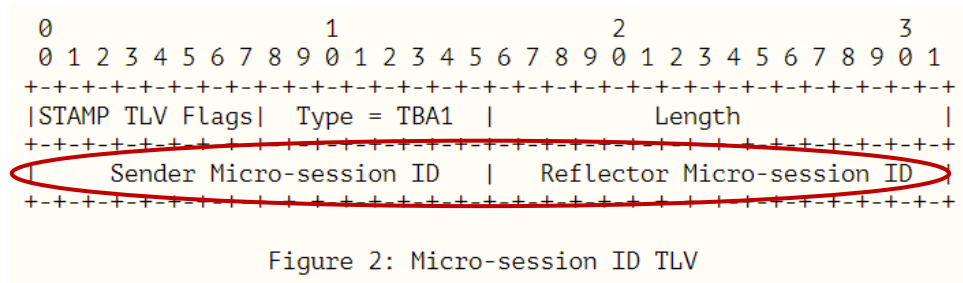


Figure 5: Micro Session-Reflector Packet Format in Authenticated Mode

STAMP Extensions

- STAMP TLV [RFC8972] mechanism extends STAMP Test packets with one or more optional TLVs.
- Micro-session ID TLV



Discussions in the list

- STAMP support both stateful and stateless modes. Should PM on LAG also consider both modes?
 - STAMP Session-Reflector **maintains the test state**, thus allowing the Session-Sender to determine directionality of loss using the combination of gaps recognized in the Session Sender Sequence Number and Sequence Number fields, respectively.
- Add the following clarification:
 - The micro STAMP-Test supports both stateless and stateful modes.
 - However, the micro STAMP-Test does not introduce any additional state to STAMP, i.e, any procedure with regard to the Micro-session ID is stateless.

Next Step

- Ready for working group last call.
- More comments are welcome.

**Thank
You**