

Careful Resume

draft-ietf-tsvwg-careful-resume-11

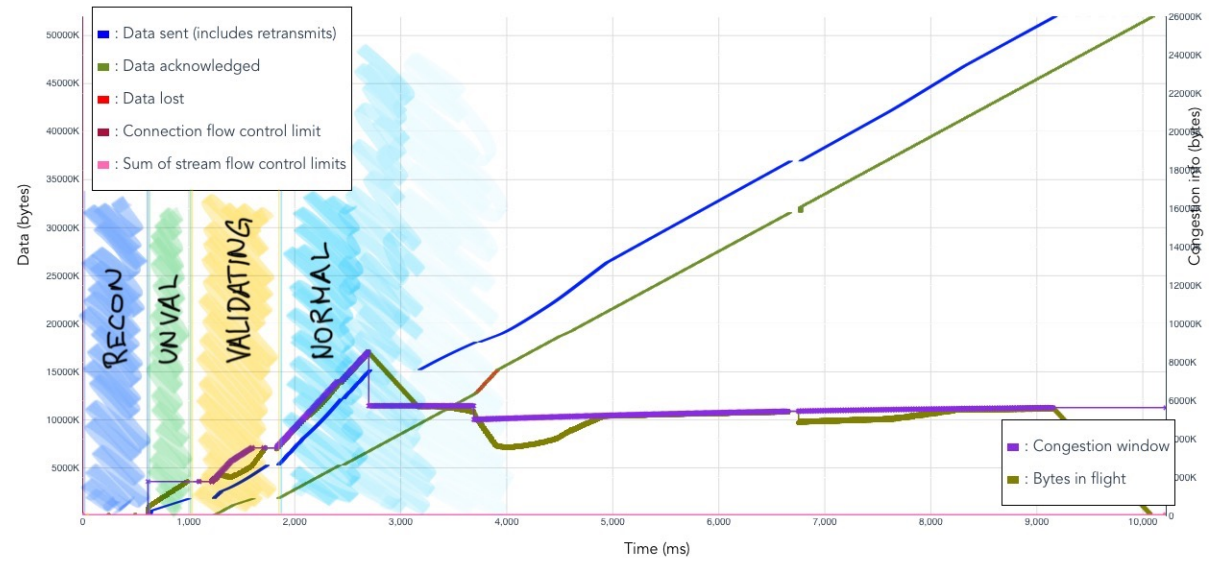
IETF 121

Dublin, November 2024

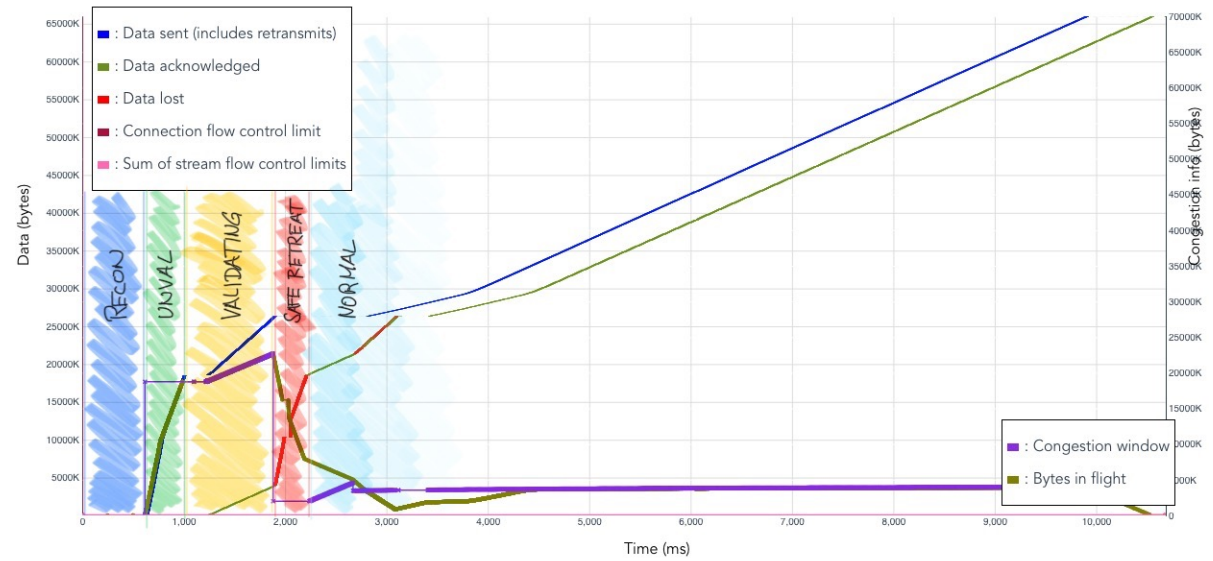
N. Kuhn, E. Stephan, G. Fairhurst, R. Secchi, C. Huitema

QLOG Traces

Jump Succeeds



Jump not Performed

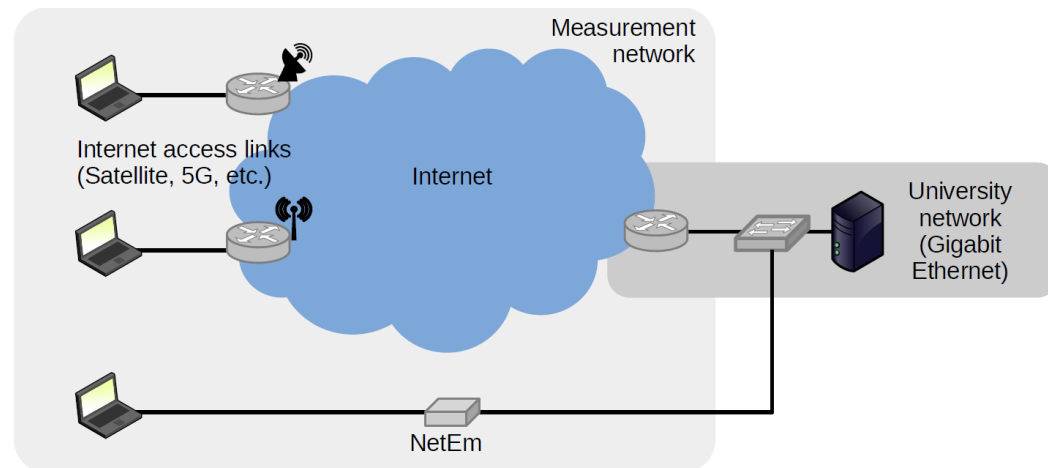


Changes to the draft from -v10 to -v11

- Section 1.5 clarifies the design principles
- Clarifications on the transition RECON -> UNVAL
 - Sender may remain in RECON until transmit buffer contains data
 - Accommodates flexibility in CR implementations
 - Now; *pipesize = flight_size* on UNVAL entry and at the end of VALIDATING
- Added considerations on Careful Resume with BBR
- At exit from Safe Retreat: $ssthresh = \beta * pipesize$ $0.5 \leq \beta \leq 1$

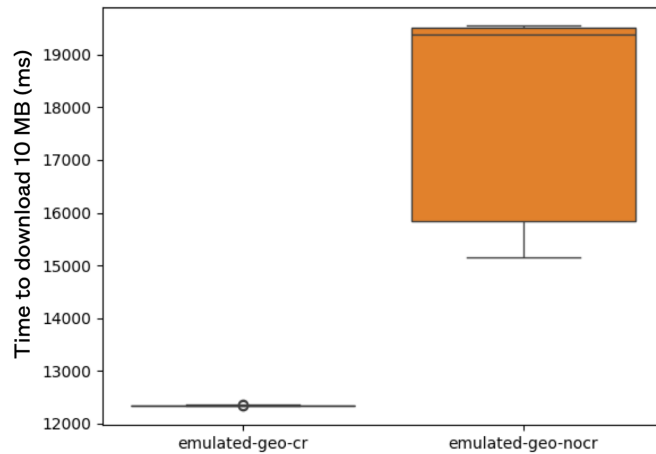
Performance analysis of CR/QUIC

- Testing of CR in QUIC
 - Implementation/Testing in Picoquic (Joerg Deutschmann, Matthias Hefstaetter)
 - Implementation/Testing in Quiche (Ana Custura, Mihail Yanev)



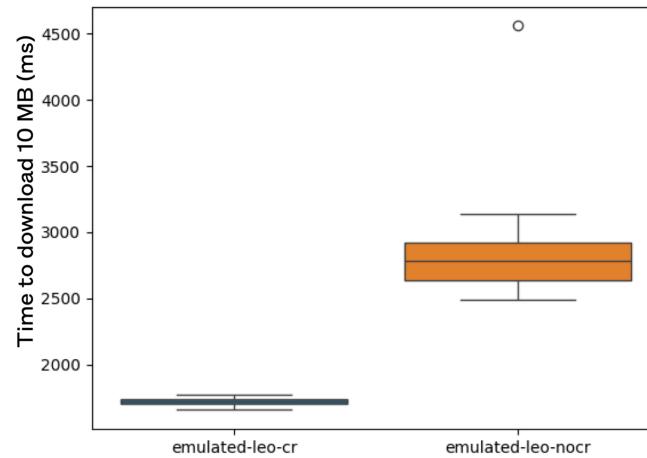
Web download speed-tests with Quiche

Emulated GEO



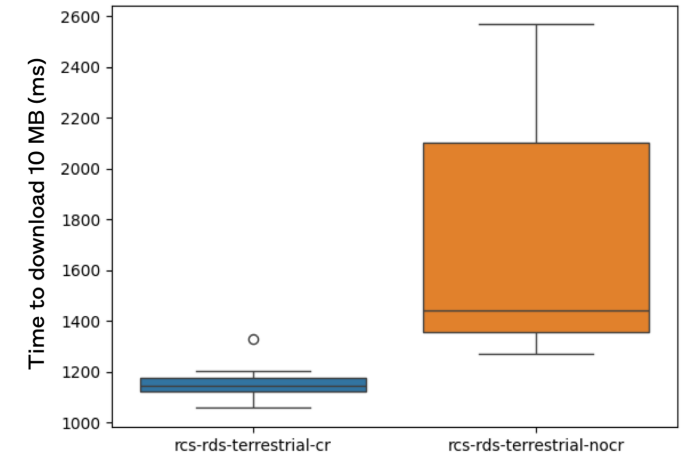
12.3 seconds vs 19.3 seconds median

Emulated LEO



1.7 seconds vs 2.7 seconds median

Emulated terrestrial

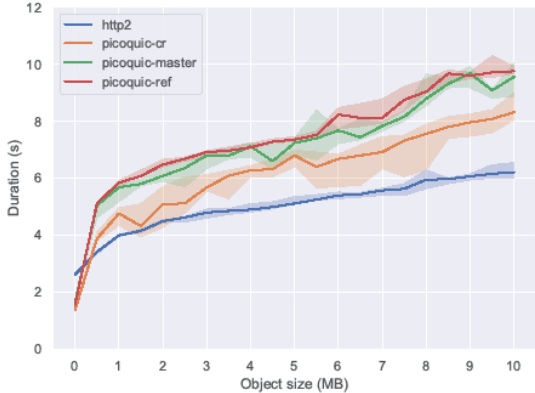


1.1 seconds vs 1.4 seconds median

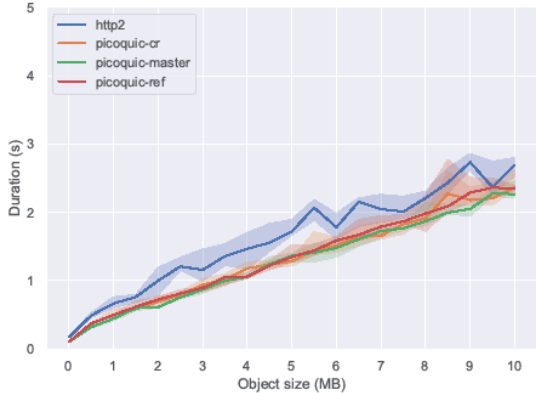
- Tests through a mix of emulations and live Internet paths.
 - Median download time reduced from 19.3 to 12.3 sec in GEO tests.
 - Median download time reduced from 2.7 to 1.7 sec in LEO tests.
 - Results okay with terrestrial delay

CR completion time comparisons with Picoquic

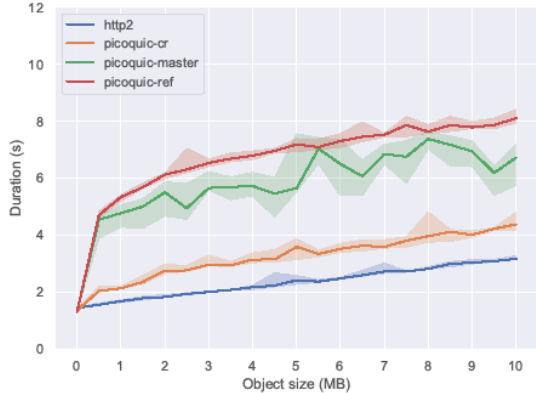
Brdy KA-SAT



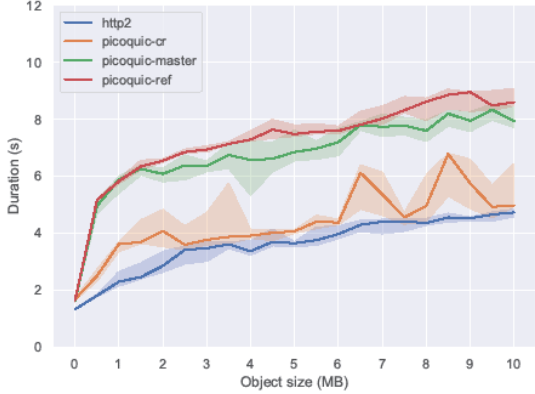
Congstar



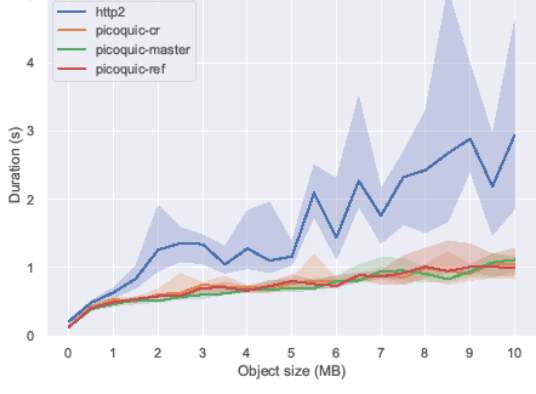
Konnect



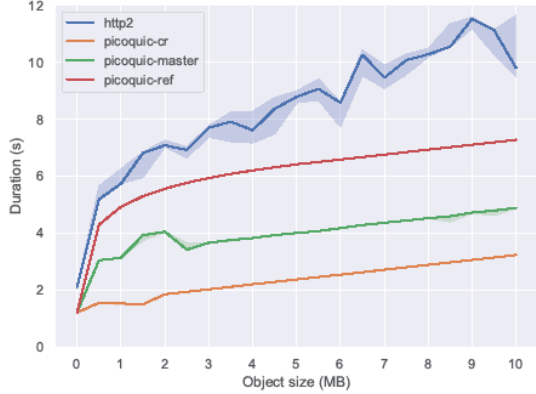
Sky DSL



Starlink



Netem



Completing Implementations

- Currently analysing CR performance in high BDP (ESA QUICOPTSAT)
 - Emulations using Dockers network with Netem
 - Satellite LEO/GEO testbed available
 - Extend unit tests to identify issues/deadlocks

Next Steps

- We have received several reviews informally
- We have no pending issues to address

- Is this ready for a Working Group Last Call?