

# Lab4 实验报告

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Here's the webget.cc test results.

## 一 Experimental Results

```
Total Test time (real) = 57.92 sec
Built target check_webget
[kenaz@dell-arch(2):~/CS144-Lab on main]
●% ./scripts/tun.sh start 144
[kenaz@dell-arch(2):~/CS144-Lab on main]
●% cmake --build build --target check_webget
Test project /home/kenaz/CS144-Lab/build
Connected to MAKE jobserver
Start 1: compile with bug-checkers
1/2 Test #1: compile with bug-checkers ..... Passed 2.31 sec
Start 2: t_webget
2/2 Test #2: t_webget ..... Passed 1.54 sec

100% tests passed, 0 tests failed out of 2

Total Test time (real) = 3.85 sec
Built target check_webget
[kenaz@dell-arch(2):~/CS144-Lab on main]
○% █
```

图 1: passing lab4 tests

## 二 Analyzing data

1. 42324 echo replies were sent, and 42014 of them were received. The overall delivery rate is about 99.268%.
2. The longest consecutive string of successful pings is 12153, from 3514 to 15666.

3. The longest burst of loss is 1.
4.
  - The probability that echo request  $\#(N + 1)$  was also successfully replied-to given that echo request  $\#N$  was successfully replied-to is 99.262%.
  - The probability that echo request  $\#(N + 1)$  was successfully replied-to given that echo request  $\#N$  was not successfully replied-to is 0.701%.
  - The overall delivery rate is about 99.268%. Hence the event "packet loss" over time is not independent.
5. The minimum RTT is 442ms.
6. The maximum RTT is 702ms.
7. The figure of RTT over time is shown below.

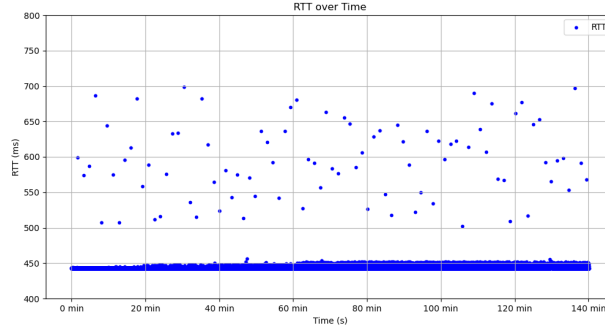


图 2: RTT over time

8. The histogram and CDF of RTT are shown below. The shape of the histogram shows that the RTT majority concentrates around 442ms.

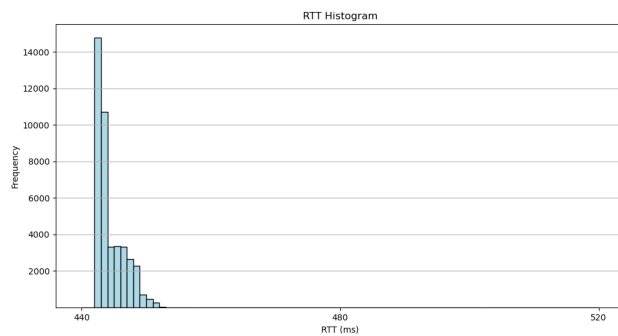


图 3: Histogram of RTT

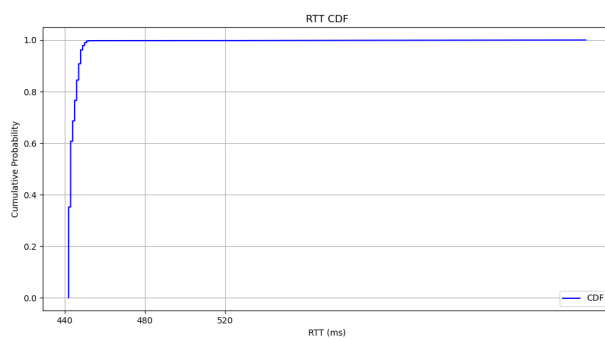


图 4: CDF of RTT

9. The correlation of RTT over time is shown below. The correlation is clear considering the concentration of points around the line  $y = x$ .

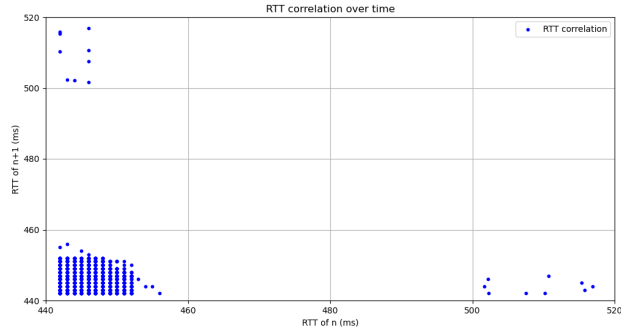


图 5: Correlation of RTT over time

10. Using the wire connecting to the school network, my network seems stable at the majority of time. The RTT is around 442ms, and the delivery rate is about 99.268%.The network is not perfect, but it is acceptable. Considering the long time span of the test, it's incredible.

### ≡ Challenge