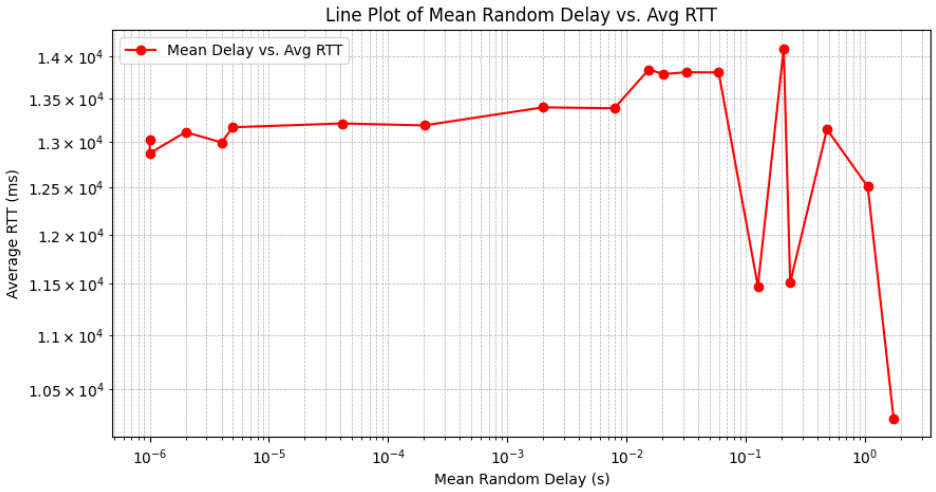
Analysis of Random Delay Impact on Ethernet Frames

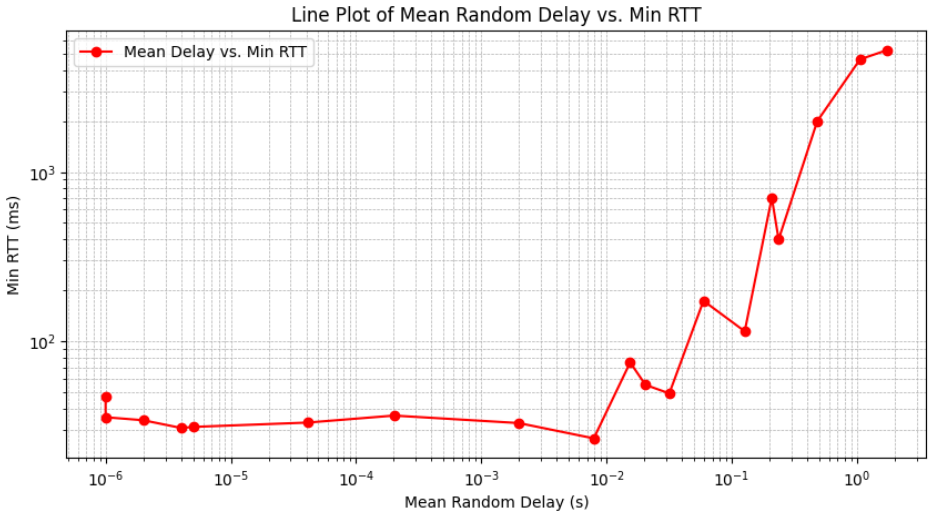
Introduction: This report presents an analysis of the impact of random delays on Ethernet frames by evaluating the relationship between mean delay values and Round Trip Time (RTT) statistics. The goal is to examine how varying levels of delay influence network performance.

Experimental Results: The dataset consists of mean delay values ranging from microseconds to seconds, with corresponding RTT statistics. The analysis includes:

1. A line plot visualizing the correlation between mean delay and average RTT.



2. A line plot visualizing the correlation between mean delay and minimum RTT showing impact of delay much better.



Conclusion: The introduction of random delays significantly affects both average and minimum RTT values, with noticeable nonlinearity at higher delay values. While the average RTT gradually increases, the minimum RTT shows distinct jumps at certain delay thresholds, indicating that even slight increases in random delay can cause sharp changes in network response times.