

# Project 1 (Client/Server Measurement)

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## Member

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## Measure Report

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### Method

$$Independent\_Delay = Total\_Latency - Dependent\_Delay$$

$$Dependent\_Delay = \frac{Data\_Size}{BandWidth}$$

We derive a formula from this:  $TotalDelay = \frac{1}{BandWidth} DataSize + IndependentDelay$

### Details

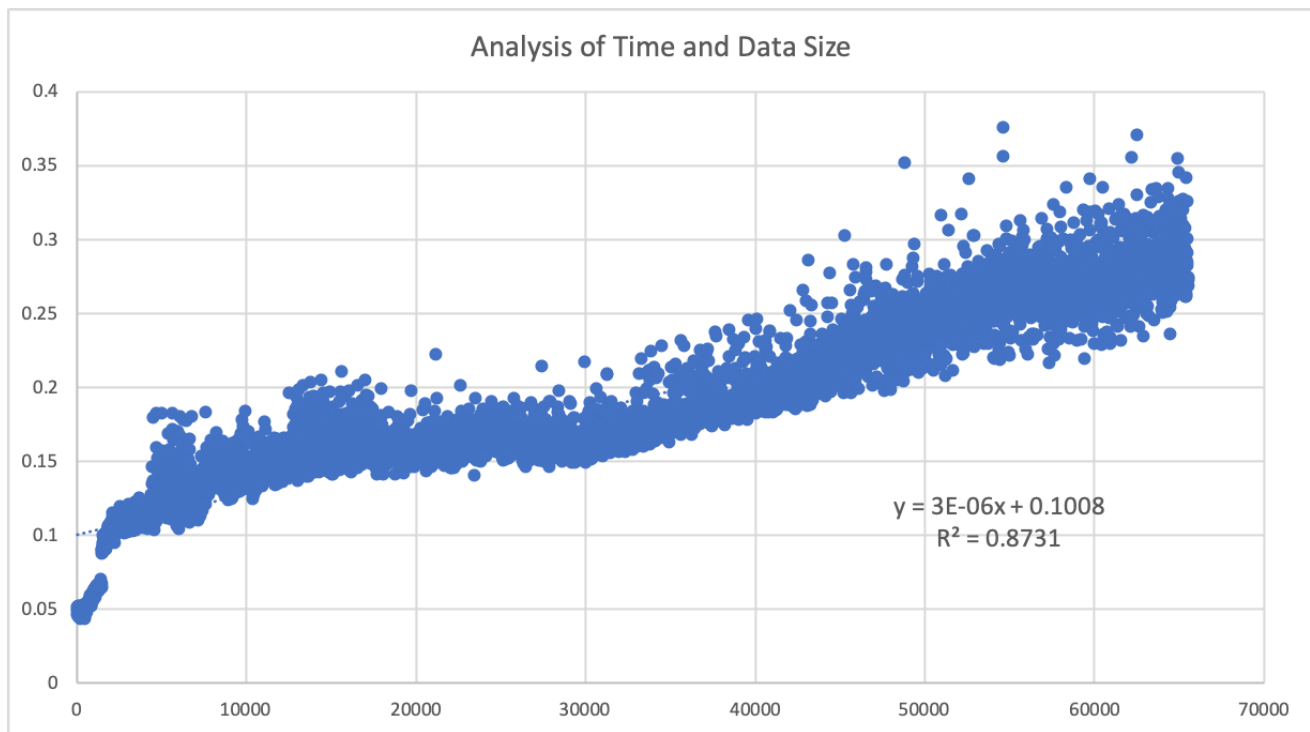
In our calculation, *Total\_Latency* is the time interval between *the start of send from client to server* and *the end of receive from server to client*, which is a 2-way latency.

To minimize the error, we choose the average result for the measurement of a single data size.

```
for i in {11..65535}
do
    if [[ $((i % 10)) == 0 ]];
    then
        ./client_num jade.clear.rice.edu 18005 $i 100
    fi
done
```

As the script shows, we calculate the latency for data size from 20 to 65500 with the step size of 10.

### Result



After the linear approximation, we found that the **independent delay is 0.1008 Msec** and the **bandwidth is 5330 Mbps** ( $3 * 10^{-6} \text{ byte/microsecond}$ ).