

Adaptive FEC for Congestion Control

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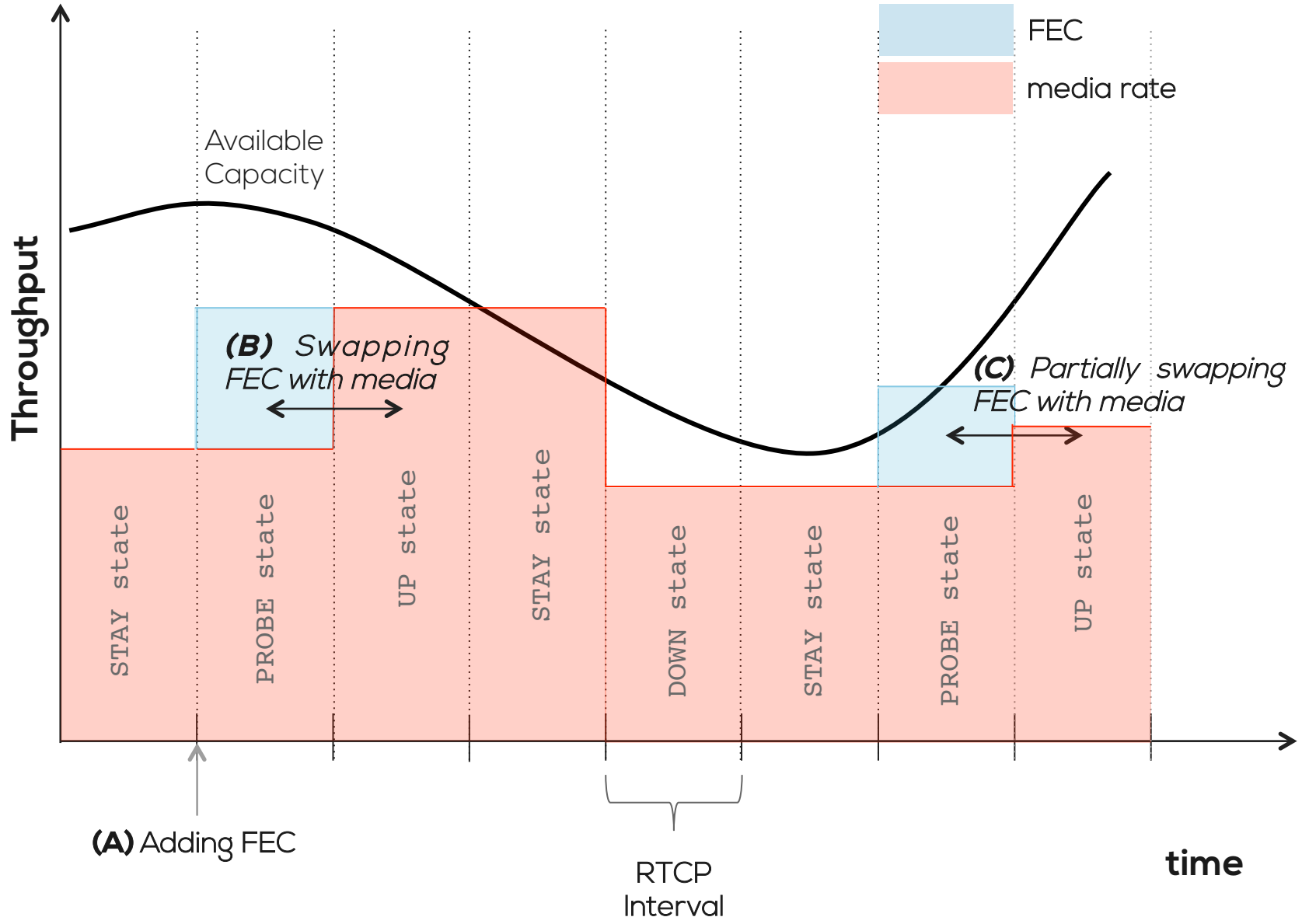
IETF 90, Toronto,
24. July 2014

tools.ietf.org/html/draft-singh-rmcat-adaptive-fec-00

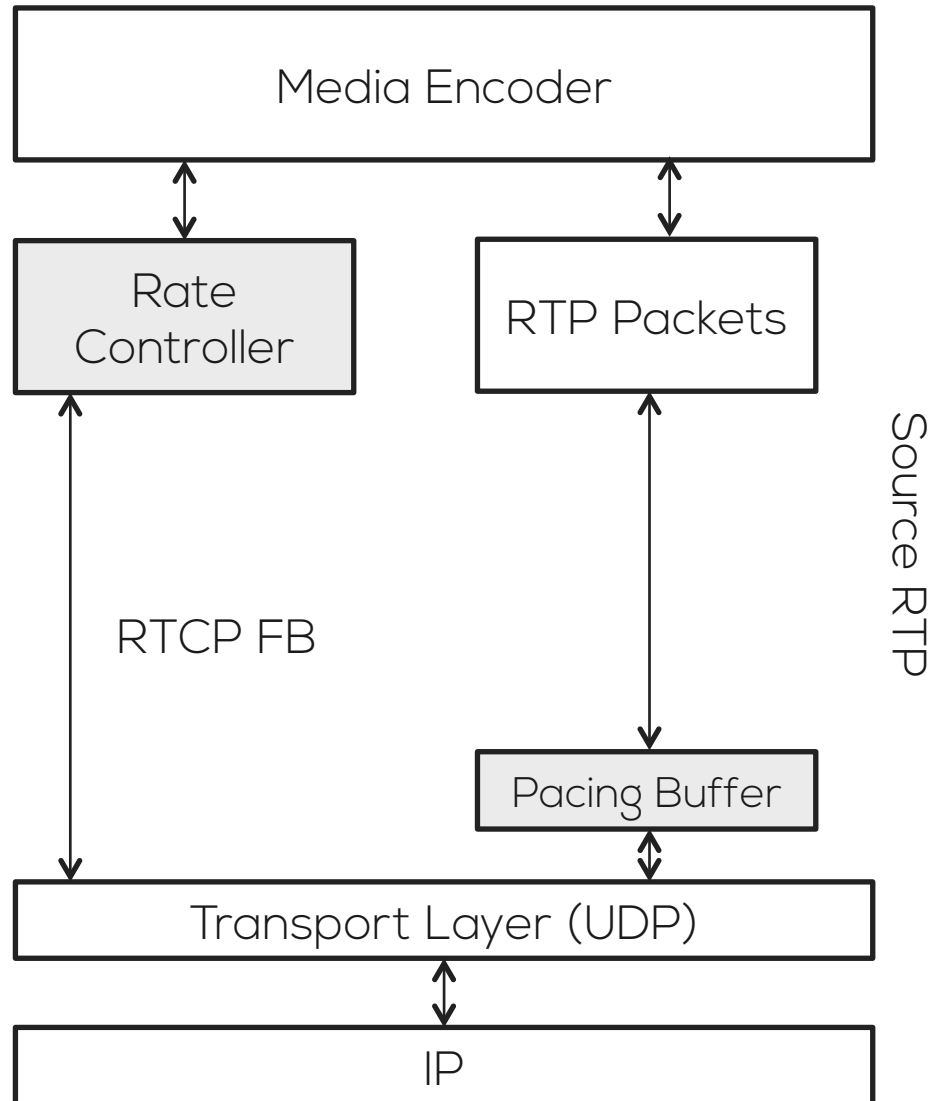
IPR

- Lars made a 3rd party disclosure:
 - <https://datatracker.ietf.org/ipr/2394/>
 - Also sent to the mailing list

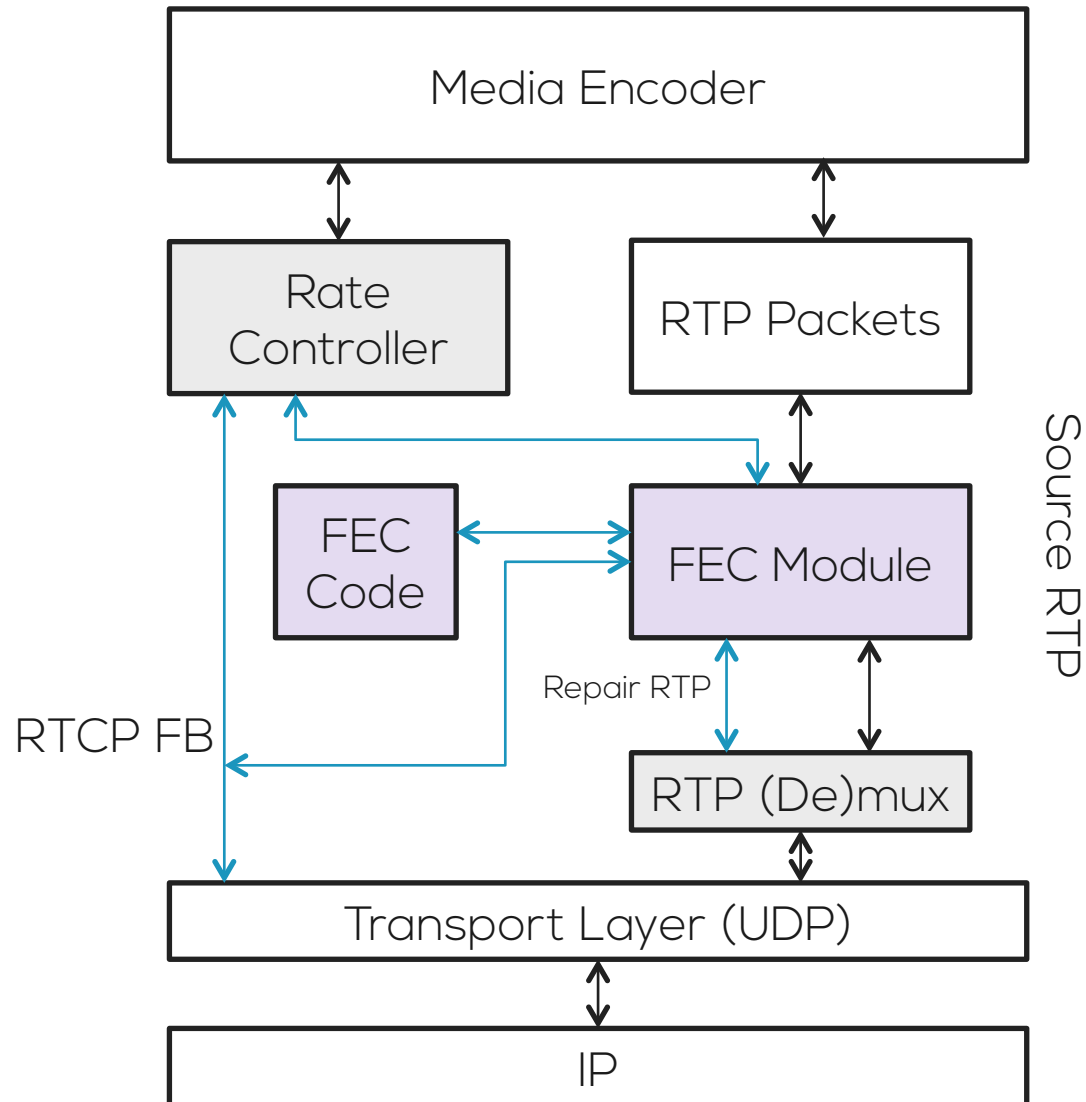
CONCEPT



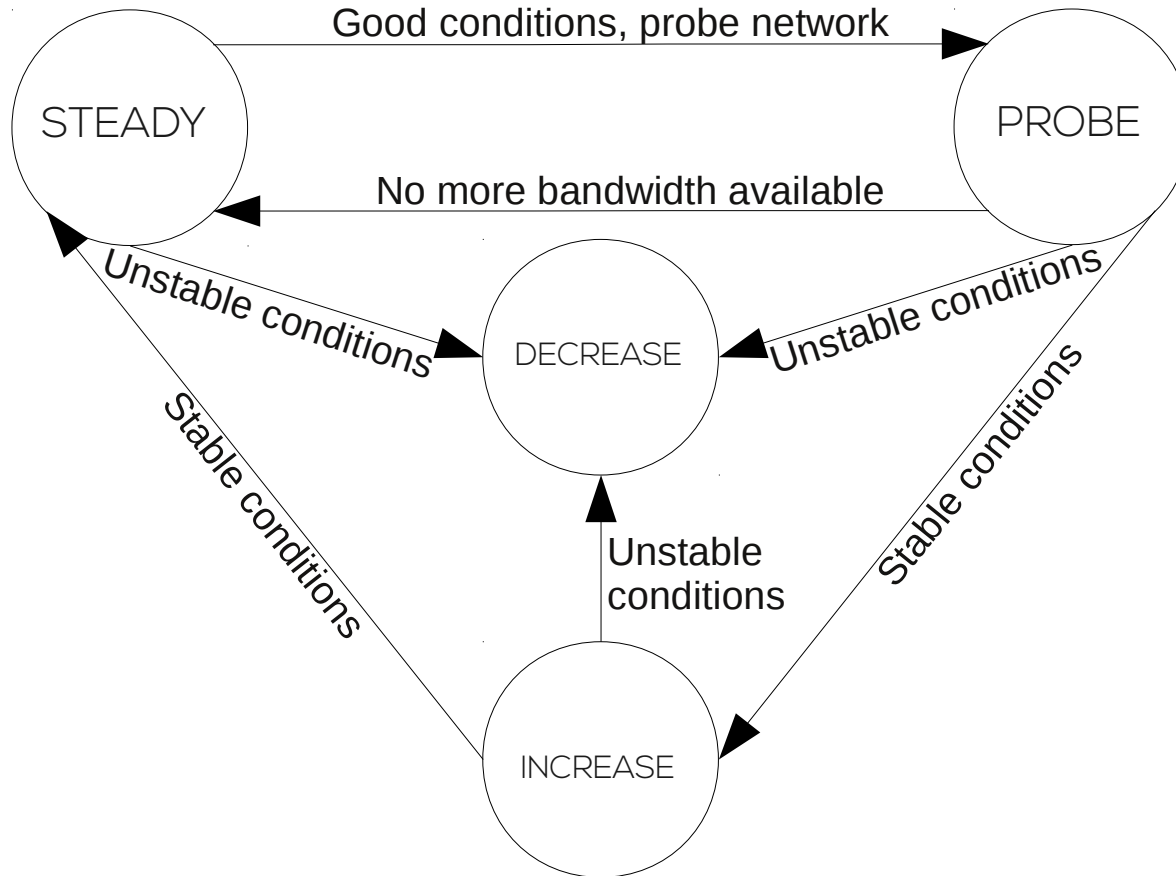
CC Framework



RFC 6363: FEC Framework



State Machine



FEC Scheme

- Open Issue
 - Leave it open i.e., generic
 - Or, RF5109 (ULP), RFC6015 (1-d interleaved), parity, 1- or 2-d interleaved XOR, Reed-Solomon, ...
 - There was discussion in RTCWEB on FEC Schemes.

RTCP Feedback

- RLE of Post-repair (RFC5725)
- RLE of loss packets (RFC3611)
- RLE of discarded packets (RFC7097)
- Packet count of lost and repaired packets
 - (draft-ietf-xrblock-post-loss-repair)

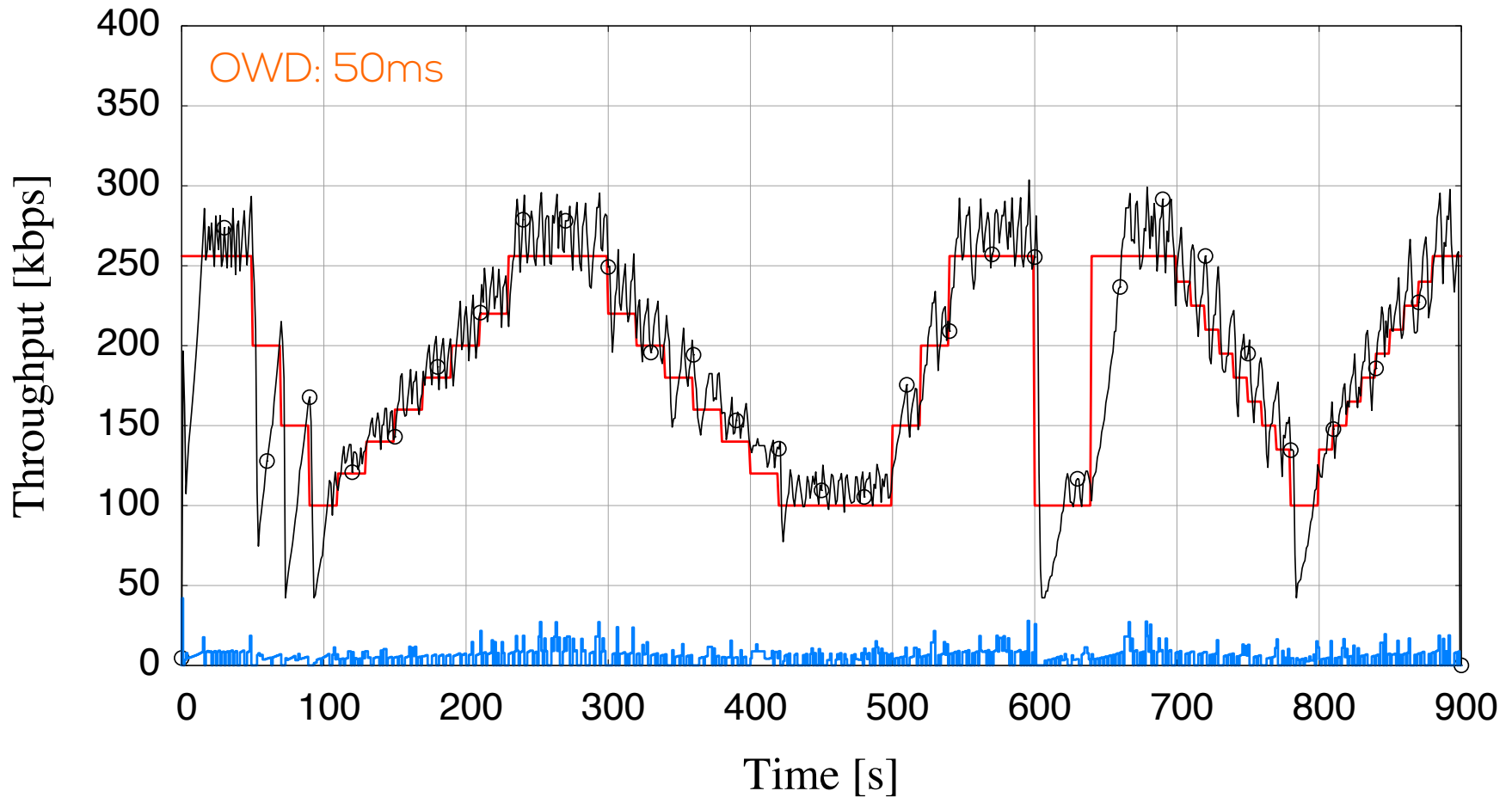
Applicability

- Implemented over a delay-based congestion control
 - See paper for details
- However would like to generalize it.
 - Apply to SCReAM, GCC, ...

Next steps

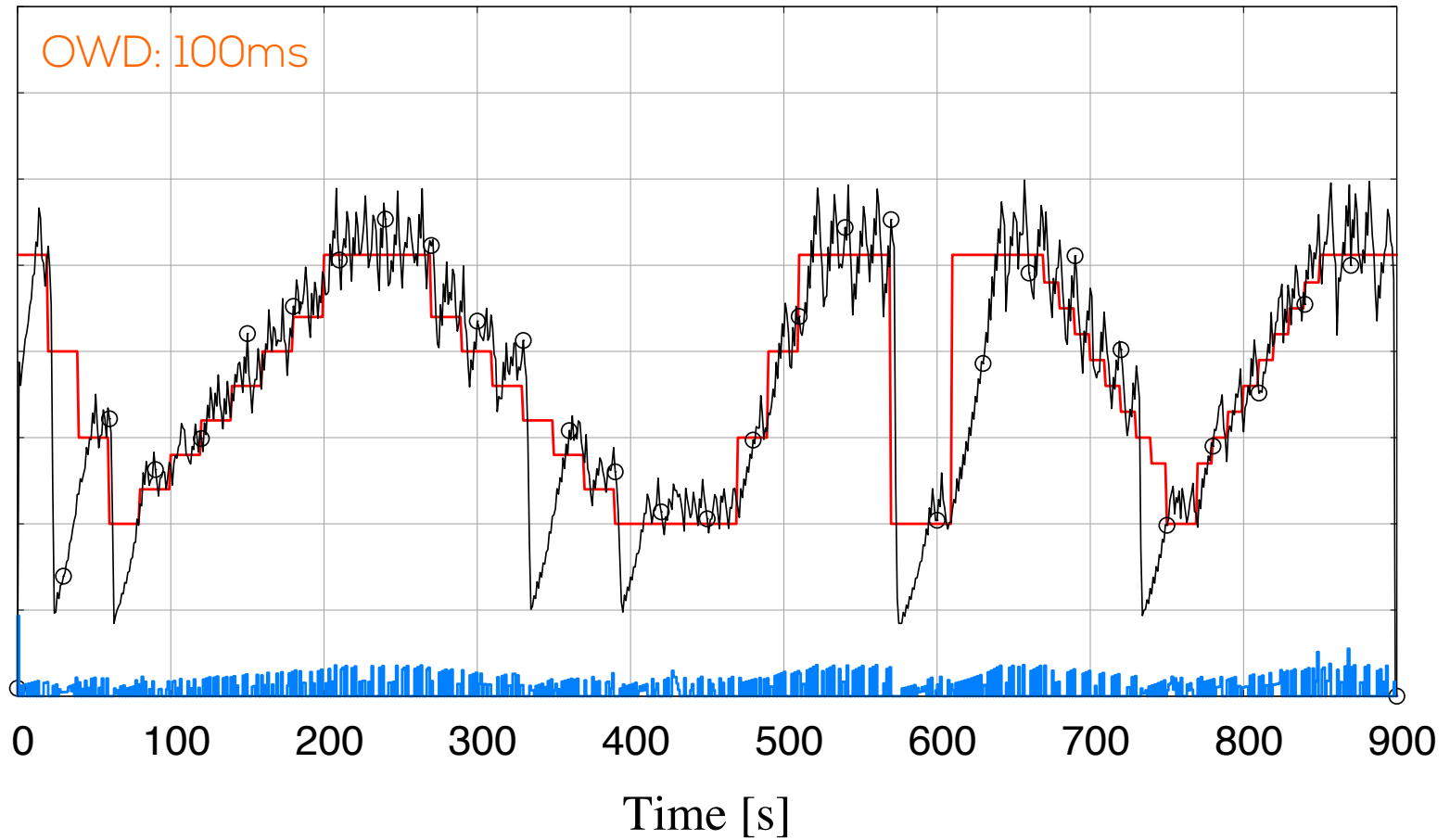
- Code: (coming soon)
 - <https://github.com/protocols-comnet/rmcat-adaptive-fec-code>
- Evaluation Paper:
 - Nagy M., Singh V., Ott J., Eggert L., Congestion Control using FEC for Conversational Multimedia Communication, Proc. of ACM Multimedia Systems, Singapore, SG, Mar, 2014,
- Initial comments received from Ingemar Johansson
 - More feedback is appreciated 😊

Evaluation (1/3)

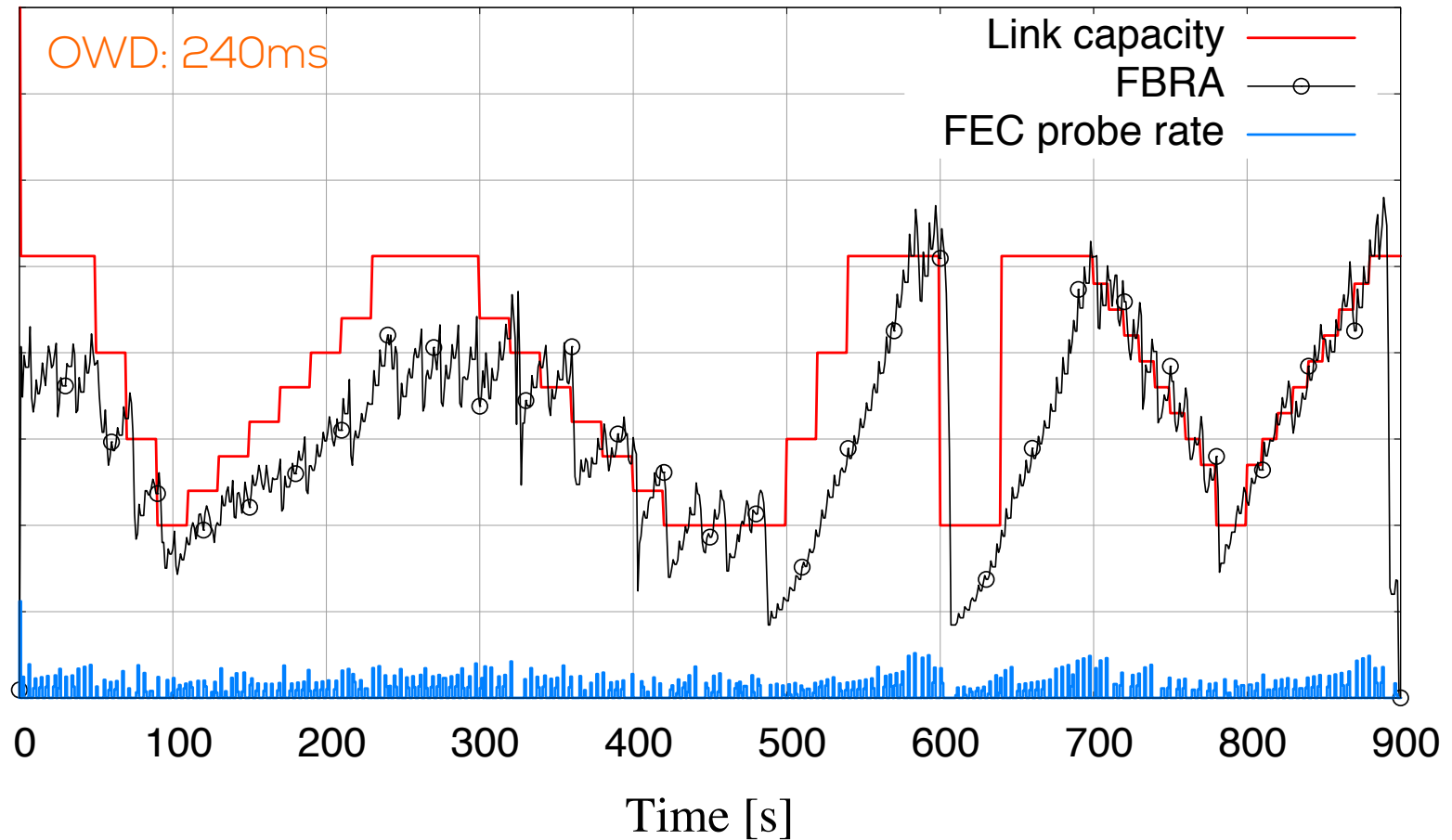


- Ns-2 simulation, Variable link capacity, Single flow on the link

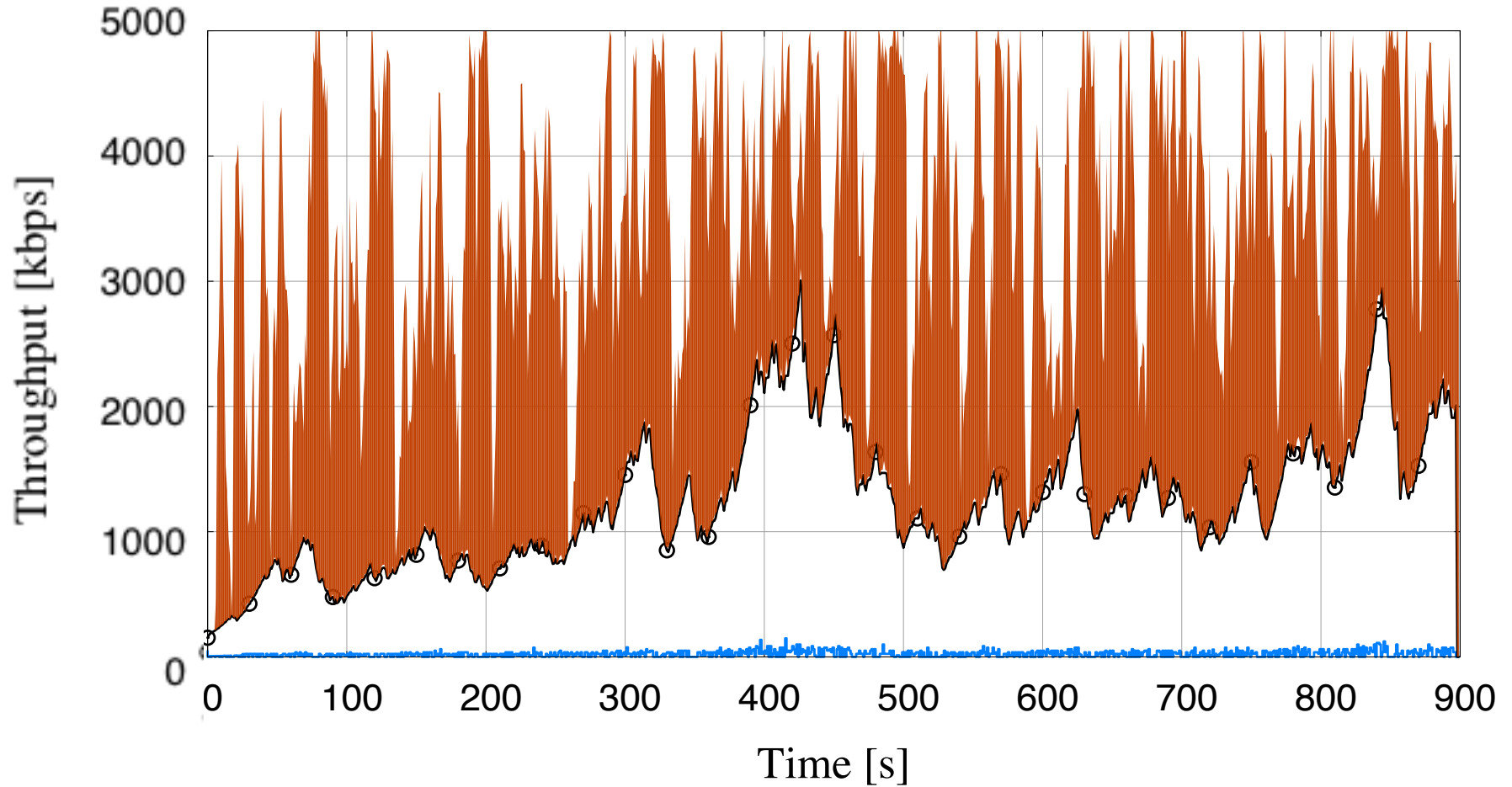
Evaluation (2/3)



Evaluation (3/3)

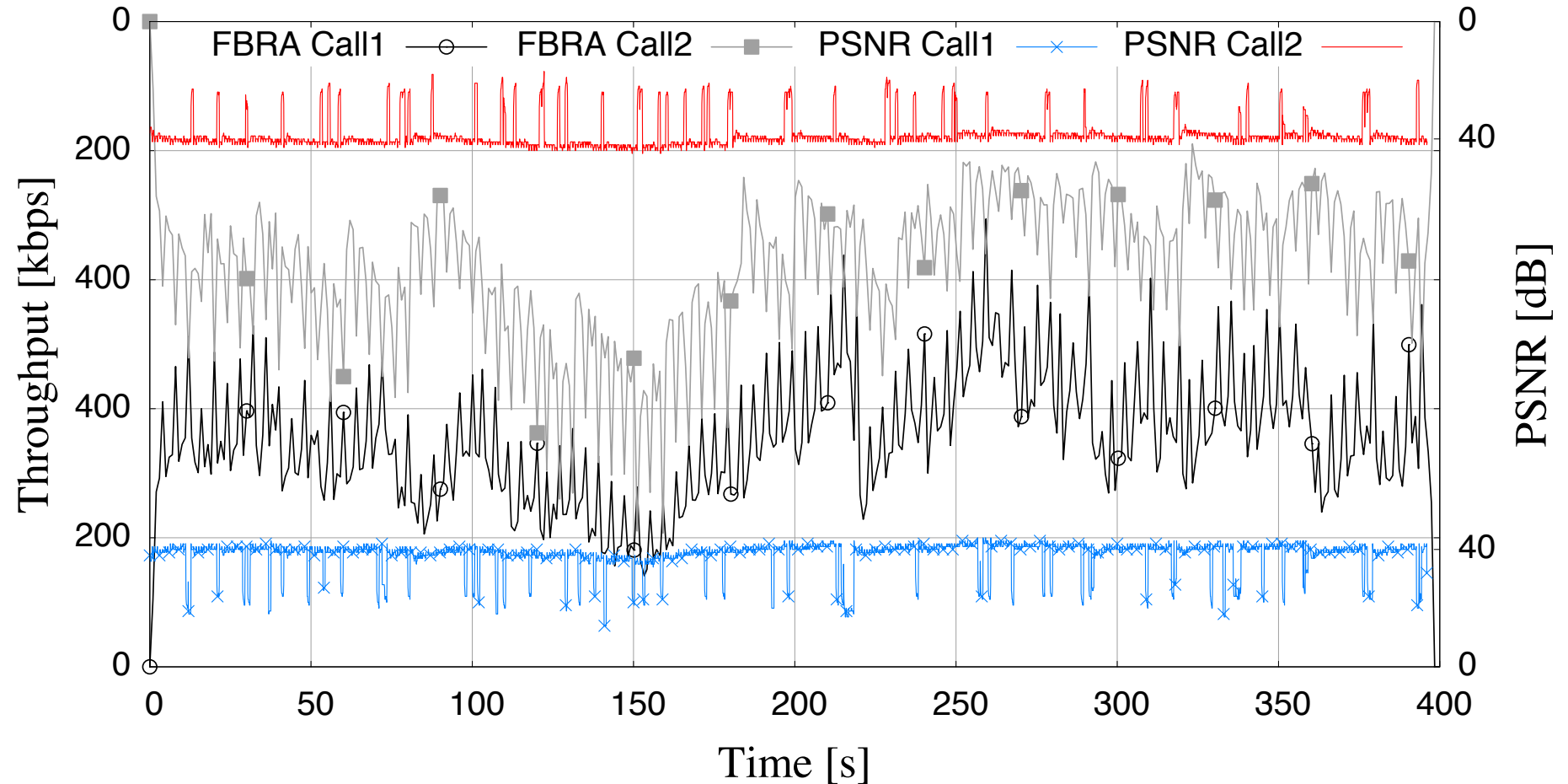


Compete with short TCPs



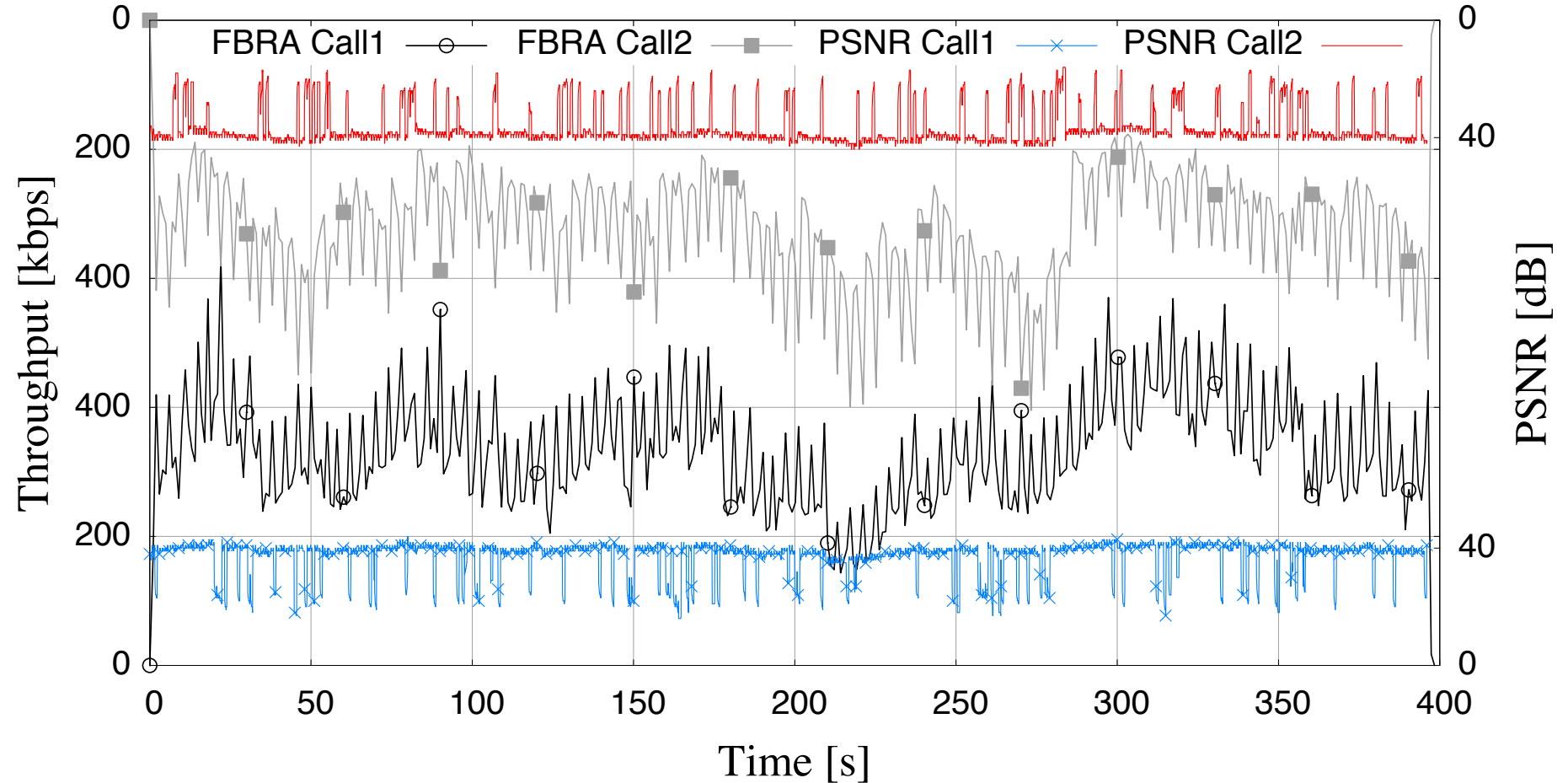
TESTBED Evaluation (1/2)

Two RTP flows on the link



- 1Mbit/s link capacity, 50ms one-way-delay,

TESTBED Evaluation (2/2)



- 1Mbit/s link capacity, 100ms one-way-delay,