LISA: A Linked Slow-Start Algorithm for MPTCP
draft-barik-mptcp-lisa-01

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What is new?

- A paper\(^1\) published.
- A patch file on [http://heim.ifi.uio.no/runabk/lisa/](http://heim.ifi.uio.no/runabk/lisa/)
- Updated by draft-barik-mptcp-lisa-01
- Presented in IETF94, Yokahama, Japan.

\(^1\)Runa Barik, Michael Welzl, Simone Ferlin and Ozgu Alay, “LISA: A Linked Slow-Start Algorithm for MPTCP”, in IEEE ICC’16
MPTCP-LISA is very simple; it is just an update to the very first slow-start of new MPTCP subflows.

- When a new subflow joins, we find one available subflow that could give a part of its cwnd to the new subflow.
- If there is no subflow, assign the default values based on RFC 3390 and RFC 6928.

The goal is to reduce temporary aggressiveness, and losses at the end of slow-start.
Feedback from IETF94:

- Slowing down slow start will reduce retransmissions, does not work in large delay-bw environments.
- See graphs relating to BDP.
- Current parameters are unrealistic.

What is now?

- Performance of LISA in Shared and Non-Shared Bottleneck, varying:
  - Number of subflows
  - RTT
  - Bandwidth

- LISA behavior for a large transfer
Topologies:

(a) Shared bottleneck

(b) Non-Shared bottleneck
Shared Bottleneck: Number of subflows

(c) Mean-completion time (2 subflows)

(d) Mean-completion time (4 subflows)

(e) Retransmissions

(f) Retransmissions
Shared Bottleneck: RTT

(a) Mean-completion time

(b) Retransmissions

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Shared Bottleneck: RTT

(a) Mean completion time

MPTCP
MPTCP-LISA

Base RTT=200ms

0  100  200  300  400  500  600  700  800

(b) Retransmissions
Shared Bottleneck: Bandwidth

(c) Mean completion time

(d) Retransmissions
Non-Shared Bottleneck: RTT

(a) Mean completion time

(b) Retransmissions
Non-Shared Bottleneck: Bandwidth

(a) Mean completion time

(b) Retransmissions
Shared Bottleneck: Large transfer

Number of Retransmissions at the end of SS

(a) Vary RTT

(b) Vary Bandwidth
Non-Shared Bottleneck: Large transfer

(a) Vary RTT

(b) Vary Bandwidth

Number of Retransmissions at the end of SS
Thank you!
LISA in Shared Bottleneck

(a) Shared bottleneck

- LISA behaves less aggressive than MPTCP

(b) Total cwnd

- Total retransmissions
LISA in Non-Shared Bottleneck

(a) Non-Shared bottleneck

(b) Retransmissions

MPTCP main flow
MPTCP subflow
LISA main flow
LISA subflow

Retransmissions
Time (in sec)

Transfer-size=1000KB

MPTCP main flow
MPTCP subflow
LISA main flow
LISA subflow

Total retransmissions

IETF96
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