Characterizing the Impact of Active Queue Management on Speedtest Measurements

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Abstract. Present day speed tests measure peak throughput, but often fail to capture the user-perceived responsiveness of a network connection under load. Recently, platforms such as Ookla's Speedtest.net and Cloudflare have introduced metrics such as "latency under load" or "working latency" to fill this gap. Yet, the sensitivity of these metrics to basic network configurations such as Active Queue Management (AQM) remains poorly understood. In this work, we conduct an empirical study of the impact of AQM on speed test measurements in a laboratory setting. Using controlled experiments, we compare the distribution of throughtput, latency, and latency under load measurements across different AQM schemes, including CoDel, FQ-CoDel and Stochastic Fair Queuing (SFQ). On comparing the results with a baseline of no AQM, we find that [TS: add the main punchline here.] These results highlight the critical role of AQM in shaping how emerging latency metrics should be interpreted, and underscore the need for careful calibration of speed test platforms before their results are used to guide policy or regulatory outcomes.

Keywords: Speed Tests · Active Queue Management · Responsiveness · Bufferbloat

1 Introduction

References