draft-balasubramanian-iccrg-ledbatplusplus-01

ICCRG, IETF 106

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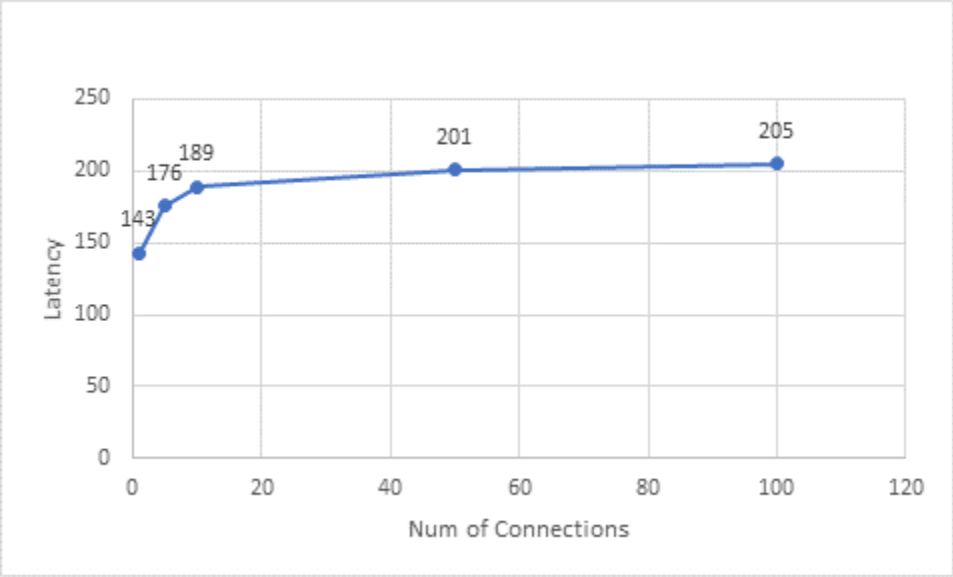
LEDBAT++ summary

LEDBAT Problem	LEDBAT++ Mechanisms
One way delay measurements	Use of Round Trip Time measurements
Latecomer advantage	Multiplicate decrease, Initial and Periodic slowdowns
Inter-LEDBAT fairness	Multiplicative decrease
Unspecified slow start	Slower than Reno ramp up, exit slow start on delay increase
Latency drift	Initial and Periodic slowdowns
Low latency competition	Slower than Reno increase

Experiments with large number of flows

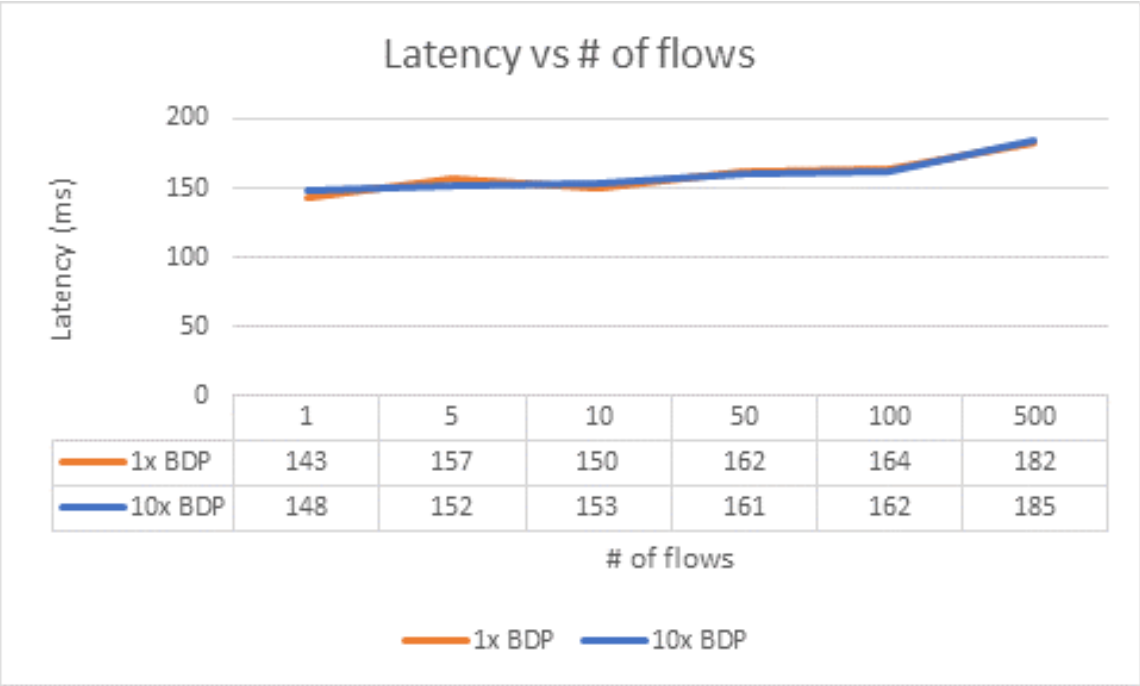


Neal Cardwell's experiment suggestion:

100 msec RTT, 100 msec TARGET, 1 sec bottleneck buffer

- LEDBAT++ scales well with multiple flows.
- When a new flow starts it causes other flows to backoff and then also enters the initial slowdown phase which allows all flows to measure base delay again.

Experiments with large number of flows



	1	5	10	50	100	500
1x BDP	143	157	150	162	164	182
10x BDP	148	152	153	161	162	185

- 100 msec RTT, 60 msec TARGET (default)
- bottleneck buffer 1x and 10x BDP

Changes since draft 00

- Rearranged sections
- Addressed Marcelo’s review comments – thanks Marcelo!
- Clarified multiplicative decrease cap – its intention is to never react worse to delay increase signal than Reno’s reaction to loss
- Removed reduction factor, just modify GAIN parameter

Next Steps

- Make document standalone subsuming LEDBAT
- Add pseudo code

- Please review and provide feedback