Rate Measurement Test Protocol Problem Statement

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draft-ietf-ippm-rate-problem-03

Scope

- Access Rate Measurement on Production Networks
  - Rates at edge << core, likely bottleneck
  - Asymmetrical ingress and egress rates
  - Largest scale at edge: low complexity needed in device at user end
  - Tester has control of sender/receiver

Scope (contd.)

- Access Rate Measurement on Production Networks
  - Active measurements (IPPM charter)
  - Both In-Service and Out-of-Service
    - Includes service commissioning activity
- Non-Goals
  - No protocol solution in this draft
  - No Exact methods of meas (but categories discussed)

Revisions (03)

- Comments: Kostas, Sumita
- History: had proposals, needed Prob Statement, so there was some assumed context
- Clarified Intro and Scope statements, focusing on protocol
- Scope now in terms of LMAP reference path and measurement points
- Clarified req: Directional packet size control, both Symmetric and Asymm.

draft-ietf-ippm-lmap-path-00

```
Subsc. -- Private -- Private -- Access -- Intra IP -- GRA -- Transit
device      Net #1      Net #2     Demarc.    Access      GW     GRA GW
mp000                              mp100      mp150     mp190    mp200


... Transit -- GRA -- Service -- Private -- Private -- Destination
    GRA GW      GW     Demarc.     Net #n     Net #n+1   Host
    mpX90      mp890   mp800                             mp900


        GRA = Globally Routable Address, GW = Gateway
```

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TCP testing (open issue)

- Capability to Control an Open-Loop TCP test Capability

Note: For measurement systems employing TCP Transport protocol, the ability to generate specific stream characteristics requires a sender with the ability to establish and prime the connection such that the desired stream characteristics are allowed. See Mathis' work in progress for more background [I-D.mathis-ippm-model-based-metrics]. The general requirement statements needed to describe an "open-loop" TCP sender require some additional discussion.

- Capability to Control a "normal" BTC measurement
  - Examined in **draft-morton-ippm-twamp-tcp-00**
  - Two Modes: Initiator and Listener
  - Mixed Security Mode is compatible (na in OWAMP)
  - New Request-TW-Session Command
  - Select Congestion Control from a list? (e.g., AIMD)

Conclusion + Next Steps

- This measurement problem is a hot-topic in the Industry
  - Working LMAP before it was named…
- Additional Comments?
  - Need to close on problem statement to get to the real work (TCP control)
- draft-morton-ippm-twamp-rate-03
  - similar scope section updates
- draft-morton-ippm-twamp-tcp-00

backup

Summary of Specs

- Minimize test traffic when necessary
- Possible assessment of background
- Architecture MAY be either 1 or 2 way
- SHALL support packet ensemble tests
  - 4 categories, others are OPTIONAL
- Variable (asymmetrical) payload and ensemble lengths among streams MUST be communicated

Motivation

- Many possible Rate Measurement Scenarios – Narrow the scope
- Access-Rate Measurement
  - Has Continued Industry Attention
  - Many different approaches
  - Need to avoid mistakes: No comparison of Apples & Oranges
  - Topic of this draft and discussion

Open Questions for Discussion

- The actual path used may differ between user traffic and test traffic.
    - Where will this happen, on *access networks?*
- May influence the rate measurement results for some forms of access
- This issue requires further study to list the likely causes for this behavior.
    - The possibilities include IP address assignment, and transport protocol used (where TCP packets may be routed differently from UDP).