

# **Rate Measurement Test Protocol Problem Statement**

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draft-ietf-ippm-rate-problem-07

# Scope

- Access Rate Measurement on Production Networks
  - Rates at edge  $\ll$  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)

# 2013 Compromise: Sec 5

- Requirement for Asymmetric packet size control only – Sumita req. both
  - Symmetric size control and testing are commonplace, right?
- Expanded the Requirement for BOTH Symmetric and Asymmetric Packet Size (this was agreed)
- First WGLC, comment on Sec 5

# Sec 5 Revisions (ver 06)

- Toronto Compromise on Packet Generation Capability:
  - Asymmetrical RATE is REQUIRED
  - Asymmetrical SIZE is RECOMMENDED
- RECOMMENDED means
  - There may exist valid reasons in particular circumstances to ignore a particular item,
  - but the full implications must be understood and carefully weighed before choosing a different course.

# More Detail

Two-way architectures are RECOMMENDED to include control and generation capability for both asymmetric and symmetric packet sizes, because packet size often matters in the scope of this problem and test systems SHOULD be equipped to detect directional size dependency through comparative measurements.

# **NEW: Asymmetric packet size control indicated when results depend on the size of the packets (1)**

- i.e. when any of the following conditions hold on a link in the path:
  - asymmetrical capacity in opposite directions (in combination with one or more of the conditions below, but their presence or specific details may be unknown to the tester)
  - which aggregates (or divides) packets into link-level frames, and may have a capacity that depends on packet size, rate, or timing,
  - <next slide>

# **NEW: Asymmetric packet size control indicated when results depend on the size of the packets (2)**

- i.e. when any of the following conditions hold on a link in the path:
  - where transmission in one direction influences performance in the opposite direction
  - transmission capacity depends on packet header processing capacity (IOW, the capacity is sensitive to packet size),
  - the target application stream is nominally MTU size packets in one direction vs. ACK stream in the other, (noting that there are a vanishing number of symmetrical-rate application streams

# **NEW: Asymmetric packet size control indicated when results depend on the size of the packets (3)**

- i.e. when any of the following conditions hold on a link in the path:
  - the distribution of packet losses is critical to rate assessment,
- and possibly other circumstances revealed by measurements comparing streams with symmetrical size and asymmetrical size.
- Implementations may support control and generation for only symmetric packet sizes when none of the above conditions hold.

# Conclusion + Next Steps

- If you are solving Rate Measurement Test Protocol problem differently, good4u.
- You don't need a lot of Test Protocol Support to do bit rate tests.
- This Statement sets requirements for a widely applicable and sufficient solution. Of course, other requirement sets and solutions are possible.
- draft-morton-ippm-twamp-rate-05
- draft-morton-ippm-twamp-tcp-00

# backup

# draft-ietf-ippm-lmap-path-00

Internet-Draft

LMAP 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