

# draft-ietf-tcpm-newcwnd

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# Feedback ...

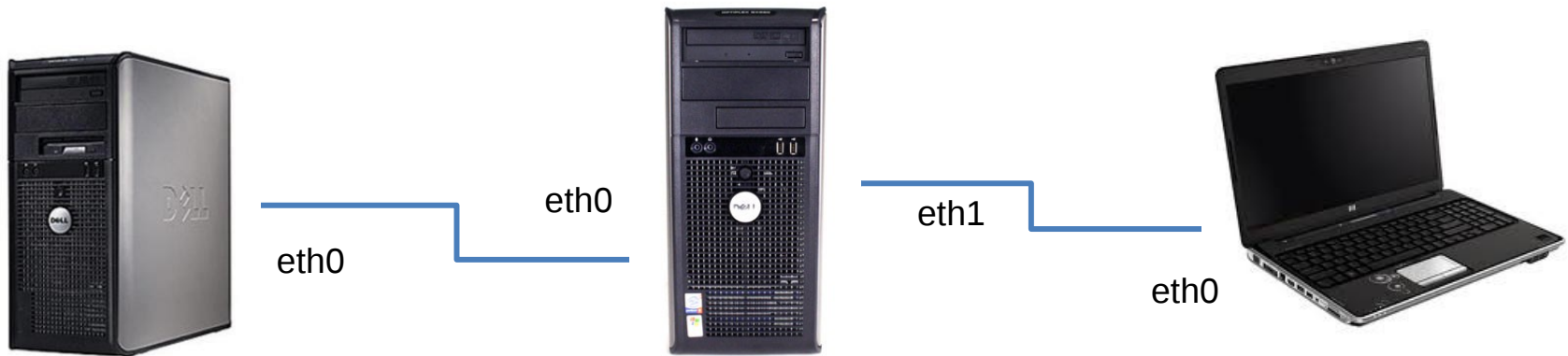
- Martin Winbjörk (before -05)
  - Experience implementing newcwv in simulator
  - Correction to cross-references, etc (detailed read)
- Mark Allman (after -05)
  - Terminology corrections (many)
  - Provide more on why the update is needed (see mailing list for response)

## No major changes in Internet Draft -05

- Clarification of '*cwnd limited*' sender and its behaviour in non-validated phase
- *If* (sender is in non-validated phase)  
    *If* (sender is *cwnd-limited*)  
        MAY increase *cwnd*  
    *else*  
        MUST NOT increase *cwnd*
- In process of submitting to the Linux kernel maintainers

# Experiments: Setup

- For Pacing, used the *Fair Queuing* module with Linux 3.12
- Bottleneck 1Mbps
- Delay 200ms



**SERVER**

LINUX kernel 3.12

**Bottleneck router**

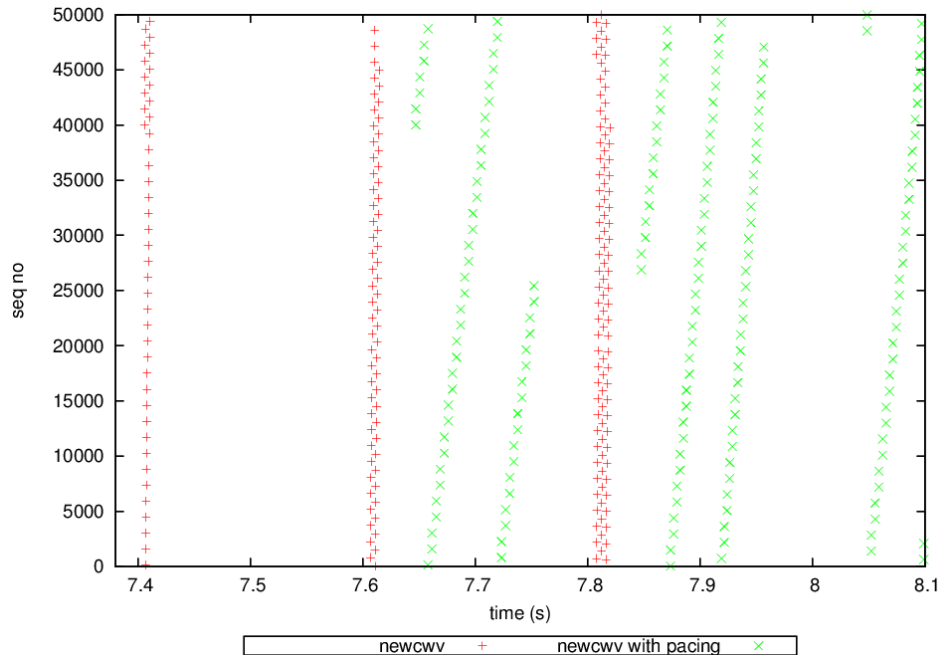
**CLIENT**

LINUX kernel 3.12

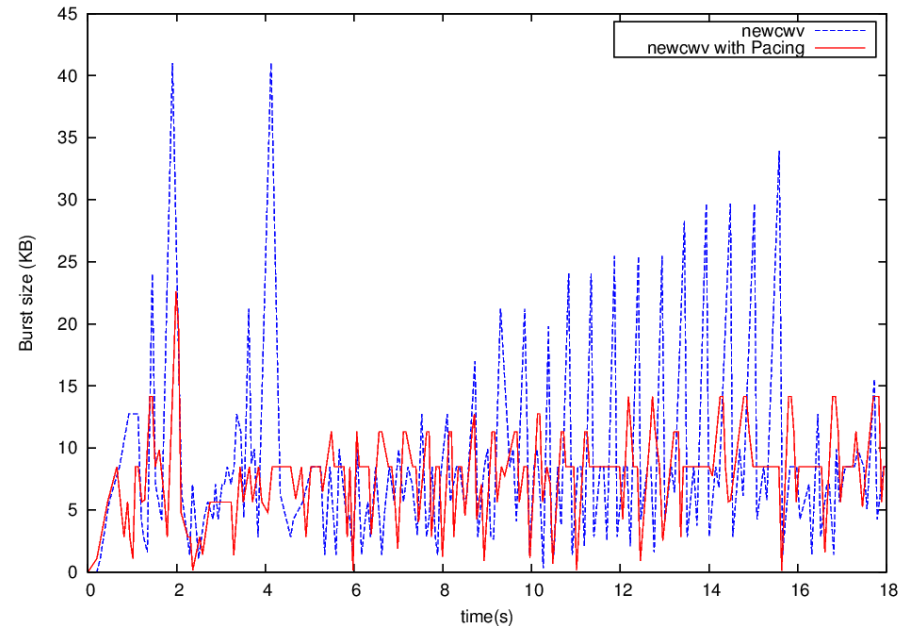
# Experiments: Enabling Pacing

## Pacing a burst of data over the SRTT

Pacing segments for a 200ms TCP flow



Pacing reduces burstiness of newCWND for DASH\*

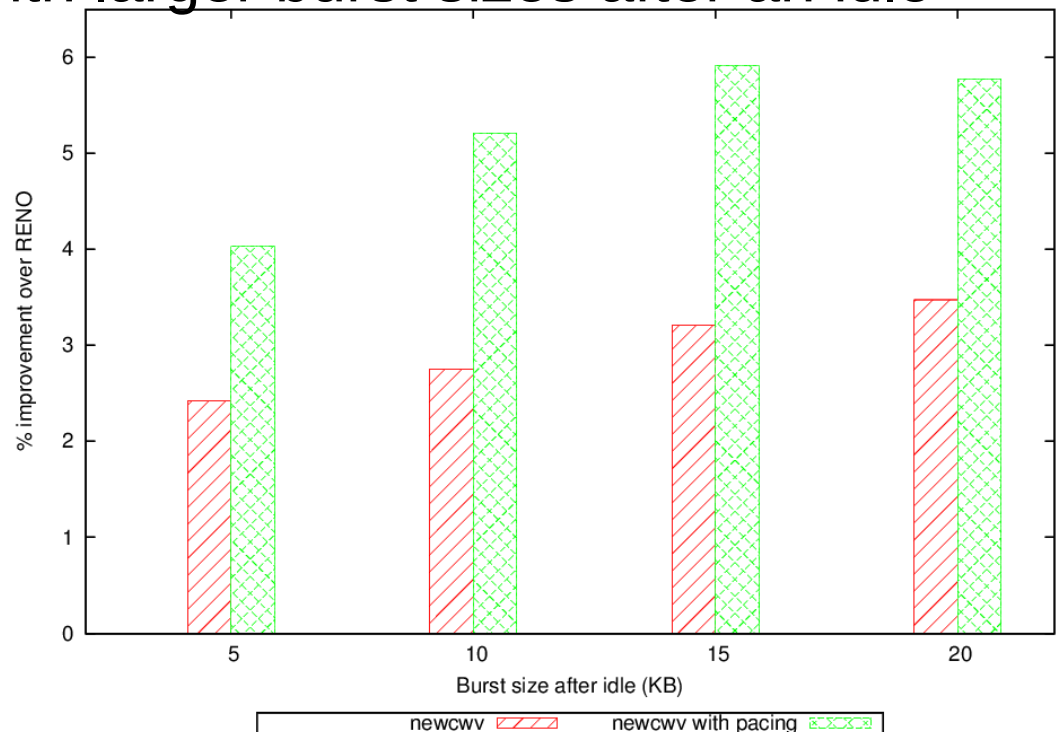


\*Dynamic Adaptive Streaming over HTTP

# HTTP with newCWV & pacing

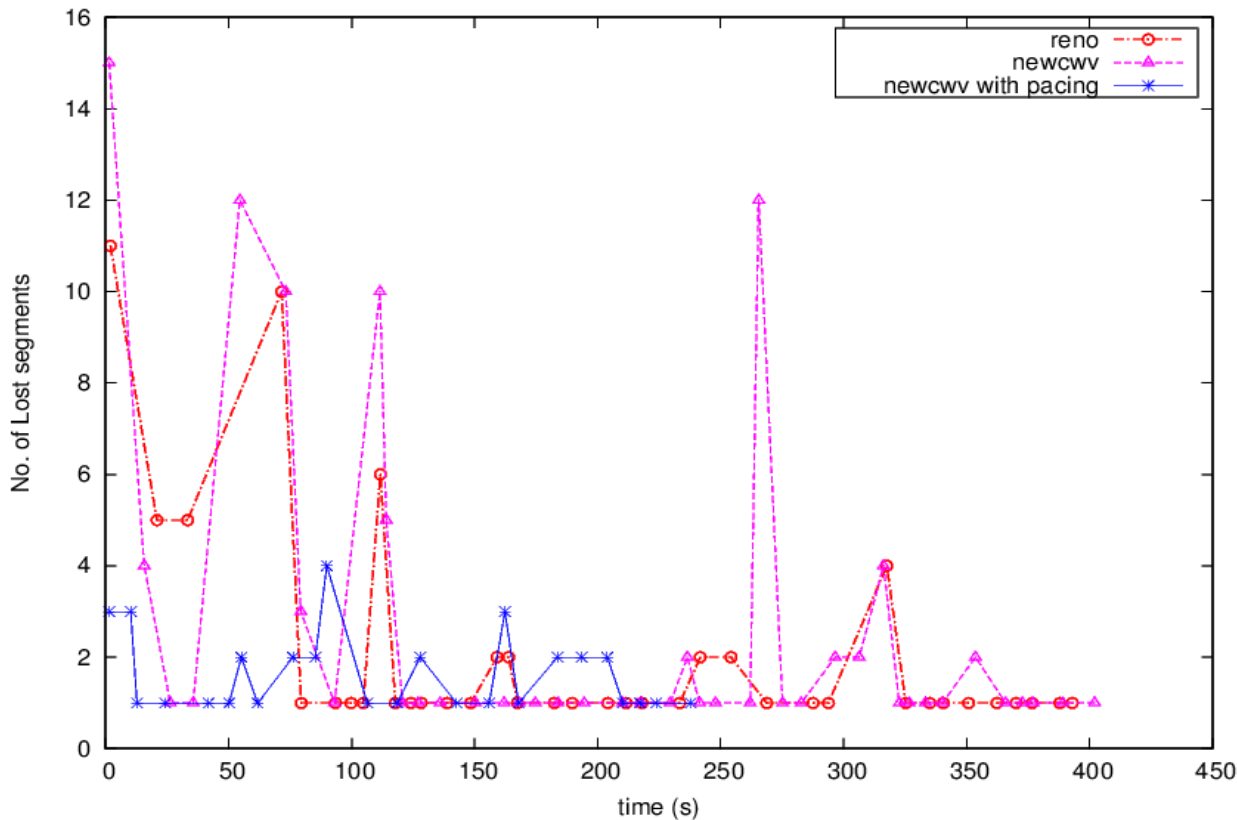
- Used TMIX-like traffic generator; traces derived from CAIDA[1]
- Higher burst losses with newCWV, but *less* with pacing
- Shorter *transfer times* for newCWV (and pacing)
- Higher performance with larger burst sizes after an idle period

Method	Segment Loss % to NewReno
newCWV	6.6% more
newCWV with pacing	1.4% less



# DASH with newCWV & pacing

- Used VLC and MPEG-DASH server
- Pacing reduced losses caused by newCWV bursts
- Higher quality segments could be requested

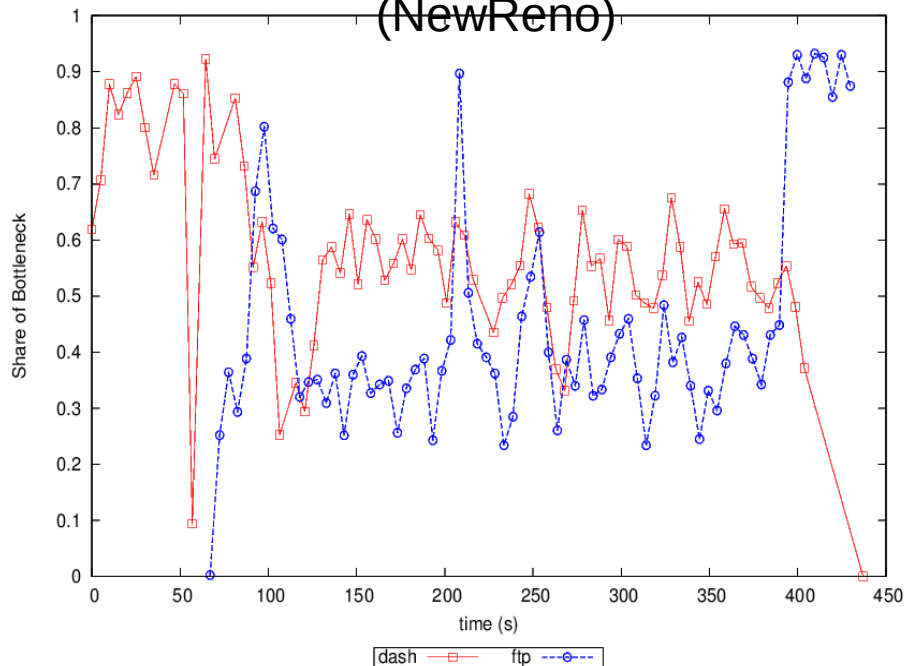


Method	Avg. Segment rate (kbps)
NewReno	803.40
newCWV	785.40
newCWV with pacing	836.26

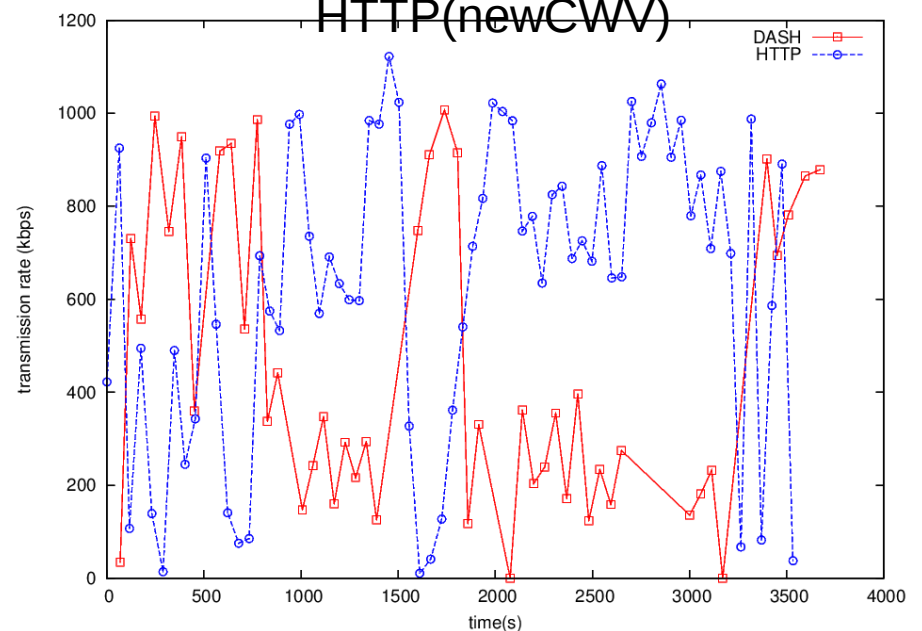
# Sharing bottleneck

- Sharing without causing starvation to other TCP flows

DASH (newCwV) vs. FTP  
(NewReno)



DASH (newCwV) vs.  
HTTP(newCwV)





# Next steps

- Revise draft to -06 after comments from M.Allman and any others:
  - Corrections to terminology
  - State motivations and the goals for newCWV
  - Consider reordering sections to increase readability
- We may then be ready for WGLC (at last).