CENG 519 - Network Security

Term Project Phase 1 Report

Yusuf Şahin - 2380889

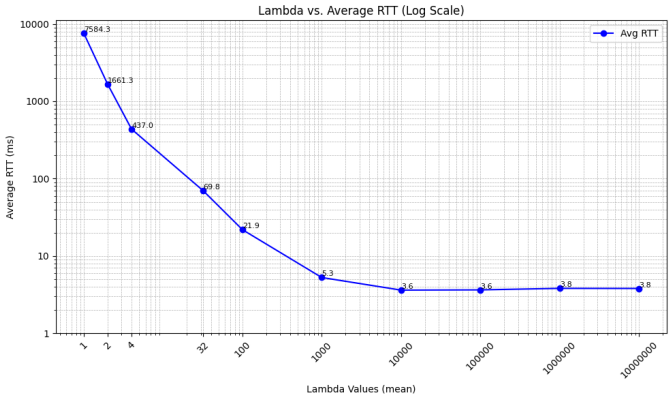

Figure 1. Plot for average RTT for ping packets

1. Report

The graph shows how the average RTT changes as you add exponentially distributed random delays to packets. At first, as the delay increases, the RTT drops significantly, but after a certain point, it levels out and doesn't change much when the lambda gets higher.

I tested the latency by pinging a secure network alongside an insecure one using the command:

```
ping insec -30 -i 0.1
```

This command sends 30 ping packets with a 0.1-second interval between each, aiming to measure the average rtt between networks.

2. All ping results

```
lambda  = 1
rtt min/avg/max/mdev = 339.776/7584.346/9815.589/2369.67
    ↪ 1 ms, pipe 10
lambda  = 2
rtt min/avg/max/mdev = 212.761/1661.333/4236.702/1039.26
    ↪ 0 ms, pipe 5
lambda = 4
rtt min/avg/max/mdev = 34.666/437.041/1051.609/286.345
    ↪ ms, pipe 2
lambda = 32
rtt min/avg/max/mdev = 19.693/69.774/129.713/29.152 ms
lambda = 100
rtt min/avg/max/mdev = 6.598/21.868/60.776/12.507 ms
lambda = 1000
rtt min/avg/max/mdev = 3.541/5.263/9.711/1.543 ms
lambda = 10000
rtt min/avg/max/mdev = 3.499/3.615/3.974/0.112 ms
lambda = 100000
rtt min/avg/max/mdev = 3.510/3.640/3.946/0.123 ms
lambda = 1000000
rtt min/avg/max/mdev = 3.702/3.809/3.955/0.060 ms
lambda = 10000000
rtt min/avg/max/mdev = 3.384/3.798/3.962/0.112 ms
lambda = no_delay
rtt min/avg/max/mdev = 3.517/3.794/4.014/0.112 ms
```

Code 1. ping results