Multicast Traffic Measurement with IPFIX/PSAMP

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

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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

● Observation Point
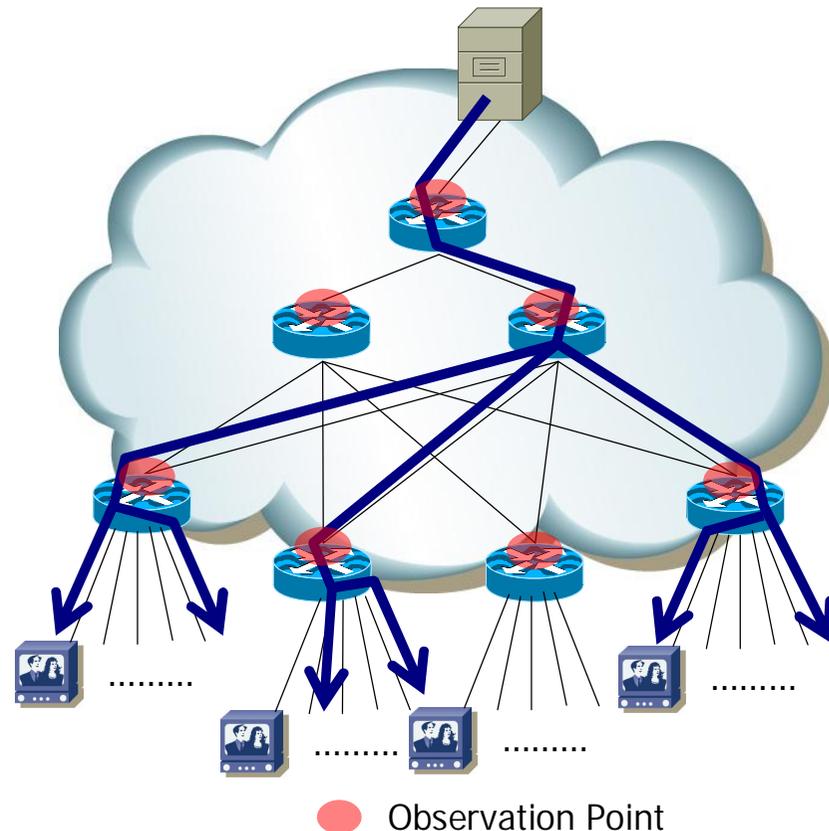
Study Results

- **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

- ## Problem1: 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

- Problem2: 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 sophisticate way to inform output IF list is needed.**
  - In order to export output IF list, Option Template and other solution could be considered.
- **ACL like Field Match Filtering will be better.**
  - Flexibility and understandability for operators
  - Minimize a number of Metering Processes