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

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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:

<table>
<thead>
<tr>
<th>Service</th>
<th>Bandwidth (SLA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voice Service</td>
<td>40% strict</td>
</tr>
<tr>
<td>Service A</td>
<td>30%</td>
</tr>
<tr>
<td>Service B</td>
<td>20%</td>
</tr>
<tr>
<td>Service C</td>
<td>10%</td>
</tr>
</tbody>
</table>
How to measure?

- **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 placed 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 into 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