Objective: Evaluate L4S for VR/gaming scenario with rate adaptive video in a 5G deployment

5G system simulator study
https://kth.diva-portal.org/smash/record.jsf?dswid=-6303&pid=diva2%3A1484466&c=1&searchType=SIMPLE&language=en&qref=brunello&af=%5B%5D&aq=%5B%5D&aq2=%5B%5D&aqe=%5B%5D&noOfRows=50&sortOrder=author_sort_asc&sortOrder2=title_sort_asc&onlyFullText=false&sf=all

- 21 cells 3GPP case 1
- BW: 10MHz
- SCReAM congestion control (RFC8298)
  - 2-70Mbps (1080p → 4K)
- Monitor queue on RLC and mark packets on PDCP (feed-forward)
- Variable load 2-50 video users
  - 10 times as many background (web) users
- Various scheduling algorithms
  - RR Round Robin
  - DBS Delay based scheduler
L4S in 5G

Davide Brunello

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Outline

- Objective: Evaluate L4S for VR/gaming scenario with rate adaptive video in a 5G deployment
- 5G system simulator study

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Bitrate and network queue delay

- L4S gives considerably less network queue delay
- L4S gives a lower transmitted bitrate
- Throughput – latency tradeoff, adaptation to source characteristics
Video frame delay

- L4S gives a reduced video frame delay... up to a point
- DBS schedulers (QoS) gives better results
- Users with link throughput below 2Mbps gives a strong impact on KPI, video bitrate cannot go below 2Mbps
- 99%-ile graph show only users with average bitrate > 2Mbps