

Ultra-Low Queuing Delay for All

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Proposed Agenda

09:00

- Note Well, Agenda Bashing [Phil]
- Introduction/Background (very brief) [Bob]
- Clarification Questions

09:15

- Status updates [Koen to lead], e.g.:
 - what people are doing on parts of the problem:
 - planned work
 - evaluation work
 - interest in implementing
 - willingness to review

09:40

- Build a standardisation roadmap [Bob to lead]
- Build a BoF for the Berlin time-frame
 - should it be non-WG forming?
 - volunteers to help with organisation / writing problem statement, etc.
 - which mailing list?
 - what name?
- Discussion / Q&A

09:55 end

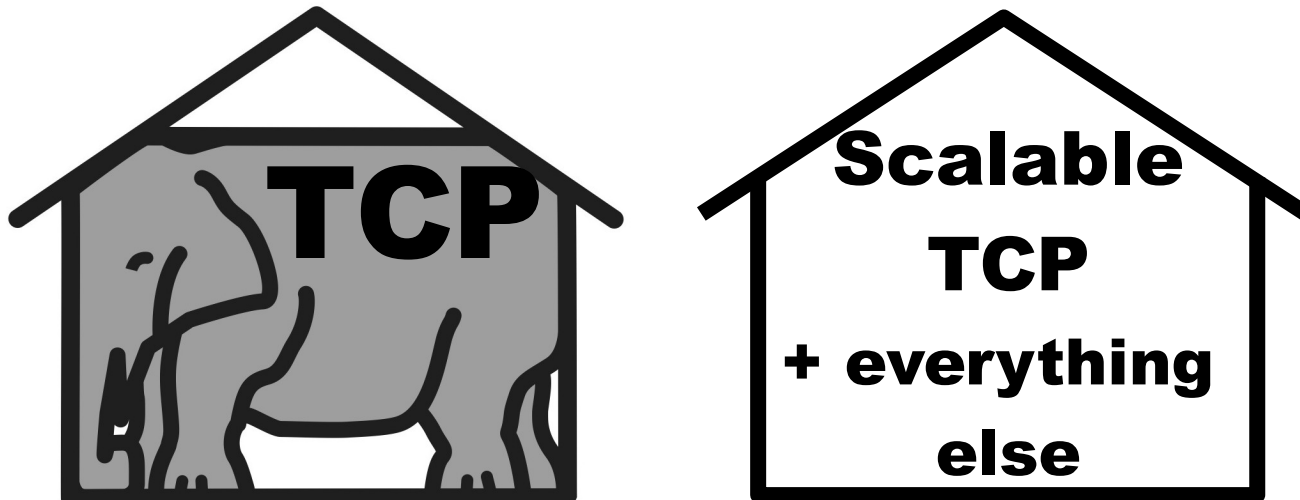
Low Latency Low Loss Scalable throughput (L4S) – background



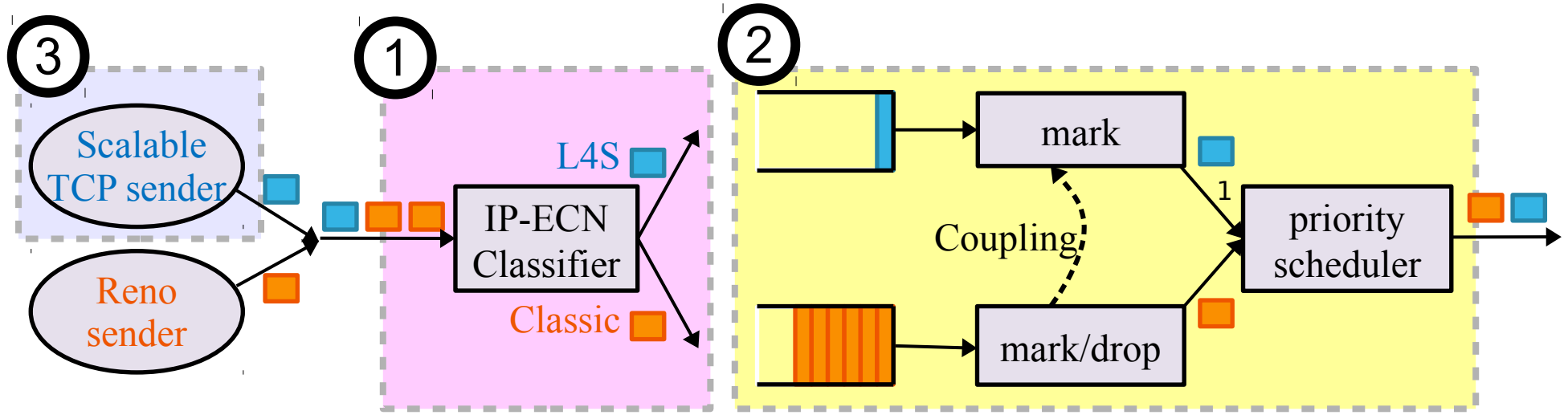
- Recall: demo at Prague IETF (aqm wg & bits-n-bites)
 - see <https://riteproject.eu/dctth/> for videos, papers, etc
- L4S could incrementally replace “best efforts”
 - ultra-low queuing delay
 - zero congestion loss
 - scalable throughput (beyond Reno, Compound, Cubic)
- Eventually for *all* Internet traffic
- Aim: to be worth the deployment hassle – so much better than today

very high level

- problem: TCP is the elephant in the room
- solution: build another room without the elephant



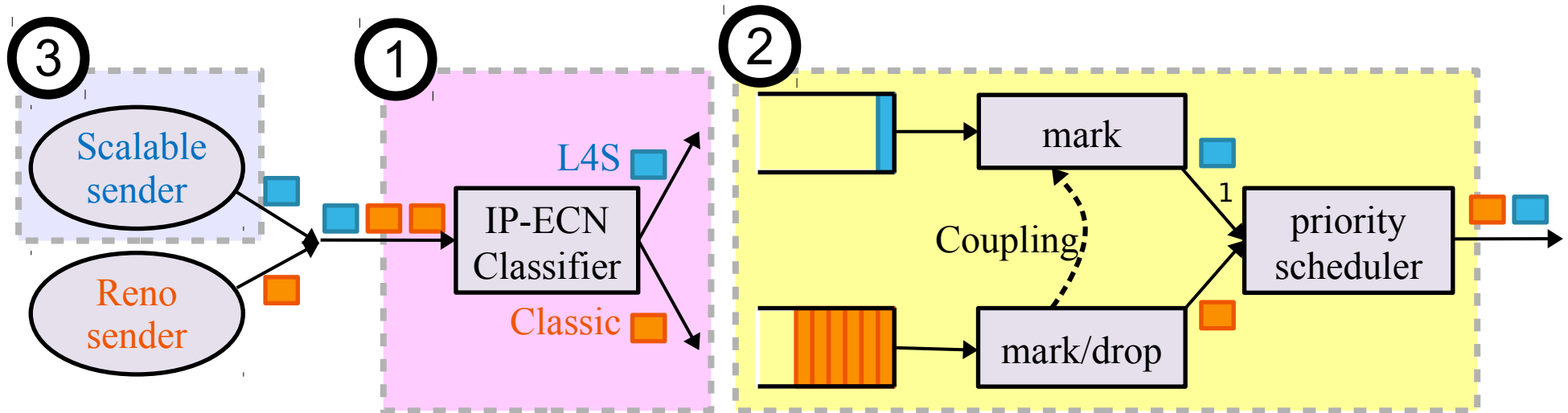
3 parts to standardise



1)	The identifier	draft-briscoe-tsvwg-ecn-l4s-id
2)	The DualQ AQM	draft-briscoe-aqm-dualq-coupled
3)	Scalable transport	draft-ietf-tcpm-accurate-ecn draft-ietf-tcpm-dctcp (bis)

- #1, #2 are as general as possible
- #3a) fixes TCP feedback, other transports are already OK
- #3b) one concrete example transport behaviour: DCTCP

An incrementally deployable clean slate



1)	The identifier	draft-briscoe-tsvwg-ecn-l4s-id	tsvwg?
2)	The DualQ AQM	draft-briscoe-aqm-dualq-coupled	aqm?
3)	Scalable transport	draft-ietf-tcpm-accurate-ecn draft-ietf-tcpm-dctcp (bis) "TCP Prague" "SCTP Prague" "RMCAT Prague"	tcpm? tcpm? tcpm? tcpm? rmcat?

“TCP Prague” Requirements

Requirement	Title of I-D or potential I-D	Ref	WG	TCP	DCTCP	DCTCP bis	TCP Prague	“SCTP Prague”?	“rmcat Prague”?
1 Fall back to Reno/Cubic on loss	DCTCP: TCP Congestion Control for Datacenters	draft-ietf-tcpm-dctcp	TCPM		Y	Y	Y	Y	Y
2 Negotiate altered feedback semantics	More Accurate ECN Feedback in TCP	draft-ietf-tcpm-accurate-ecn	TCPM	Y	Y	Y	Y	n/a	n/a
3 Use of a standardised packet identifier	Identifying Modified ECN Semantics for Ultra-Low Queuing Delay	draft-briscoe-tsvwg-ecn-l4s-id	TSVWG?		Y	Y	Y	Y	Y
4 If base-RTT is low, handle a window of less than 2, don't grow queue	Scaling TCP's Congestion Window for Small Round Trip Times	slides-93-iccr-5.ppt	TCPM?	Y	Y	Y	Y	Y	?
5 Reduce RTT-dependence	Contribution-driven		TCPM?			Y	Y	Y	?
6 Smooth ECN feedback over flow's RTT, not RTT hard-coded for DCs	Contribution-driven		TCPM?		Y?	Y	Y	Y	?
7 Fall back to Reno/Cubic if classic ECN bottleneck detected	Contribution-driven		TCPM?				Y	Y	?
8 Faster-than-additive increase	Contribution-driven	e.g. Adaptive Acceleration (A ² DTCP)	TCPM?			Y	Y	Y	?
9 Less drastic exit from slow-start	Contribution-driven		TCPM?			Y	Y	Y	?

BoF

- Berlin timeframe
- Non-WG forming?
- Volunteers?
 - organisation
 - problem statement
- Which mailing list?
- What name?

Q&A

large saw teeth can ruin the quality of your experience



Q) why is queuing delay of DCTCP so low?

A1) Finer saw-teeth of a Scalable TCP

