

ITS 413 Internet Technologies and Applications

Assignment: Phase 2 Report

By:

Juntima Nawilaijaroen 5222781403

Nicharee Boonfaeng 5222782237

Kampanat Sarasri 5222790511


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By submitting this report all members of the group listed above agree that each member has contributed approximately equal amounts to designing and performing experiments, as well as to preparing this report. All members agree that this report accurately reflects the experiments conducted by the group members, and is their own work (not works of other groups).

Sirindhorn International Institute of Technology

Thammasat University

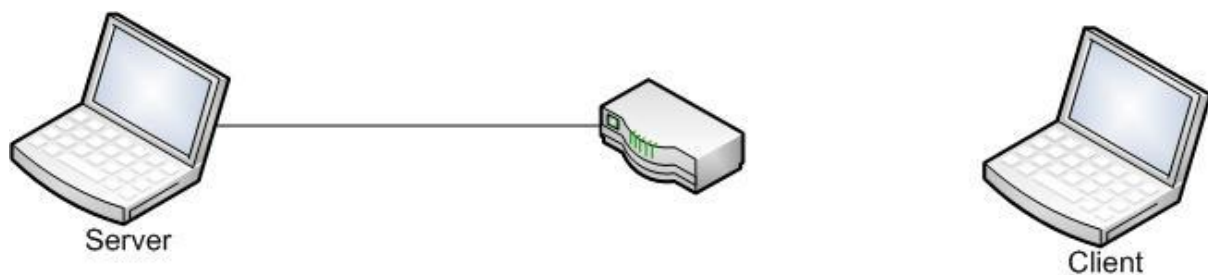
Aims

- To study the changes of throughput when the parameters are vary. 
- To study and investigate the amount of maximum throughput that can be achieved by using wireless LAN and Ethernet link using iperf .

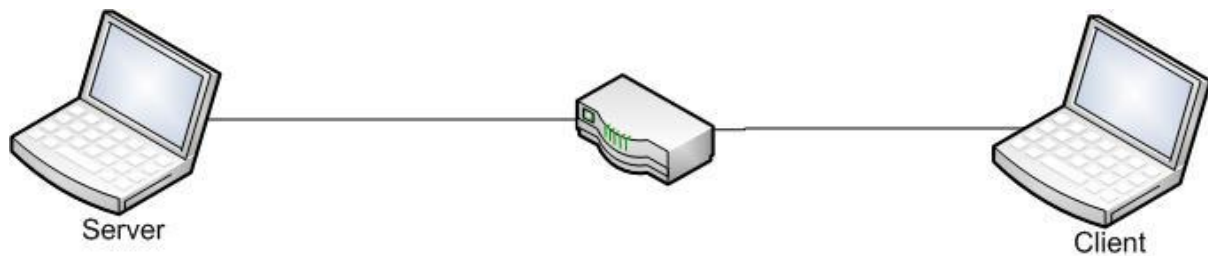
Network Diagram

In this experiment, we have conducted two network topologies which are shown below.

Wireless LAN Topology



Wired Ethernet Topology



Equipment Specifications

We have conducted experiment by using two laptop computers and one router. Specifications of equipments are listed below.

Name	Laptop 1 (As a Server)
Model	Acer Aspire1410
OS	Ubuntu 11.10
Memory	2GB DDR2
Network Interface	Acer Nplify 802.11b/g/Draft-N



Name	Laptop 2 (As a client)
Model	Vaio E-Series
OS	Ubuntu 11.10
Memory	4GB DDR2
Network Interface	Vaio Integrated Wireless LAN IEEE 802.11b/g/n

Name	Router
Model	Linksys WRT54GL
Firmware	penWrt Backfire 10.03.1 / LuCI.10.0 Release (0.10.0)
Kernel Version	2.4.37.9



Parameters

- Data size : 0 – 100 Mb
- RTS/CTS Threshold : 250 Bytes
- Protocol Used : UDP

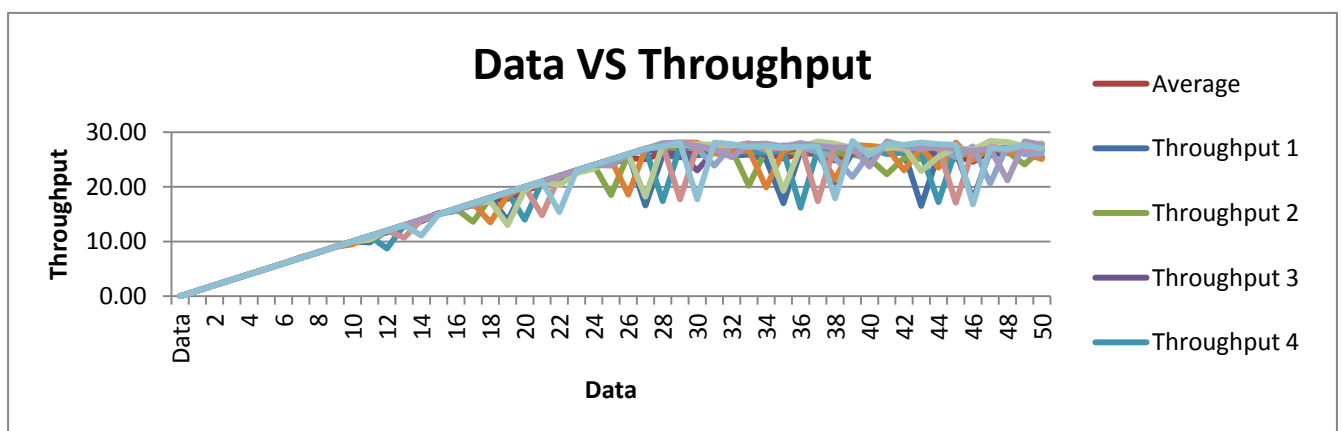


Experiments and Results

Our experiment was divided into two parts which are wireless link and wired link.

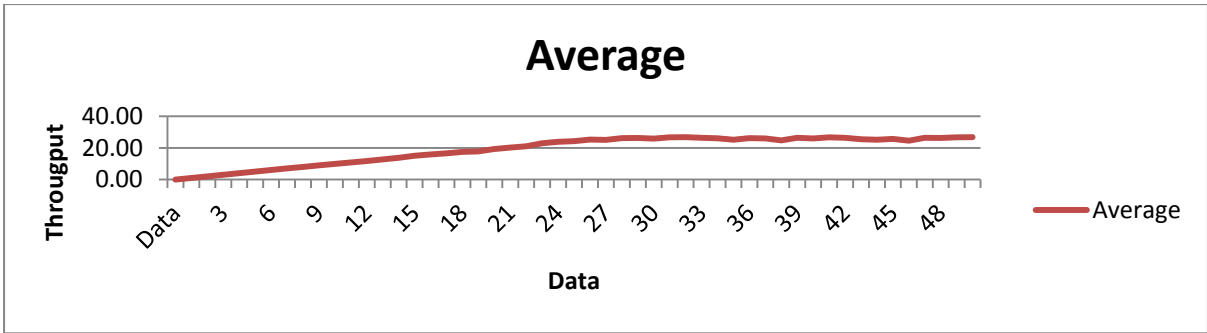
Experiment 1 - Wireless Link


In this experiment, our targeted is to find the maximum of throughput of wireless link. We have found the maximum, minimum and the average throughput as plotted below. To find the amount of throughput, we conducted the same experiment with the same equipment, but different value of parameter, data size. We increased our data size by 1 Mb at each time. The initial data size is 1 Mb.




The Comparison of throughput





An average value of the throughputs. 

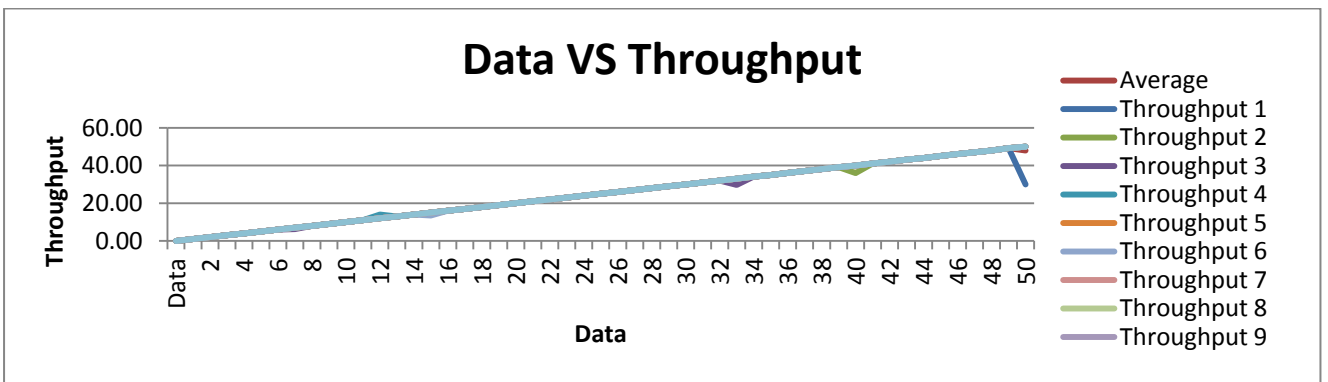
Conclusion



In conclusion, we found that if we increased size of data, the throughput will exponentially increase until the data size reached the value of 24 – 30. The throughput after 24 will stay stable. 

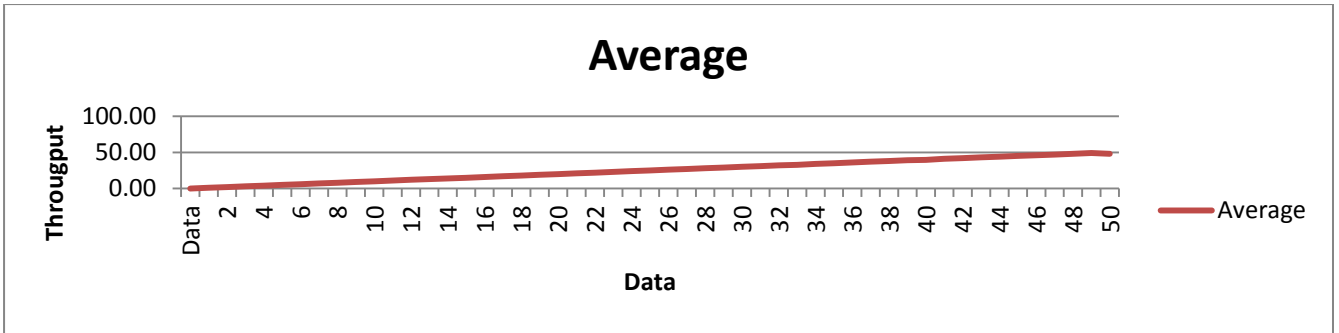



Experiment 2 – Wired Ethernet Link

In this experiment, as same as experiment 1, we conducted an experiment in the same way and equipment. The different is that we have changed network topology to wired LAN. We have found the maximum, minimum and the average throughput as plotted below. The initial data size is 1 Mb.



 The Comparison of throughput 



An average value of the throughputs. 

Conclusion

In conclusion, we found that if we increased size of data, the throughput will exponentially increase with no slowing down because LAN has more sending rate. 