Packet loss Measurement Model draft-bhaprasud-ippm-pm-02

By

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Overview

- Objective:
  - Define fine granularity performance measurement between end points based on SLA
    - COS based Loss Measurement
    - Color Based Loss Measurement
    - COS and Color based Loss Measurement
    - ....
  - Focus on measurement model instead of protocol design
    - Model is agnostic to overlay and underlay.
  - This model can be used for Active and Passive measurements.

- Motivation:
  - measuring the network performance and assessing network quality to meet user expectation is very challenging.
  - PM related telemetry become important for better troubleshooting and fault localization.
    - Especially information related network element and interface in the path involved with the session
  - ITU-T SG12 Q16 has initiated a new work on "Framework for Intelligent Network Analytics and Diagnostics "
    - Performance data is one of data source for network analytics
  - iOAM work discussed recently focuses on carrying OAM and telemetry data but the measurement PM related telemetry data is not covered.

Document Status Update

- draft-bhaprasud-ippm-pm-00 was first presented in Seoul IETF meeting.
- A few comments we received during and after the last IETF
  - Consecutive measurement over a threshold and service degradation is different per service – Greg
  - Context about the draft and Hardware limitation – Greg
  - Format of the draft – Vinayak
  - Glossary – Vinayak
- The latest version v-02 is submitted with the following changes:
  - Format has been taken care.
  - Added section 2 to explain the terms used in the draft.
  - Use case added.
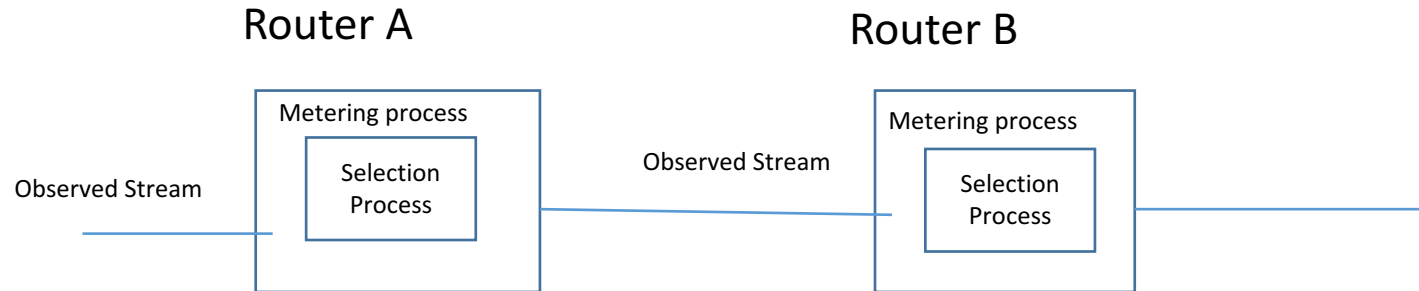 - SLA driven services will be measured separately.

Use Case for Packet loss Measurement Model

Both P2P and MP2MP are covered. For instance in a P2P scenario:

CUSA —— [Router A] —— P2P Service —— [Router B] —— CUS A

Service	Bandwidth (SLA)
Voice Service	40% strict
Service A	30%
Service B	20%
Service C	10%

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How to measure?

Router A   Router B

Metering process   Observed Stream   Metering process

Observed Stream   Selection Process   Selection Process

- Step A: Setup observation point
  - For node monitoring, two observation points are placed in the same endpoint
  - For link monitoring or end to end monitoring, two observation points are place at src and dst endpoint.
- Step B: Selection Process
  - Selection can also be based on the subset of observed traffic.
    - Selector
    - Selection state
- Step C: Metering Process
  - Reports can be generated based on the requirement of customer.
    - E.g.,Time stamps are captured.
  - The measured data are downloaded to persistent data store.
  - Measurement can be performed using measurement model after metering process or during metering process

Measurement Models

- Complete Loss measurement in one direction.

- Color based Data measurement.

- COS based Data measurement.

- COS and Color Based Measurement.

- Active and Passive Measurement.

Complete loss measurement in one Direction.

- Measurement between 2 or more end points.
- Can measure packet loss of the entire traffic in one direction.
- Suitable in backbone traffic.

Color based Data measurement.

- Packets are counted on color.
- Count all the committed traffic between end points.
- Count all the excess traffic beyond the committed traffic between end points.

COS based Data measurement.

- Used to measure the packet loss based on COS levels.
- The cos levels can be defined based on Customer SLA.

COS and Color Based Measurement.

- Measure the packet loss on COS level and color.
- Counts the packet on each COS level with CIR and EIR.
- COS model is defined based on customer SLA.

Active and Passive Measurement

- Split the flows in to batches of packets.
- Each block will be marked separately.

Next Steps

- Draft Must be reviewed.

- Comments anticipated.

- The current draft is limited to packet loss measurement?
  - Do we need to expand the model to cover delay measurement

Thank you