

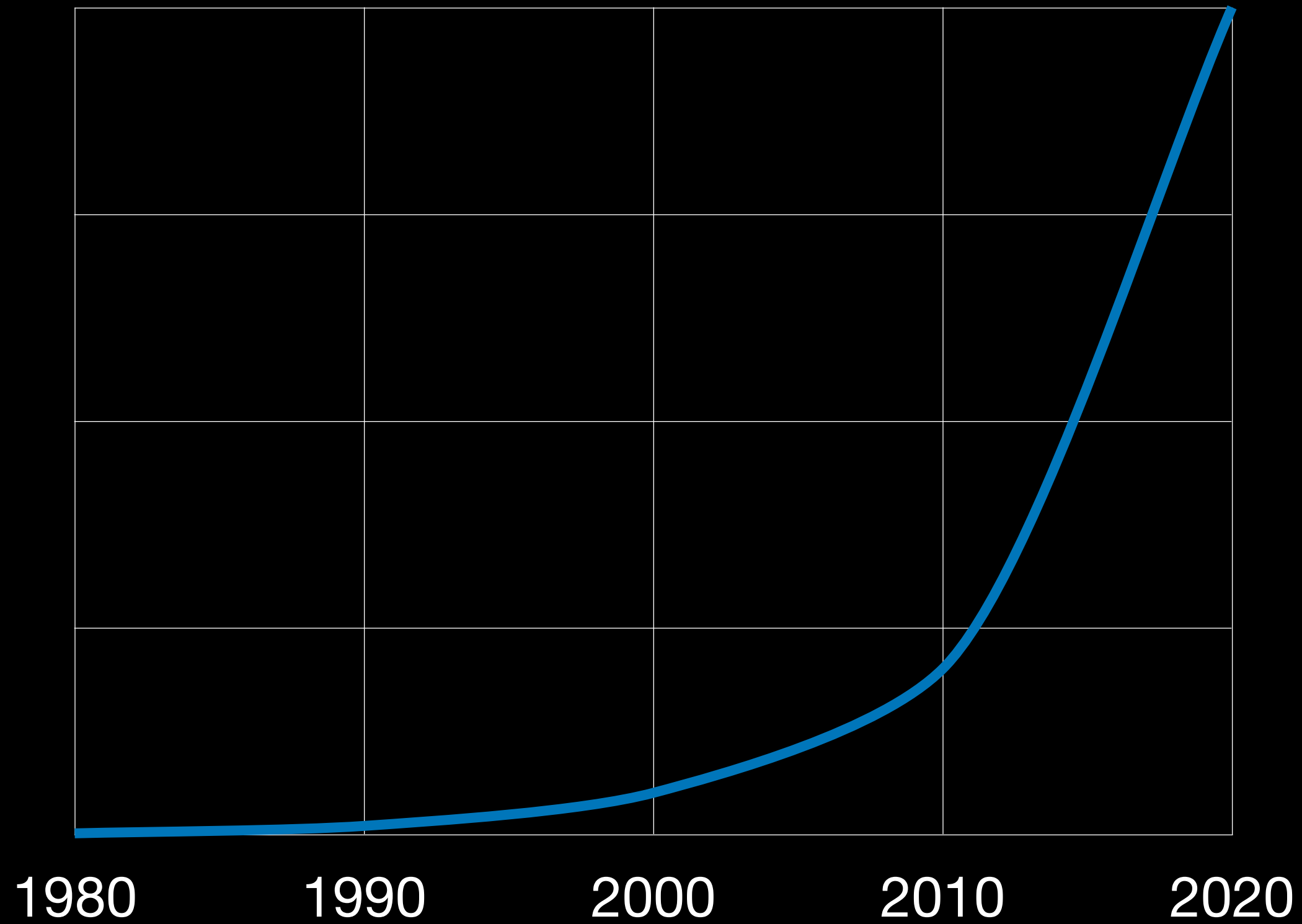
Roundtrips Per Minute (RPM)

HotRFC, IETF 121 Dublin, November 2024

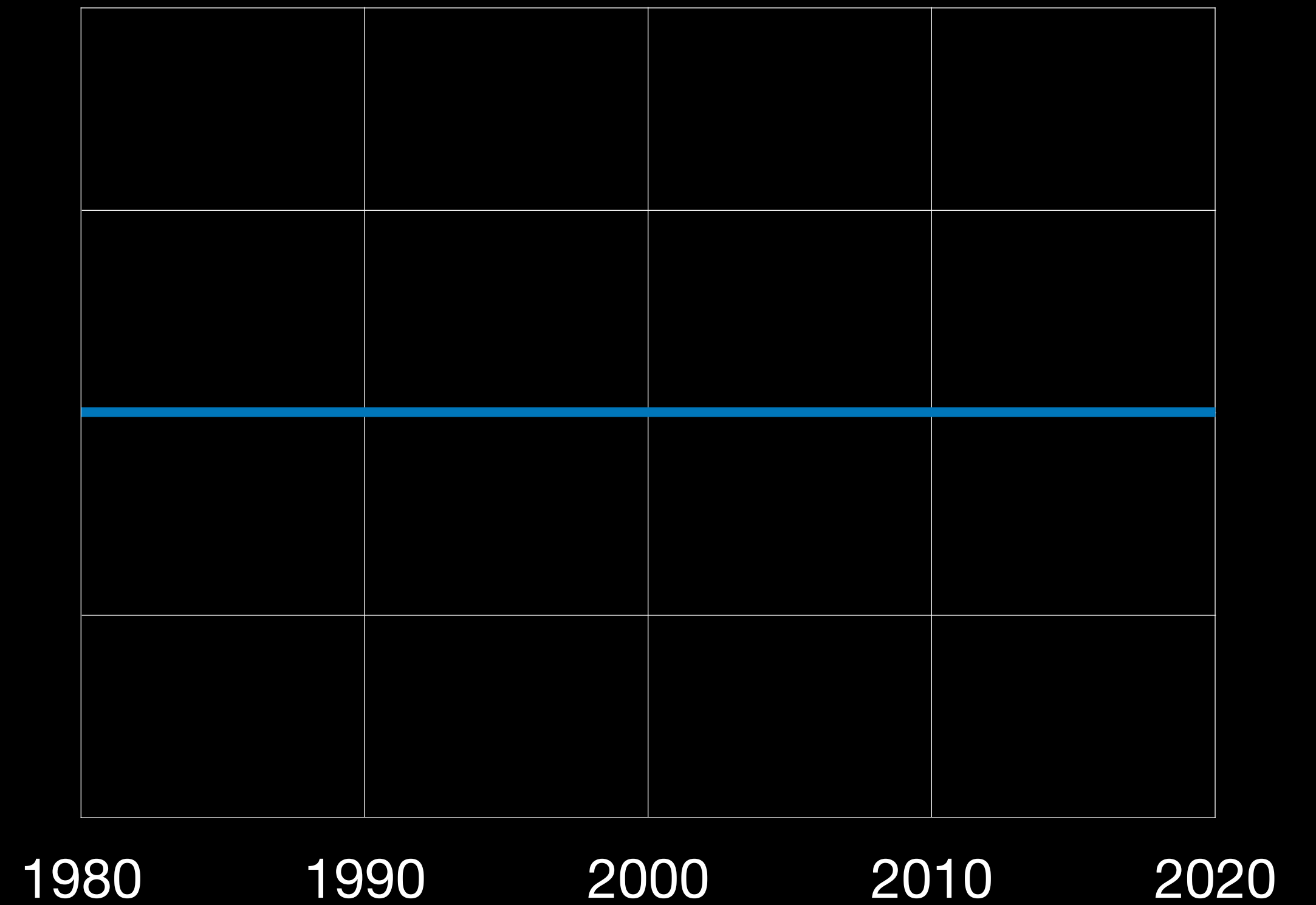
Stuart Cheshire, Apple

Bandwidth and Latency

Bandwidth



Working Latency



Why has Working Latency stagnated?

Engineers improve what they can measure

- Lots of tools measure throughput
- We measure latency badly — only on idle networks

Bufferbloat is still common

We still accept videoconferencing glitches

New Latency Measurement Tool

Roundtrips Per Minute (RPM)

Measures latency while network is used, not when it is idle

Reports responsiveness — reciprocal of latency

- Latency, measured in time (e.g., milliseconds)
- $1/\text{latency}$ gives frequency (Hz)
- Multiply by 60 to get Roundtrips Per Minute (RPM)
- Typical result reported as three-digit or four-digit integer
- Bigger numbers are better

Call to Videoconferencing Engineers and other delay-sensitive applications

Is our RPM test measuring the delay properties you care about?

- 90th percentile delay? 95th percentile? 99th percentile?

Reading: draft-ietf-ippm-responsiveness

Discussion: IPPM meeting, 13:00 - 15:00 Monday