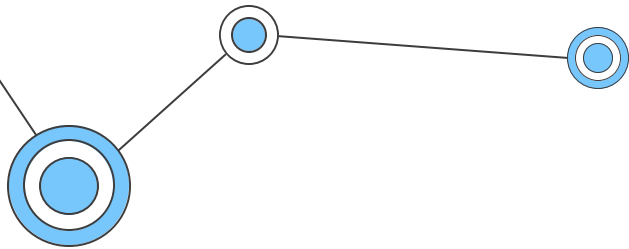


Why your internet is bad !

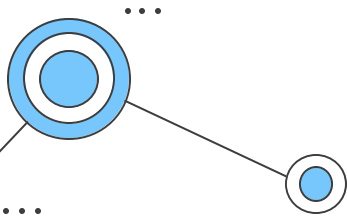
Félix Gaudin

 **UCLouvain**



“Can you stop using all the bandwidth ? I can't do my call”

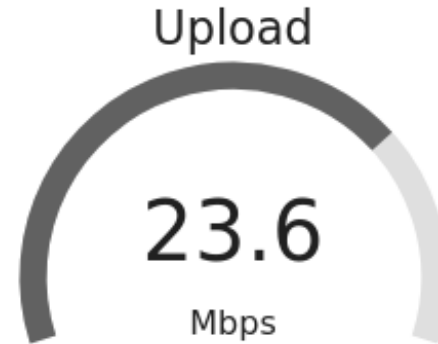
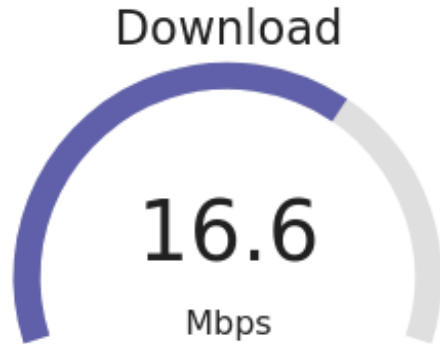
—My mother



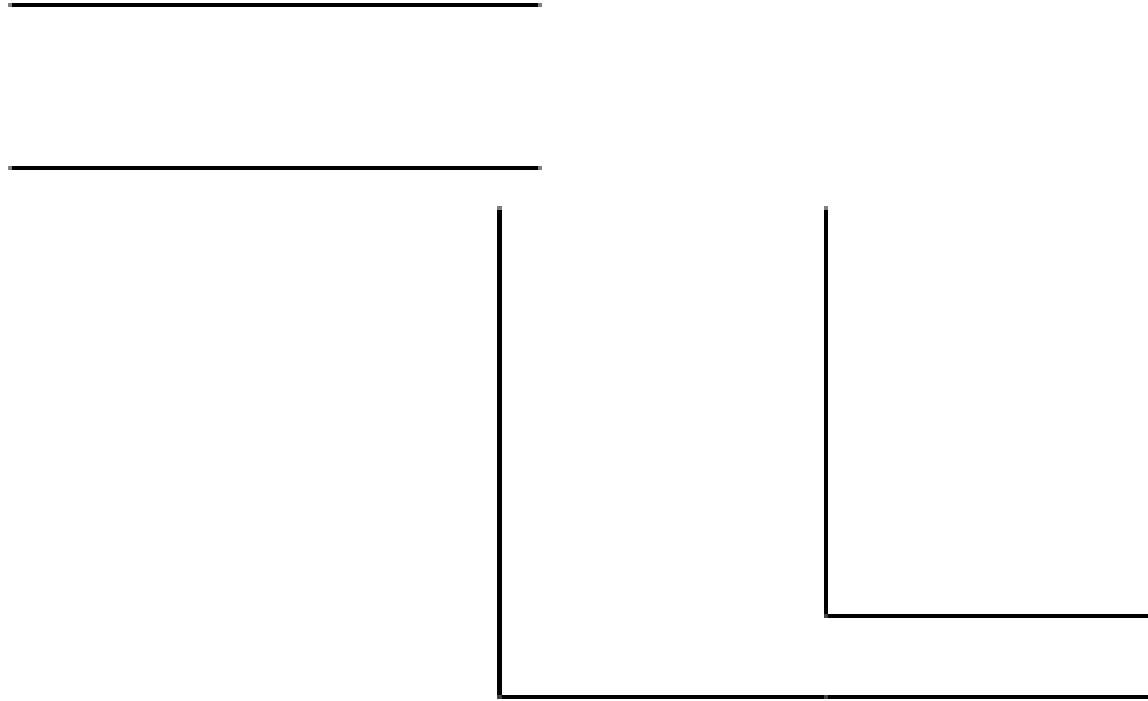
Typical speedtest

Ping
13.0 ms

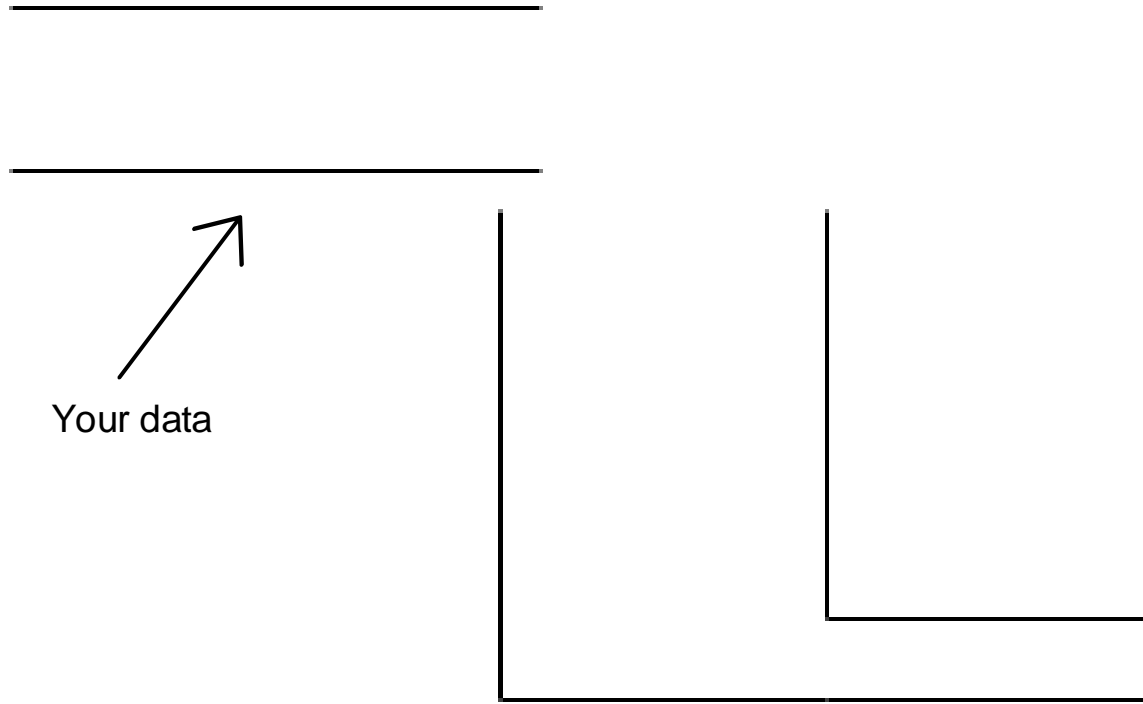
Jitter
16.7 ms



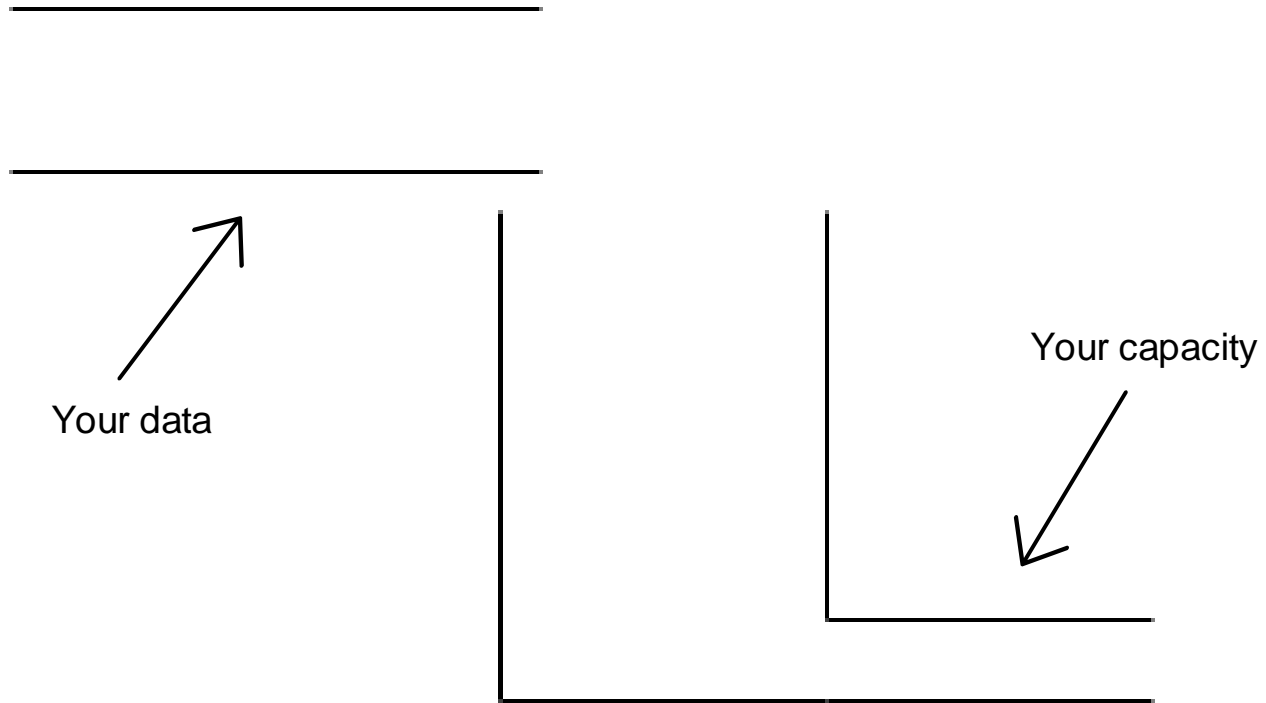
Bufferbloat is the problem !



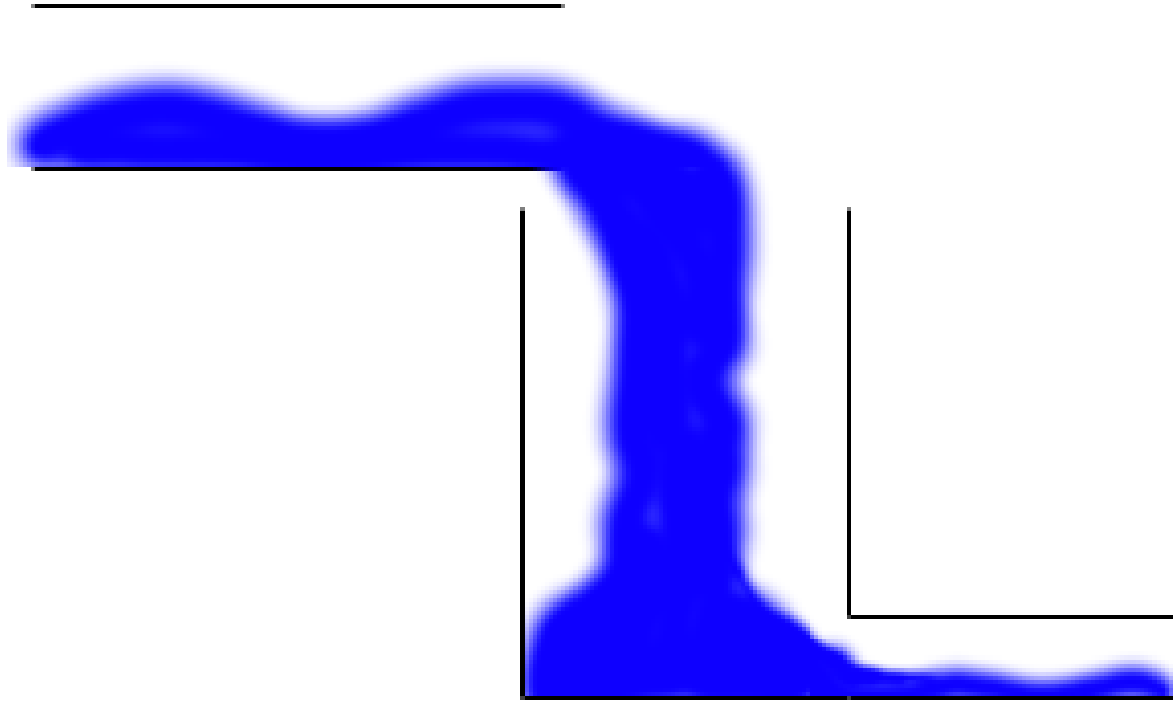
Bufferbloat is the problem !



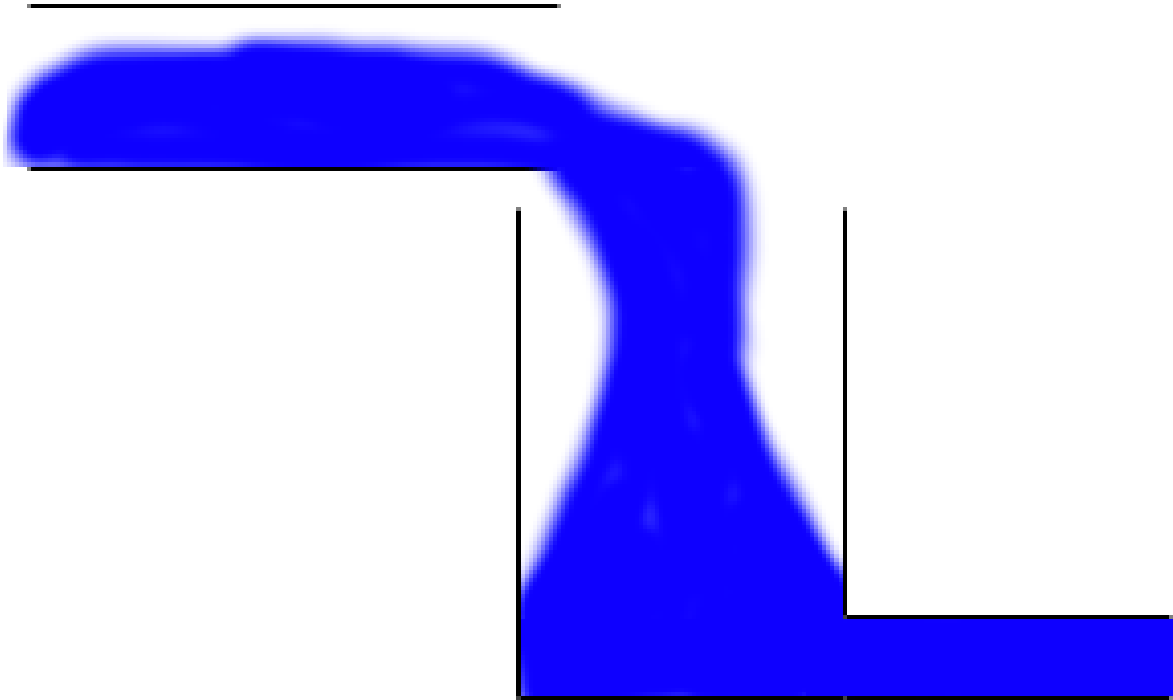
Bufferbloat is the problem !



Bufferbloat is the problem !



Bufferbloat is the problem !



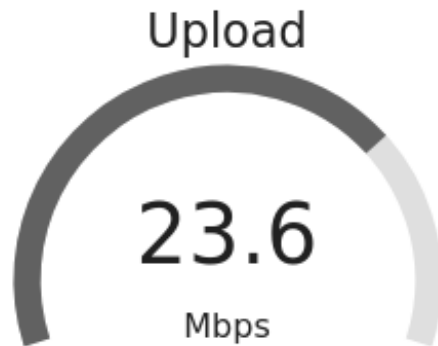
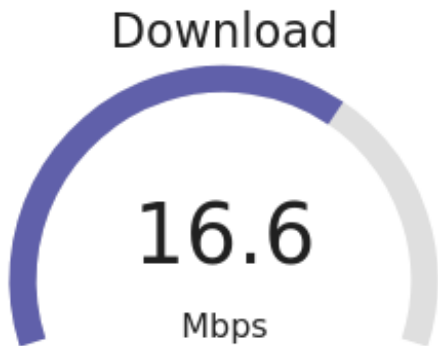
Bufferbloat is the problem !



One test to rule them all

Ping
13.0 ms

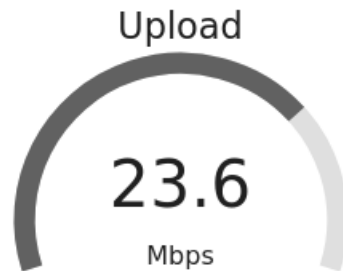
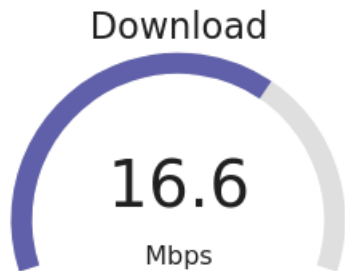
Jitter
16.7 ms



One test to rule them all

Ping
13.0 ms

Jitter
16.7 ms



Responsiveness Under Working Conditions

Download
826 RPM
Factor of latency increase : 5.59

Upload
454 RPM
Factor of latency increase : 10.18

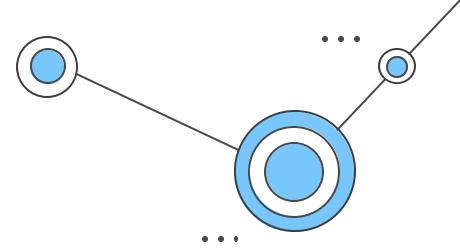
To metrics and beyond!



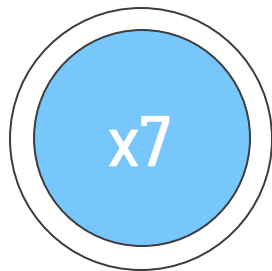
QUIC have **qlog's** that provide :

- Accurate latency
- Losses
- Bandwidth
- ...

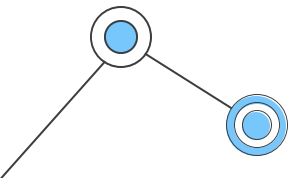
Latency increasing in real world



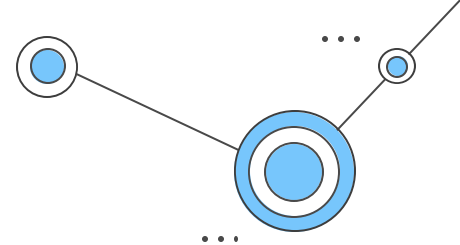
A lot of bufferbloat



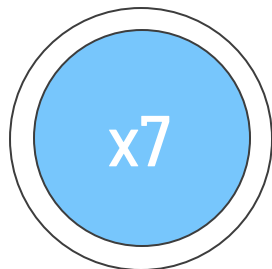
Factor of latency increase
for half the people



Latency increasing in real world

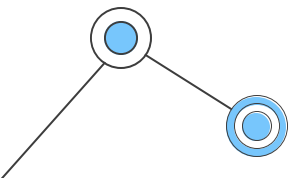
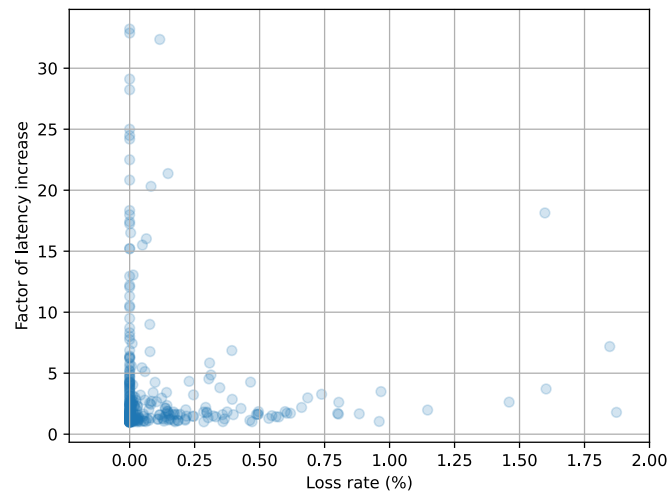


A lot of bufferbloat

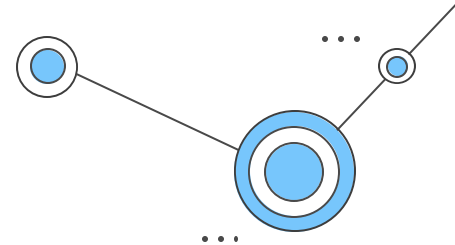


Factor of latency increase
for half the people

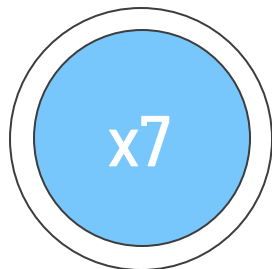
Packet loss is not the cause



Latency increasing in real world

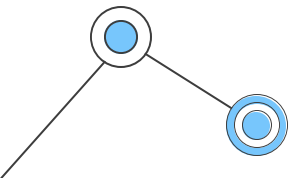
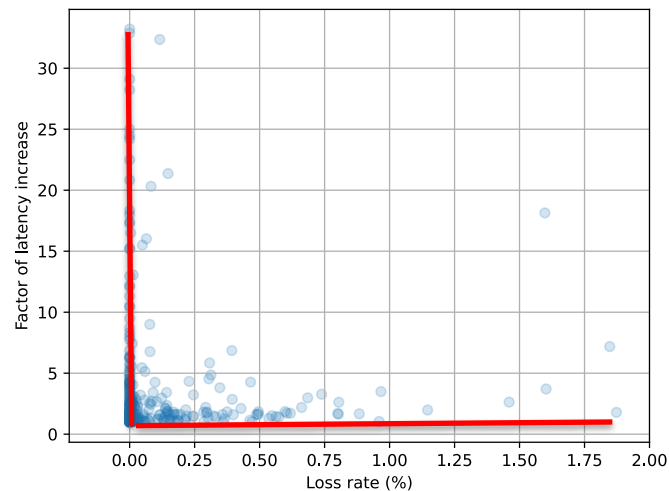


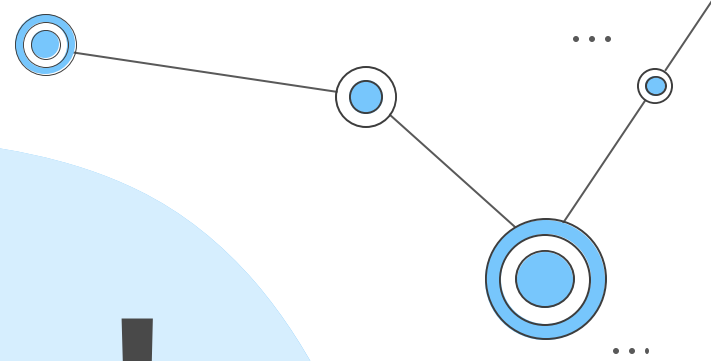
A lot of bufferbloat



Factor of latency increase
for half the people

Packet loss is not the cause





Thanks !

felix.gaudin@student.uclouvain.be

