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

Term Project Report - Phase 1

CENG519 Network Security
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Term Project Report - Phase 1

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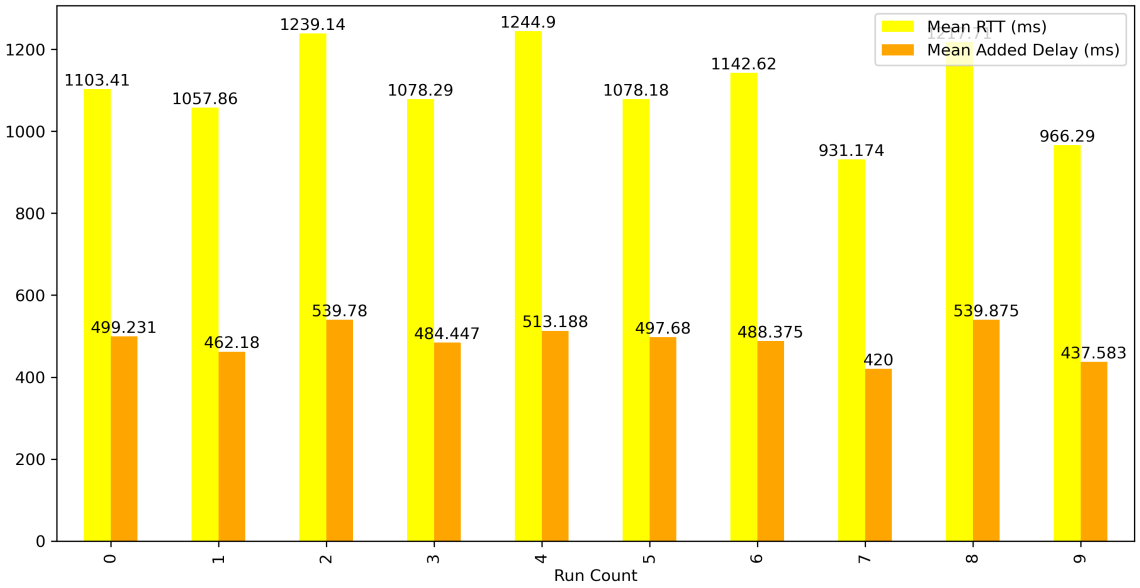
1 Randomized Pings

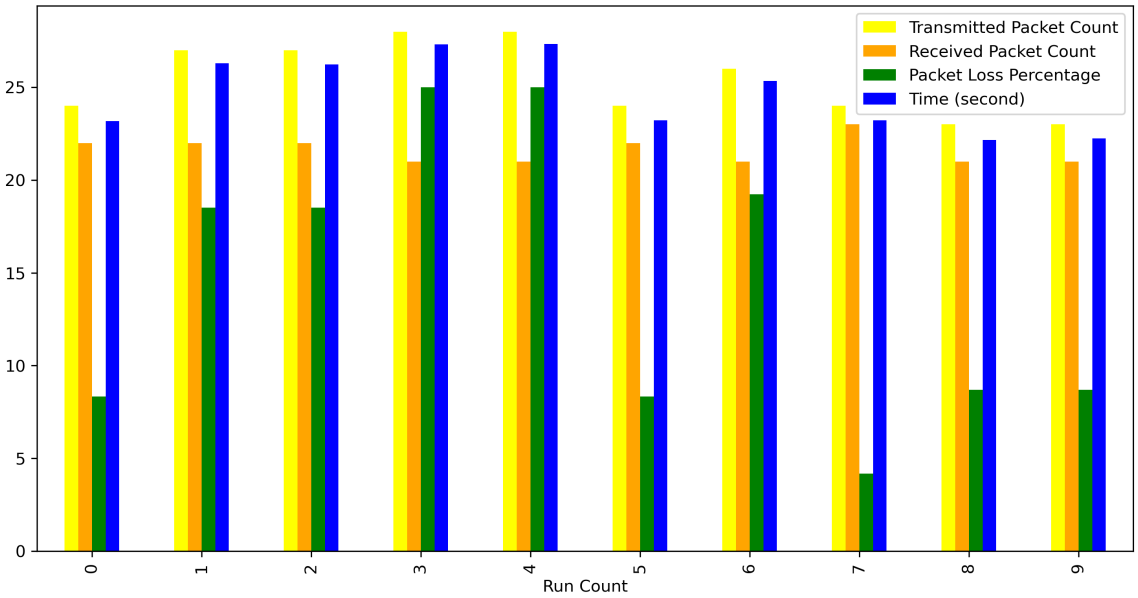
I introduced artificial network latency by randomly inserting delays of up to 1000 ms in the packet processing pipeline, then measured the resulting round-trip time (RTT) for ICMP echo (ping) packets. I have used the existing go processor and added additional delay using "math/rand" and "time" packages.

```
var delay = time.Duration(rand.Intn(1000))

fmt.Printf("Added Delay: %d\n", delay)
time.Sleep(delay * time.Millisecond)
```



As illustrated in the first figure, higher mean delays correlated strongly with increased RTT, with runs averaging around 500ms of added delay often exceeding 1000ms in overall round-trip time. This is because that packages visit the go processor twice in the round trip.



In the second figure, I included transmitted and received packets, packet loss percentages, and total run times. I have ran the ping and go processor between 20-25 seconds and waited for 21-22 packets to be received each time.

2 GitHub Fork

I have forked the project in: github.com/ucanyiit/middlebox

The related phase 1 code is under this commit: commit