Middle East Technical University
Department of Computer Engineering
Wireless Systems, Networks and Cybersecurity (WINS) Laboratory

CENG 519 Phase 1

CENG 519 Network Security
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Term Project Phase 1 Report

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1 Delay and RTT Values

I ran 100 pings with each delay value and then got the minimum, average, maximum, and deviation values. I assume the average RTT will increase by twice the average delay since the delay is added twice per ping. Once for sec→ insec and insec→ sec.

Since there is also a processing and transmission delay for the sender and the MITM and only 100 trials, the lower delay values do not seem to have a linear relationship with the RTT. I plotted using only the average RTT values which is in Figure 1 but all the data can be seen in Figure 1

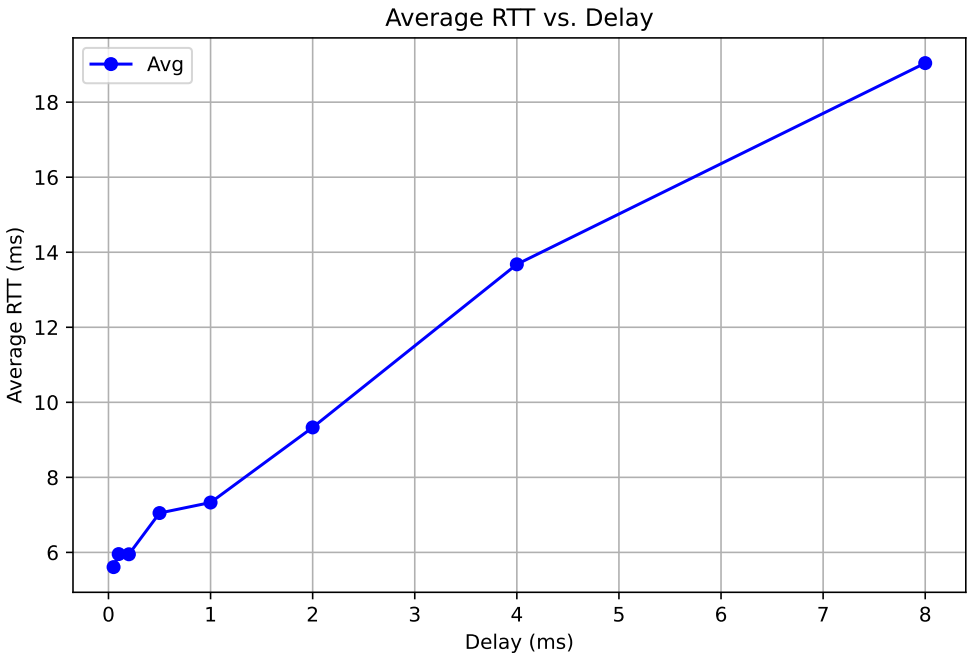

Figure 1 . Average RTT vs Average Delay using Exponential Distribution

Delay(ms)	**Min(ms)**	**Avg(ms)**	**Max(ms)**	**Mdev(ms)**
0.05	3.5	5.608	8.368	0.88
0.1	4.33	5.955	8.7	0.782
0.2	4.481	5.95	7.797	0.691
0.5	4.755	7.049	50.509	4.478
1	4.271	7.329	13.229	1.476
2	5.33	9.331	27.369	3.762
4	5.539	13.678	28.515	5.427
8	5.658	19.041	75.142	10.045

Table 1. Average Delay vs. RTT statistics