Performance Measurement On Link Aggregation Group(LAG)

draft-li-ippm-stamp-on-lag
draft-li-ippm-otwamp-on-lag

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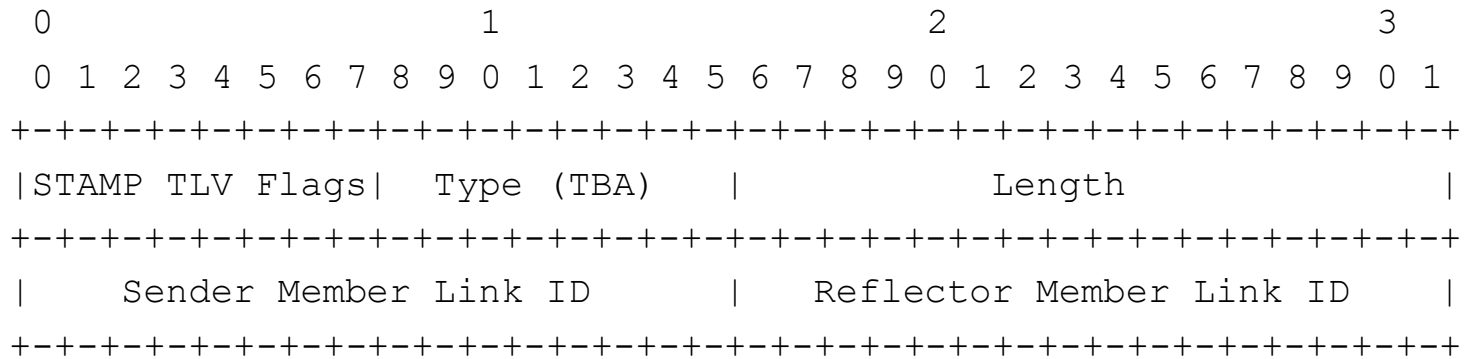IETF-111 July 2021, IPPM WG

Background

- Work started in draft-li-ippm-pm-on-lag included two solutions for:
  - OWAMP/TWAMP
  - STAMP
- Following on discussions and comments we split it into separate drafts:
  - draft-li-ippm-stamp-on-lag
  - draft-li-ippm-otwamp-on-lag

Motivation

- Link Aggregation Group (LAG) is widely used in the field
  - Combine multiple physical links into a single logical link
  - Provide higher bandwidth and better resiliency
- Active IP Performance Monitoring OAM protocols view a LAG as a single logical link
  - The measured metrics reflect the performance of one member link or an average of some/all member links of the LAG
- In some cases, the delays of the member links of a LAG are different because the member links traverse different transport paths
- To provide low delay service to time sensitive traffic, it has to know the link delay of each member link of a LAG and then steer traffic accordingly
- These two documents define extensions to OWAMP/TWAMP and STAMP to implement performance measurement on a particular member link of a LAG

STAMP Extension for LAG

- No changes to STAMP base test packet
- STAMP extension, LAG Member link ID TLV, defined

```
 0                   1                   2                   3
 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
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|STAMP TLV Flags|  Type (TBA)   |             Length            |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|    Sender Member Link ID      |   Reflector Member Link ID    |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```

- Sender Member Link ID MUST be unique on the STAMP Session-Sender
- Reflector Member Link ID MUST be unique on the STAMP Session-Reflector
- A micro-STAMP session is a STAMP test session over the particular LAG member link

Example: STAMP Micro Session
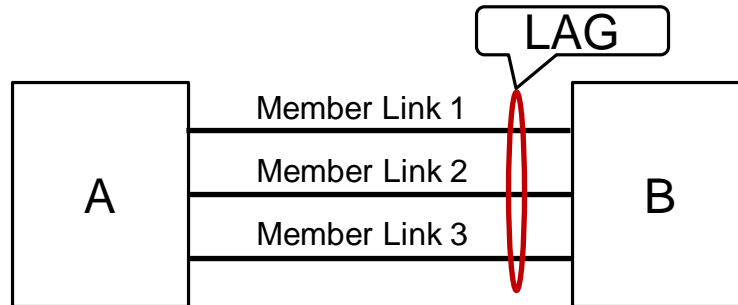
- Hosts A and B are connected by a LAG (Consists of three member links: Link 1, Link 2, and Link 3). Three micro sessions to be established:
  - micro session 1 for member link 1;
  - micro session 2 for member link 2;
  - micro session 3 for member link 3:
- Starting the STAMP-Test (example):
  - A sends Test packet of micro session 1 over member link 1 with the Sender Member Link ID value set and the Reflector Member Link ID value zeroed;
  - B associates the Test packet with micro session 1 using 4-tuple + receiving member link (member link 1);
  - B sends reflected Test packet over member link 1 back to A with the Sender Member Link ID copied from the received LAG Member Link ID TLV and the Reflector Member Link ID value set.

Next Steps

- Welcome your comments, questions
- Discuss, update drafts
- WG AP

Thank you