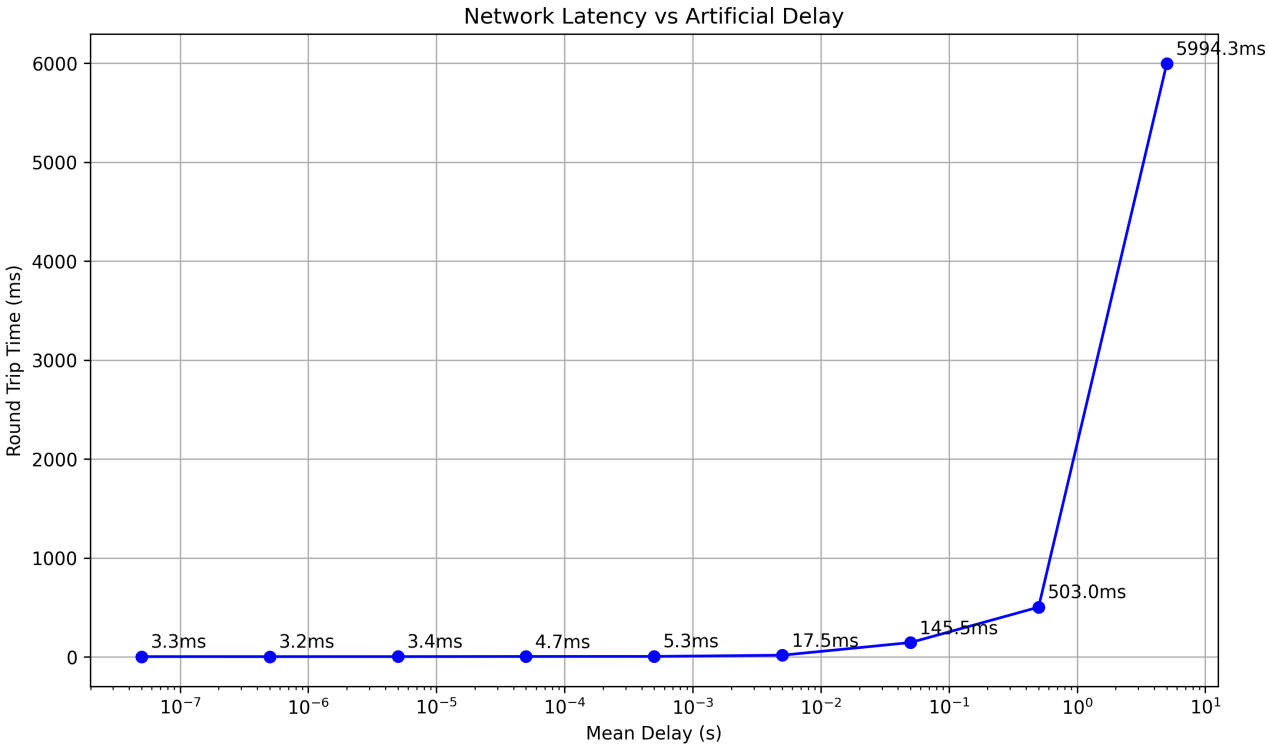
CENG519 Phase1 Experiment Report



(The figure is in exponential scale)

Mean Delay (ms)	Avg RTT (ms)	Packet Loss
5	5994.3	33.3%
5e-1	503.0	0%
5e-2	145.5	0%
5e-3	17.5	0%
5e-4	5.3	0%
5e-5	4.7	0%
5e-6	3.4	0%
5e-7	3.2	0%
5e-8	3.3	0%
No delay (Only MITM)	3.3	0%
Ping to MITM	0.05	0%

Key Findings
1. High delays (>5e-1s) cause significant packet loss in ping, but it can be solved by changing arguments of ping command.
2. RTT stabilizes around 3-4ms for delays below 5e-6s
3. Direct ping to middlebox shows baseline latency of ~0.05ms difference between this setup and no delay setup is probably because I used python as a middleman, which is internally slow.

Conclusions
1. Exponential delays above 5e-3s significantly impact network performance
2. The system maintains stable performance with delays below 5e-6s

3. Baseline network performance is good (sub-millisecond latency to middlebox)