Multicast Traffic Measurement with IPFIX/PSAMP

<draft-kobayashi-ipfix-multicast-measure-00.txt>

Atsushi Kobayashi, Haruhiko Nishida (NTT)
Motivation

- Multicast service has started in several provider networks.
  - Current our service NW has millions of customers and thousands of routers who speak IPv6 multicast.
- Existing multicast tools work, but not good enough to monitor large-scale NW.
  - multicast ping, trace route and multicast MIB.
- IPFIX/PSAMP seems helpful.
  - I examined current multicast Flow information spec.
Operational Requirements

- Monitoring multicast topology.
  - Visualizes each multicast topology.
- Monitoring multicast service quality.
  - Measures packet loss, delay and disorder.

Visualize multicast topology and service conditions
Study Results

- Monitoring multicast topology
  - Topology information can be gathered with current spec.
    - To gather original/replicated Flows, input/output IFes can be collected.
- Monitoring multicast service quality
  - PSAMP selection technique is useful.
    - It can select a specific multicast group address and export record for each packet to measure packet loss, delay and disorder.

But, there are several issues.
Problems

- Problem 1: Too many (+burst) multicast Flow Records
  - RFC3917 says Flow record should be replicated for all output IFs to export output IF.
  - When active timeout happens, all replicated Flow Records will be exported at the same time.
    - An access router which has thousands of subscriber will export thousands of Flow Records at the same time.
Problems

- Problem 2: Field Match Filtering in PSAMP is too strict
  - Field Match Filtering have only “AND” operation.
  - Each filter (=multicast address) requires individual Metering Process.
- We would like to describe filter with ACL like expression.
Conclusion

- More sophisticated way to inform output IF list is needed.
  - In order to export output IF list, Option Template and other solutions could be considered.

- ACL like Field Match Filtering will be better.
  - Flexibility and understandability for operators
  - Minimize a number of Metering Processes