

Rate Measurement Test Protocol Problem Statement

Al Morton *π – day*, 2013

draft-ietf-ippm-rate-problem-02

Scope

- Access Rate Measurement on Production Networks
 - Rates at edge \ll core, likely bottleneck ≤ 100 Mbit/s (timing accuracy)
 - 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
 - Exact methods of meas (but categories discussed)

Revisions (01 and 02)

- Comments: Bill, Christofer, Marcelo
- History: had proposals, needed Prob Statement, so there was some assumed context
- “Test Protocols” in the title
- Clarified scope statements, focusing on protocol
- Scope now in terms of LMAP reference path and measurement points

draft-morton-ippm-lmap-path-01

Internet-Draft

IMAP Reference Path

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```
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

TCP testing (open issue)

- Capability to Control an Open-Loop TCP test Capability
- Capability to Control a “normal” BTC measurement

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.

It may also be useful to specify a control for Bulk Transfer Capacity measurement with fully-specified TCP senders and receivers, as envisioned in [RFC3148], but this would be a brute-force assessment which does not follow the conservative tenets of IPPM measurement [RFC2330].

Comments On/Off List

- Steve, Kostas, Andreas
- Problem Statement *still* not clear
 - Active Access Rate Measurement
- <100 Mbit/s target needed (low complexity already stated)
- Add req: fixed/variable packet spacing
 - assumes dispersion method, applicable?
- Soften req: Directional packet size
 - Feature consistent with scope, better cntl,

More Comments on List

- Steve, Andreas -> "coexistence"
- RFC 6802 solves the other problem
 1. Enables Available Capacity meas.
 2. Uses Symmetrical packet sizes
 3. Special functions in the Responder
 4. Allows dynamic test session params
- IPR Disclosed on one or more of the above
- Prob State. & TWAMP represent alt.

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
- RFC 6802 exists...

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).