Rate Measurement Test Protocol Problem Statement

Al Morton $\pi - day$, 2013 draft-ietf-ippm-rate-problem-02

Scope

Access Rate Measurement on Production Networks

- Rates at edge << core, likely bottleneck <=100 Mbit/s (timing accuracy)</p>
- 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

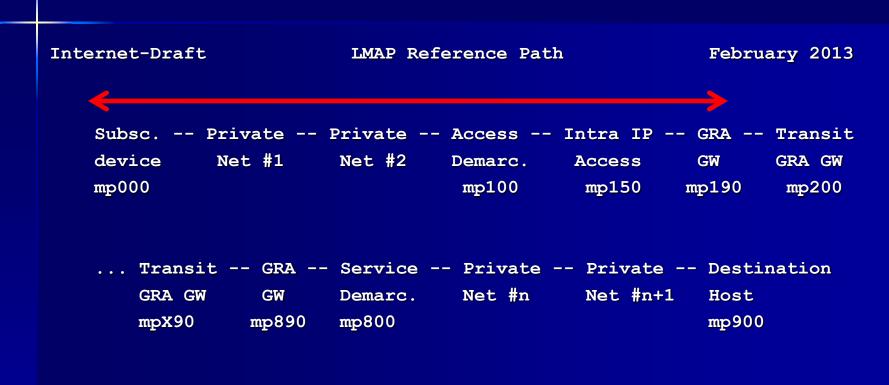
- No protocol solution in this draft
- Exact methods of meas (but categories discussed)

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-Imap-path-01



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 <u>specify a control for Bulk Transfer Capacity</u> 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)</p> complexity already stated) Add req: fixed/variable packet spacing – assumes dispersion method, applicable? Soften req: Directional packet size - Feature consistent with scope, better cntl₇

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 hottopic 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...

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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).