

Assignment:

1. Source files: (check BB)
 - a. Server file: server.c
 - b. Client file: client.c
2. Screenshot of program running (Check BB)
3. Screenshot of Wireshark capture summary page (Check BB)
4. Table Summary:

	10KB	20KB	30KB	40KB	50KB
TCP total IP payload bytes	10000	20000	30000	40000	50000
TCP total header bytes	1004	1804	2604	3404	4204

*Note we are using KB to 1000 bytes not 1024 for simplicity

5. Questions and answers:

Q. 1 What operating systems did you use ?

Ans. Client: Linux (Ubuntu)

Server: trig.sci.csueastbay.edu

Q. 2 What were the IP addresses and netmasks for your two machines?

Ans. Client Machine:
IP Address:134.154.44.133
Subnet mask:255.255.248.0

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Administrator: C:\Windows\system32\cmd.exe
C:\>ipconfig

Windows IP Configuration

Ethernet adapter Local Area Connection 2:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

Ethernet adapter Local Area Connection:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

Wireless LAN adapter Wireless Network Connection:

    Connection-specific DNS Suffix  . : csueastbay.edu
    Link-local IPv6 Address . . . . . : fe80::94df:ca82:1bcb:fcc6%11
    IPv4 Address. . . . . : 134.154.44.133
    Subnet Mask . . . . . : 255.255.248.0
    Default Gateway . . . . . : 134.154.47.254
```

Server Machine:

IP Address:134.154.190.159

Subnet mask:255.255.255.128

```
q6395@trig:~
Last login: Mon Feb 22 14:43:10 2016 from 134.154.43.150
#####
##### Welcome to the College of Science Linux Network #####
#
# Notice !!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!! Notice #
# Notice !!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!! Notice #
#
# Hello and Welcome Winter 2016 CSUEB College of Science Net #
#
# Quotas of 200MG have been installed on all COS Linux Network #
# accounts. There is a warning issued at 180MB and a 1 week grace #
# period if you go over quota. Remember that the COS servers are #
# for completing coursework not for long term storage. If you #
# have a project that requires more storage have a faculty member #
# contact admin of the COS network.
#
# *****
#
# Jan. 05, 2016
#
# Richard (510) 885-4168
#####

[q6395@trig ~]$
[q6395@trig ~]$ /sbin/ifconfig
eth0      Link encap:Ethernet  HWaddr 00:50:56:9F:19:17
          inet addr:134.154.190.159  Bcast:134.154.190.255  Mask:255.255.255.128
          inet6 addr: fe80::250:56ff:fe9f:1917/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:84410557 errors:0 dropped:0 overruns:0 frame:0
          TX packets:83739208 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:11496862504 (10.7 GiB)  TX bytes:35099785829 (32.6 GiB)

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:16436  Metric:1
          RX packets:84934898 errors:0 dropped:0 overruns:0 frame:0
          TX packets:84934898 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:23695753744 (22.0 GiB)  TX bytes:23695753744 (22.0 GiB)

[q6395@trig ~]$
```

Q. 3 Did the amount of overhead for TCP increase proportionally as the file size increased? In other words, was the overhead twice as much for the 20 KB file as the 10 KB file and so on? Why or why not? Again, provide calculations to support.

Ans. Yes. From following graph is linear. It shows that amount of overhead for TCP increase proportionally as the file size increase.

For

first file (10KB) – overhead is 1004

second file (20KB) – overhead is 1804

third file (30KB) – overhead is 2604

fourth file (40KB) – overhead is 3404

fifth file (50KB) – overhead is 4204

From above it shows that overhead is increased 80% of the initial.

Overhead is not twice as much for the 20 KB file as the 10 KB file because While sending the 10 KB file all SYN, ACK, etc. are present and for 20 KB file only actual data is increased and rest of all message are same.

