COMP416: Computer Networks
Project 3
Mehmet Eren Kılıç – 76621

Part 1. Network Layer Analysis

Part 1-1) ICMP Analysis

1)

Since I am using Windows, I used “tracert” command and give the website as input. After the 17th hop, I receive “Request timed out” messages. Thus, the minimum TTL is 17. Packets less than 17 TTL cannot reach.

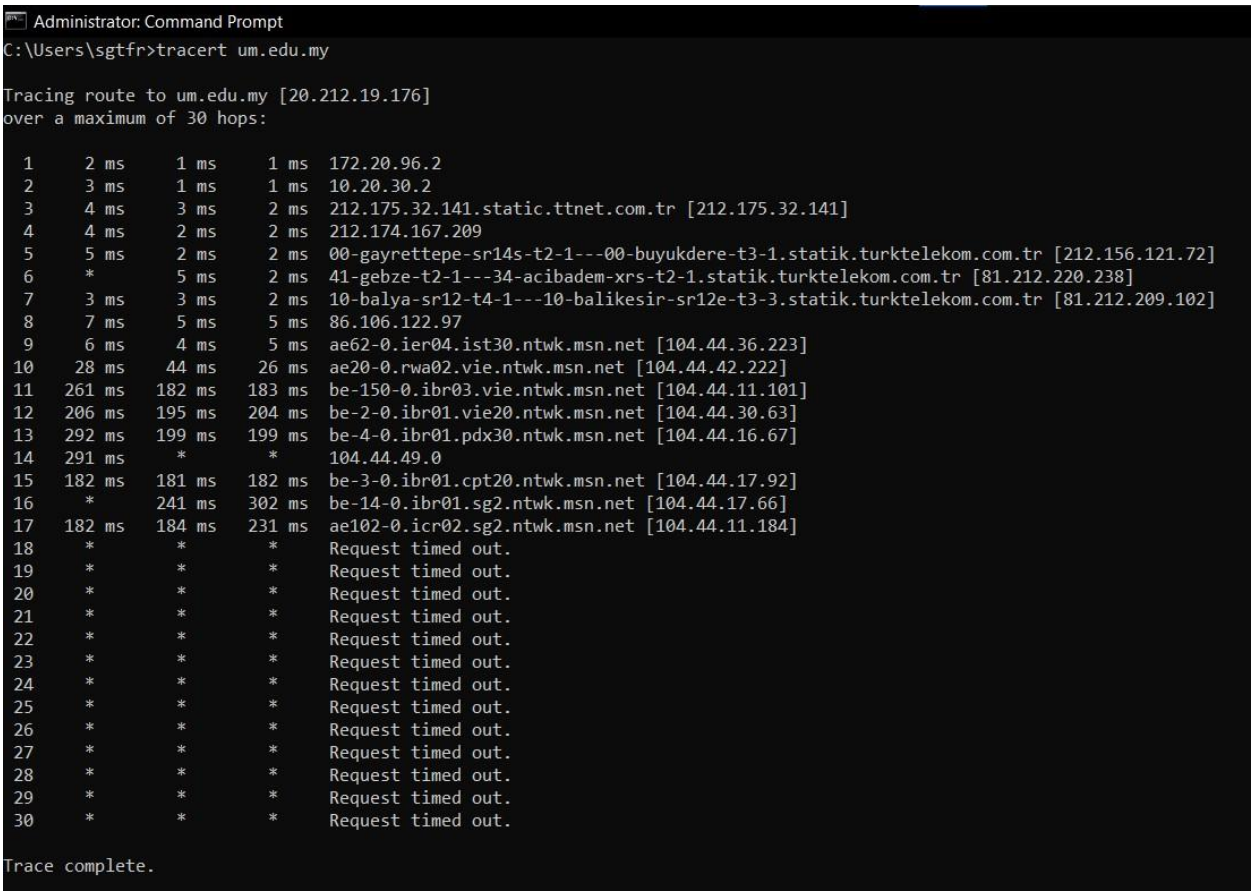

Figure 1: Traceroute results from command prompt.

2)

Default probe number in tracerouting is usually 3. I wanted to use different numbers of probes but I have Windows computer. I have searched a bit but could not find to change the probe number in tracert

command. Thus I have used my friend's computer to see the differences. The results of the command are more detailed but speed is relatively slower.

```
Last login: Mon Dec 18 17:05:01 on ttys000
mete@Metehan-MacBook-Air ~ %
   [Restored 31 Dec 2023 at 13:57:05]
Last login: Mon Dec 18 19:25:57 on ttys000
mete@Metehan-MacBook-Air ~ % traceroute -q 5 um.edu.my
traceroute to um.edu.my (20.212.19.176), 64 hops max, 52 byte packets
 1  172.21.40.1 (172.21.40.1)  8.853 ms  6.744 ms  5.637 ms  6.908 ms  5.801 ms
 2  172.16.60.254 (172.16.60.254)  9.376 ms  16.745 ms  17.335 ms  9.887 ms  12.258 ms
 3  212.174.104.161.static.ttnet.com.tr (212.174.104.161)  21.602 ms  13.552 ms  9.863 ms  34.400 ms  14.399 ms
 4  00-gayrettepe-sr14s-t2-1---00-buyukdere-t3-1.statik.turktelekom.com.tr (212.156.121.72)  22.217 ms  7.383 ms  6.623 ms  8.428 ms  8.499 ms
 5  * * * * *
 6  * * * * *
 7  86.106.122.93 (86.106.122.93)  14.155 ms  12.522 ms
    86.106.122.97 (86.106.122.97)  17.956 ms
    86.106.122.117 (86.106.122.117)  8.480 ms
    86.106.122.93 (86.106.122.93)  7.604 ms
 8  ae61-0.ier03.ist30.ntwk.msn.net (104.44.36.221)  13.582 ms  11.437 ms  10.696 ms  11.916 ms
    ae62-0.ier04.ist30.ntwk.msn.net (104.44.36.223)  9.368 ms
 9  ae20-0.rwa02.vie.ntwk.msn.net (104.44.42.222)  31.341 ms  29.515 ms
    ae25-0.rwa01.vie.ntwk.msn.net (104.44.42.120)  39.694 ms  32.879 ms
    ae20-0.rwa02.vie.ntwk.msn.net (104.44.42.222)  29.252 ms
10  be-150-0.ibr03.vie.ntwk.msn.net (104.44.11.101)  196.589 ms  194.003 ms
    be-148-0.ibr03.vie.ntwk.msn.net (104.44.11.199)  188.099 ms *  196.959 ms
11  be-5-0.ibr01.par21.ntwk.msn.net (104.44.17.185)  198.669 ms  197.349 ms  197.870 ms  200.636 ms  196.020 ms
12  be-26-0.ibr01.mrs20.ntwk.msn.net (104.44.29.51)  295.295 ms  203.073 ms  197.266 ms  195.894 ms  195.806 ms
13  be-19-0.ibr01.sin30.ntwk.msn.net (104.44.28.184)  195.640 ms  187.222 ms  188.046 ms  189.877 ms  187.831 ms
14  be-11-0.ibr01.sg2.ntwk.msn.net (104.44.18.178)  186.914 ms  185.767 ms
    be-17-0.ibr01.sg3.ntwk.msn.net (104.44.28.36)  198.898 ms  196.949 ms
    be-11-0.ibr01.sg2.ntwk.msn.net (104.44.18.178)  185.823 ms
15  ae100-0.icr01.sg2.ntwk.msn.net (104.44.11.188)  186.497 ms  184.882 ms  191.001 ms  185.058 ms
    be-1-0.ibr01.sg2.ntwk.msn.net (104.44.7.13)  188.310 ms
16  * * * * *
17  * * * * *
18  * * * * *
19  * * * * *
20  * * * * *
21  * * * * *
22  * * * * *
23  * * * * *
24  * * * * *
25  * * * * *
26  * * * * *
27  * * * * *
28  * * * * *
29  * * * * *
```

Figure 2: Traceroute with 5 probes

```
37  * *^C
mete@Metehan-MacBook-Air ~ % traceroute -q 10 um.edu.my
,traceroute to um.edu.my (20.212.19.176), 64 hops max, 52 byte packets
 1  172.21.40.1 (172.21.40.1)  5.530 ms  3.679 ms  4.310 ms  3.464 ms  4.789 ms  3.358 ms  3.499 ms  3.852 ms  4.333 ms  3.738 ms
 2  172.16.60.254 (172.16.60.254)  5.363 ms  6.759 ms  7.345 ms  5.237 ms  7.897 ms  7.350 ms *  5.519 ms  4.537 ms  5.546 ms
 3  212.174.104.161.static.ttnet.com.tr (212.174.104.161)  6.327 ms  6.213 ms  5.342 ms  7.688 ms  5.395 ms  5.319 ms  6.377 ms  5.943 ms  6.680 ms  1
1.461 ms
 4  00-gayrettepe-sr14s-t2-1---00-buyukdere-t3-1.statik.turktelekom.com.tr (212.156.121.72)  12.237 ms  7.011 ms  7.502 ms  7.789 ms  6.120 ms  5.920
ms  5.568 ms  6.596 ms  6.192 ms  6.774 ms
 5  * 41-gebze-t2-1---34-acibadem-xrs-t2-1.statik.turktelekom.com.tr (81.212.220.238)  7.044 ms  5.759 ms  5.933 ms  6.076 ms  5.412 ms  5.417 ms  5.6
36 ms  5.703 ms  7.051 ms
 6  10-balya-sr12-t4-1---10-balikesir-sr12e-t3-3.statik.turktelekom.com.tr (81.212.209.102)  9.462 ms  13.695 ms  6.500 ms  7.097 ms  6.863 ms  6.035
ms  6.696 ms  5.729 ms  5.743 ms  6.067 ms
 7  86.106.122.117 (86.106.122.117)  7.775 ms
    86.106.122.97 (86.106.122.97)  8.010 ms  6.846 ms  6.461 ms  7.474 ms
    86.106.122.117 (86.106.122.117)  6.355 ms  7.097 ms  7.371 ms
    86.106.122.93 (86.106.122.93)  7.581 ms
    86.106.122.117 (86.106.122.117)  8.545 ms
 8  ae61-0.ier03.ist30.ntwk.msn.net (104.44.36.221)  7.753 ms  8.101 ms
    ae62-0.ier04.ist30.ntwk.msn.net (104.44.36.223)  26.964 ms
    ae61-0.ier03.ist30.ntwk.msn.net (104.44.36.221)  21.034 ms  9.636 ms
    ae62-0.ier04.ist30.ntwk.msn.net (104.44.36.223)  8.637 ms
    ae61-0.ier03.ist30.ntwk.msn.net (104.44.36.221)  13.363 ms  7.077 ms
    ae62-0.ier04.ist30.ntwk.msn.net (104.44.36.223)  8.488 ms  7.282 ms
 9  ae20-0.rwa02.vie.ntwk.msn.net (104.44.42.222)  30.676 ms  29.883 ms  29.692 ms
    ae25-0.rwa01.vie.ntwk.msn.net (104.44.42.120)  31.757 ms  40.282 ms
    ae20-0.rwa02.vie.ntwk.msn.net (104.44.42.222)  31.036 ms
    ae25-0.rwa01.vie.ntwk.msn.net (104.44.42.120)  30.473 ms  31.339 ms  36.850 ms
    ae20-0.rwa02.vie.ntwk.msn.net (104.44.42.222)  41.141 ms
10  be-148-0.ibr03.vie.ntwk.msn.net (104.44.11.199)  259.544 ms *  229.041 ms  222.175 ms *
    be-150-0.ibr03.vie.ntwk.msn.net (104.44.11.101)  291.670 ms  210.479 ms
    be-148-0.ibr03.vie.ntwk.msn.net (104.44.11.199)  340.663 ms
    be-150-0.ibr03.vie.ntwk.msn.net (104.44.11.101)  234.962 ms *
11  be-5-0.ibr01.par21.ntwk.msn.net (104.44.17.185)  213.290 ms  228.513 ms  607.576 ms  212.197 ms  208.842 ms  206.899 ms  205.892 ms  205.751 ms  2
43.694 ms  306.301 ms
12  be-6-0.ibr01.gva20.ntwk.msn.net (104.44.18.5)  209.837 ms  207.822 ms  417.044 ms  210.940 ms  1736.520 ms  1192.204 ms  567.160 ms  315.656 ms  7
12.160 ms  209.851 ms
13  be-7-0.ibr01.mrs21.ntwk.msn.net (104.44.29.68)  230.537 ms  211.594 ms  210.004 ms  312.086 ms  208.726 ms  620.873 ms  209.992 ms  268.734 ms  25
0.906 ms  229.130 ms
14  104.44.31.50 (104.44.31.50)  215.656 ms  229.321 ms  222.185 ms  326.900 ms  316.666 ms  297.821 ms  307.781 ms  222.054 ms  289.754 ms  215.516 m
s
15  be-11-0.ibr01.sg2.ntwk.msn.net (104.44.18.178)  211.133 ms  204.916 ms
    be-17-0.ibr01.sg3.ntwk.msn.net (104.44.28.36)  296.557 ms
    be-11-0.ibr01.sg2.ntwk.msn.net (104.44.18.178)  295.666 ms
    be-17-0.ibr01.sg3.ntwk.msn.net (104.44.28.36)  213.208 ms
```

Figure 3: Trace route with 10 probes

```
39  * * * * * * * *^C
mete@Metehan-MacBook-Air ~ % traceroute -q 15 um.edu.my
traceroute to um.edu.my (20.212.19.176), 64 hops max, 52 byte packets
 1  172.21.40.1 (172.21.40.1)  8.122 ms  3.752 ms *  4.481 ms  4.130 ms  3.405 ms  4.957 ms  5.943 ms  7.803 ms  3.527 ms  5.660 ms  5.810 ms  5.537 m
s  5.076 ms  5.001 ms
 2  172.16.60.254 (172.16.60.254)  8.268 ms  12.503 ms  6.565 ms  6.574 ms  4.511 ms  5.940 ms *  13.448 ms  5.485 ms  6.889 ms  5.367 ms  4.215 ms *
 4.973 ms  4.842 ms
 3  212.174.104.161.static.ttnet.com.tr (212.174.104.161)  5.624 ms  13.517 ms  5.639 ms  5.729 ms  5.224 ms  5.208 ms  6.712 ms  6.586 ms  7.036 ms
6.974 ms  5.618 ms  5.259 ms  6.322 ms  5.870 ms  7.006 ms
 4  00-gayrettepe-sr14s-t2-1---00-buyukdere-t3-1.statik.turktelekom.com.tr (212.156.121.72)  6.037 ms  5.949 ms  5.525 ms  5.436 ms  5.839 ms  5.328 m
s  5.498 ms  6.100 ms  5.458 ms  5.012 ms  5.133 ms  5.541 ms  5.470 ms  5.758 ms  5.183 ms
 5  * * * 41-gebze-t2-1---34-acibadem-xrs-t2-1.statik.turktelekom.com.tr (81.212.220.238)  7.509 ms  5.260 ms  5.778 ms  5.483 ms  5.528 ms  6.635 ms
 6.320 ms  6.002 ms  5.440 ms  5.430 ms  6.071 ms  5.345 ms
 6  10-balya-sr12-t4-1---10-balikesir-sr12e-t3-3.statik.turktelekom.com.tr (81.212.209.102)  7.669 ms  7.340 ms  8.008 ms  10.291 ms  8.238 ms  8.411
ms  7.724 ms  6.935 ms  5.985 ms  5.528 ms  12.743 ms  6.075 ms  5.575 ms  5.484 ms  5.636 ms
 7  86.106.122.117 (86.106.122.117)  6.833 ms  6.237 ms
    86.106.122.97 (86.106.122.97)  7.061 ms  6.639 ms
    86.106.122.93 (86.106.122.93)  6.953 ms  6.502 ms
    86.106.122.117 (86.106.122.117)  25.158 ms  44.791 ms
    86.106.122.93 (86.106.122.93)  7.030 ms  6.540 ms  6.674 ms
    86.106.122.97 (86.106.122.97)  9.467 ms
    86.106.122.93 (86.106.122.93)  8.409 ms
    86.106.122.117 (86.106.122.117)  19.764 ms
    86.106.122.97 (86.106.122.97)  9.055 ms
 8  ae61-0.ier03.ist30.ntwk.msn.net (104.44.36.221)  29.671 ms
    ae62-0.ier04.ist30.ntwk.msn.net (104.44.36.223)  8.561 ms
    ae61-0.ier03.ist30.ntwk.msn.net (104.44.36.221)  31.783 ms
    ae62-0.ier04.ist30.ntwk.msn.net (104.44.36.223)  11.630 ms  15.122 ms
    ae61-0.ier03.ist30.ntwk.msn.net (104.44.36.221)  7.174 ms  8.177 ms  7.633 ms  7.966 ms  13.479 ms  7.449 ms
    ae62-0.ier04.ist30.ntwk.msn.net (104.44.36.223)  8.183 ms
    ae61-0.ier03.ist30.ntwk.msn.net (104.44.36.221)  6.977 ms  8.751 ms  22.684 ms
 9  ae25-0.rwa01.vie.ntwk.msn.net (104.44.42.120)  37.472 ms
    ae20-0.rwa02.vie.ntwk.msn.net (104.44.42.222)  63.324 ms
    ae25-0.rwa01.vie.ntwk.msn.net (104.44.42.120)  30.523 ms  33.445 ms  31.133 ms  31.037 ms
    ae20-0.rwa02.vie.ntwk.msn.net (104.44.42.222)  54.875 ms  41.697 ms
    ae25-0.rwa01.vie.ntwk.msn.net (104.44.42.120)  66.075 ms  54.264 ms  30.527 ms *  30.073 ms  69.455 ms
    ae20-0.rwa02.vie.ntwk.msn.net (104.44.42.222)  32.726 ms
10  be-148-0.ibr03.vie.ntwk.msn.net (104.44.11.199)  252.101 ms  253.568 ms *
    be-150-0.ibr03.vie.ntwk.msn.net (104.44.11.101)  276.550 ms  221.766 ms
    be-148-0.ibr03.vie.ntwk.msn.net (104.44.11.199)  228.577 ms * *  294.515 ms
    be-150-0.ibr03.vie.ntwk.msn.net (104.44.11.101)  225.250 ms  333.857 ms
    be-148-0.ibr03.vie.ntwk.msn.net (104.44.11.199)  255.314 ms  252.777 ms  253.417 ms *
11  be-5-0.ibr01.par21.ntwk.msn.net (104.44.17.185)  246.733 ms  222.294 ms  242.375 ms  304.030 ms  221.659 ms  237.491 ms  221.391 ms  222.327 ms  2
37.370 ms  222.602 ms  220.839 ms  222.665 ms  244.449 ms  222.837 ms  290.739 ms
```

Figure 4: Trace route with 15 probes

3)

I have used Ubuntu on my computer to find the flag to receive ICMP packets. Then, I figured out I have to use "-I" to receive ICMP packets. Than Ubuntu said I need privileges to run this command so I have used sudo before.

```
eren@DESKTOP-MKABREA:~$ sudo traceroute -I www.um.edu.my
traceroute to www.um.edu.my (20.212.19.176), 30 hops max, 60 byte packets
 1  DESKTOP-MKABREA (172.31.160.1)  0.594 ms  0.591 ms  0.587 ms
 2  172.16.1.1 (172.16.1.1)  6.930 ms  6.927 ms  6.924 ms
 3  192.168.1.1 (192.168.1.1)  9.650 ms  9.647 ms  10.119 ms
 4  10.98.238.8 (10.98.238.8)  19.305 ms  19.877 ms  22.411 ms
 5  * * *
 6  81.212.73.165.static.turktelekom.com.tr (81.212.73.165)  22.397 ms * *
 7  00-gayrettepe-sr14s-t2-2---00-gayrettepe-sr7s-t3-1.statik.turktelekom.com.tr (81.212.30.177)  12.387 ms  12.751 ms  13.757 ms
 8  * * *
 9  86.106.122.93 (86.106.122.93)  13.644 ms  14.985 ms  15.378 ms
10  ae61-0.ier03.ist30.ntwk.msn.net (104.44.36.221)  16.502 ms  20.867 ms  16.831 ms
11  ae25-0.rwa01.vie.ntwk.msn.net (104.44.42.120)  40.850 ms  40.579 ms  41.344 ms
12  * be-148-0.ibr03.vie.ntwk.msn.net (104.44.11.199)  190.571 ms  189.655 ms
13  be-2-0.ibr01.vie20.ntwk.msn.net (104.44.30.63)  189.593 ms  188.323 ms  190.482 ms
14  be-4-0.ibr01.pdx30.ntwk.msn.net (104.44.16.67)  189.416 ms  188.995 ms  185.053 ms
15  * * *
16  be-3-0.ibr01.cpt20.ntwk.msn.net (104.44.17.92)  186.710 ms  203.890 ms  204.889 ms
17  be-14-0.ibr01.sg2.ntwk.msn.net (104.44.17.66)  202.696 ms  211.950 ms  211.925 ms
18  ae100-0.icr01.sg2.ntwk.msn.net (104.44.11.188)  209.471 ms  209.989 ms  210.762 ms
19  * * *
20  * * *
21  * * *
22  * * *
23  * * *
24  * * *
25  * * *
26  * * *
27  * * *
28  * * *
29  * * *
30  * * *
```

Figure 5: Forcing Trace Route to receive ICMP packets

4)

Routing Blackhole is a network segment that drops every packages it receives. It might be intentionally designed to be that way or because of malfunctioning. It might be useful if there is a harmful listener or sender and want to receive packets. The system might send all these packets to blackhole to do not give any information to adversary. Also in DDoS attacks, it might be useful.

Part-1.2 Network Interface Analysis

I have used addr command and -c -br options. Addr command shows all network interfaces on the computer and their information whether up or down. It also shows the IP addresses. I have used c option for coloring and br for brief output. Because first output had unnecessary details.

```
eren@DESKTOP-MKABREA:~$ ip -c -br addr
lo               UNKNOWN        127.0.0.1/8 ::1/128
eth0             UP             172.31.171.242/20 fe80::215:5dff:fede:5011/64
```

Figure 6: addr command

"route" command shows the routing table entries on the computer. With -s option we have detailed output and -j for to receive json version of the output. It gives information about the default gateway and reachable subnets.

```
eren@DESKTOP-MKABREA:~$ ip -s -j route
[{"dst":"default","gateway":"172.31.160.1","dev":"eth0","protocol":"kernel","flags":[]},{"dst":"172.31.160.0/20","dev":"eth0","protocol":"kernel","scope":"link","prefsrc":"172.31.171.242","flags":[]}]
```

Figure 7: route command

“link” command shows the information for all interfaces. I have used -s option to display interface statistics and -d for detailed output.

```
eren@DESKTOP-MKABREA:~$ ip -s -d link
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN mode DEFAULT group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00 promiscuity 0 minmtu 0 maxmtu 0 addrgenmode eui64 numtxqueues
1 numrxqueues 1 gso_max_size 65536 gso_max_segs 65535
    RX: bytes  packets  errors  dropped overrun mcast
    28234211   12773    0       0       0       0
    TX: bytes  packets  errors  dropped carrier collsns
    28234211   12773    0       0       0       0
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc mq state UP mode DEFAULT group default qlen 1000
    link/ether 00:15:5d:12:5d:c8 brd ff:ff:ff:ff:ff:ff promiscuity 0 minmtu 68 maxmtu 65521 addrgenmode eui64 numtxqueue
s 64 numrxqueues 64 gso_max_size 62780 gso_max_segs 65535
    RX: bytes  packets  errors  dropped overrun mcast
    363460     1339     0       2       0       950
    TX: bytes  packets  errors  dropped carrier collsns
    117930     354      0       0       0       0
```

Figure 8: link command

Part2. Understanding IP and Subnetting

1)

I ran the ipconfig command on my console to see the results. I was connecting the internet via an Ethernet cable. Thus when I checked my IPv4 Address on Ethernet 3, I can see my IP as 10.176.24.151

```
Command Prompt
U:\>ipconfig

Windows IP Configuration


Ethernet adapter Ethernet:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . : ist.bshg.com

Ethernet adapter Ethernet 3:

   Connection-specific DNS Suffix  . : euea.corp.bshg.com
   IPv4 Address. . . . . . . . . . . : 10.176.24.151
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : 10.176.24.1
```

Figure 9: ipconfig output of my network

2)

From the Figure, we can see the Subnet Mask right under the IP address. My network’s subnet mask is 255.255.255.0

3)

To calculate Network (Subnet) address of the network, we have to apply the subnet mask to the IP address. Using AND operation, network address is 10.176.24.0.

4)

To calculate Broadcast address of the network, if the corresponding part in the mask is 255 we just use the value in the IP address. If Subnet mask is 0's, we will convert that part to 255. Thus the broadcast address is 10.176.24.255

5)

The subnet mask is 111111111.11111111.11111111.00000000, thus there are 8 host bits. 2^8 – 2 (network and broadcast address) = 254. The network can handle at most 254 devices.

Part 3. Simulations with Cisco Packet Tracer

I have created the network system as 3 branches and one headquarter. Each branch has 3 PCs, 1 2960-24TT Switch and one 1841 Router. Each PC connected to the corresponding switch; each switch connected to branch router. These connections are using fast ethernet and using copper cable. Then each branch router is connected to the HQ router via serial DTE. I have added extra ports to the routers for this connection. Every PC in the company can communicate with each other by going through the HQ router.

1)

Each textbox next to endpoints shows the IP address of the device. The textbox between the router and switch shows the gateway address. And there are IP addresses and Subnet masks between the routers to configure the serial network.

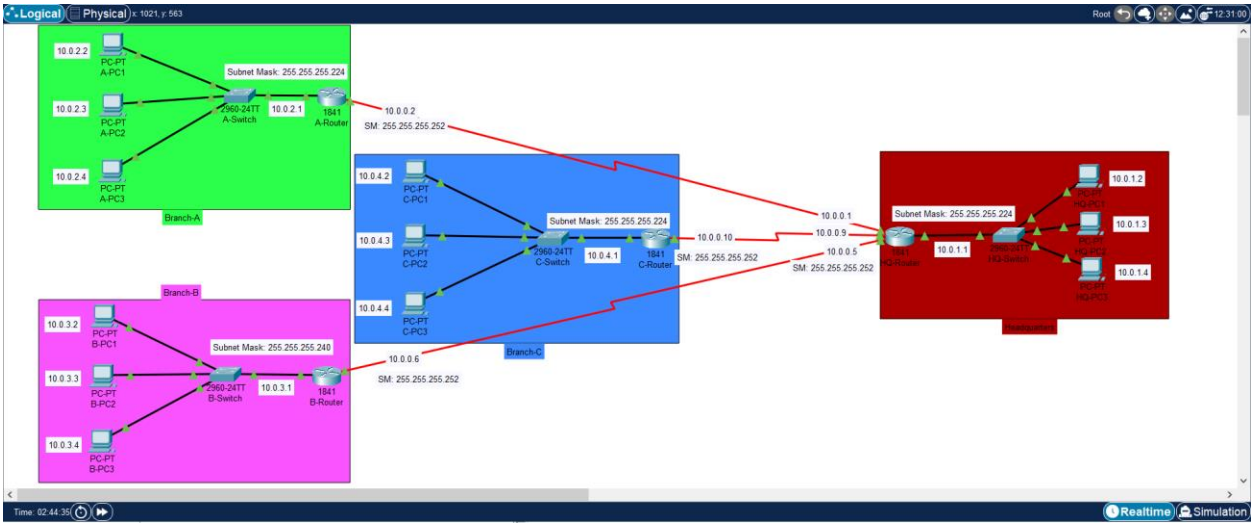

Figure 10: Network system that I have designed in Cisco

2)

I went for option 2 since it has the highest capacity among other addresses. 65534 addresses are more than enough for this project template. Since there will be need for future scalability to add more branches and/or more devices with minimum to no changes needed.

3)

With Option II: 10.0.0.0/16, 32-16= 16. 2^16= 65 536 total addresses.

Using /24 subnet mask there can be 24-16= 8. 2^8 = 256 total subnets.

Using /24 subnet mask in each branch, 32-24=8. 2^8=256. 256-2=254 IP addresses for each subnet.

4)

I have not used the Command Line Interface but I have checked it while I was doing the project. Also, in the IOS Command Log you can see the all commands used in the project. These are some of the commands I have used in my design.

Command	Resolved Command
end	end
configure terminal	configure terminal
exit	exit
ip route 10.0.1.0 255.255.255.0 10.0.0.5	ip route 10.0.1.0 255.255.255.0 10.0.0.5
interface Serial0/0/1	interface Serial0/0/1
exit	exit
interface Serial0/0/0	interface Serial0/0/0
exit	exit
ip route 10.0.4.0 255.255.255.0 10.0.0.6	ip route 10.0.4.0 255.255.255.0 10.0.0.6
interface FastEthernet0/0	interface FastEthernet0/0
ip address 10.0.4.1 255.0.0.0	ip address 10.0.4.1 255.0.0.0
ip address 10.0.4.1 255.0.0.0	ip address 10.0.4.1 255.0.0.0
interface FastEthernet0/0	interface FastEthernet0/0
no ip address	no ip address
ip address 10.0.4.1 255.0.0.0	ip address 10.0.4.1 255.0.0.0
ip address 10.0.4.1 255.255.255.224	ip address 10.0.4.1 255.255.255.224
no shutdown	no shutdown
enable	enable
configure terminal	configure terminal
interface FastEthernet0/1	interface FastEthernet0/ 1
exit	exit
interface FastEthernet0/2	interface FastEthernet0/ 2

Figure 11: Commands used in the project

5)

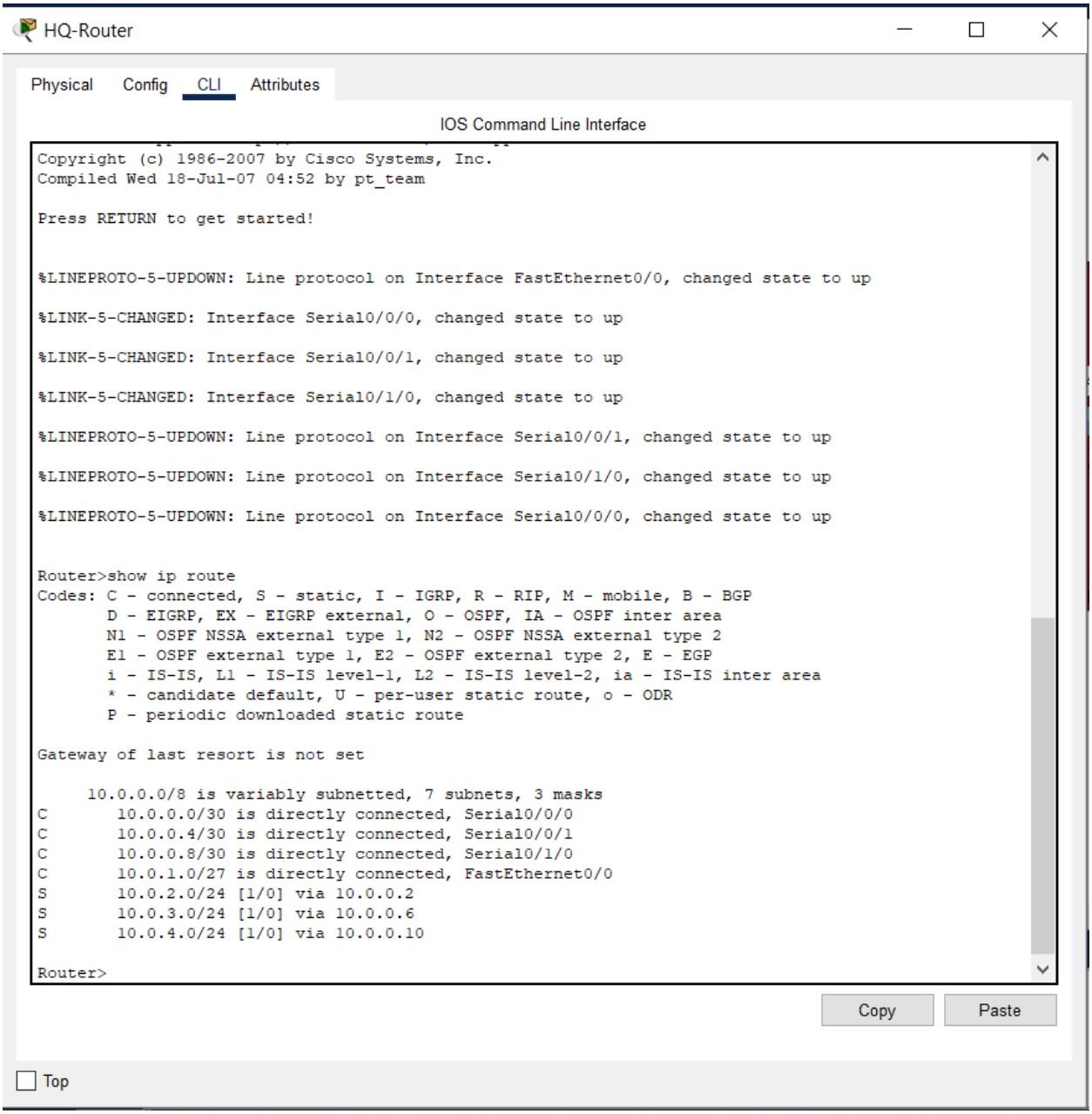

Figure 12: Headquarter Router routing table

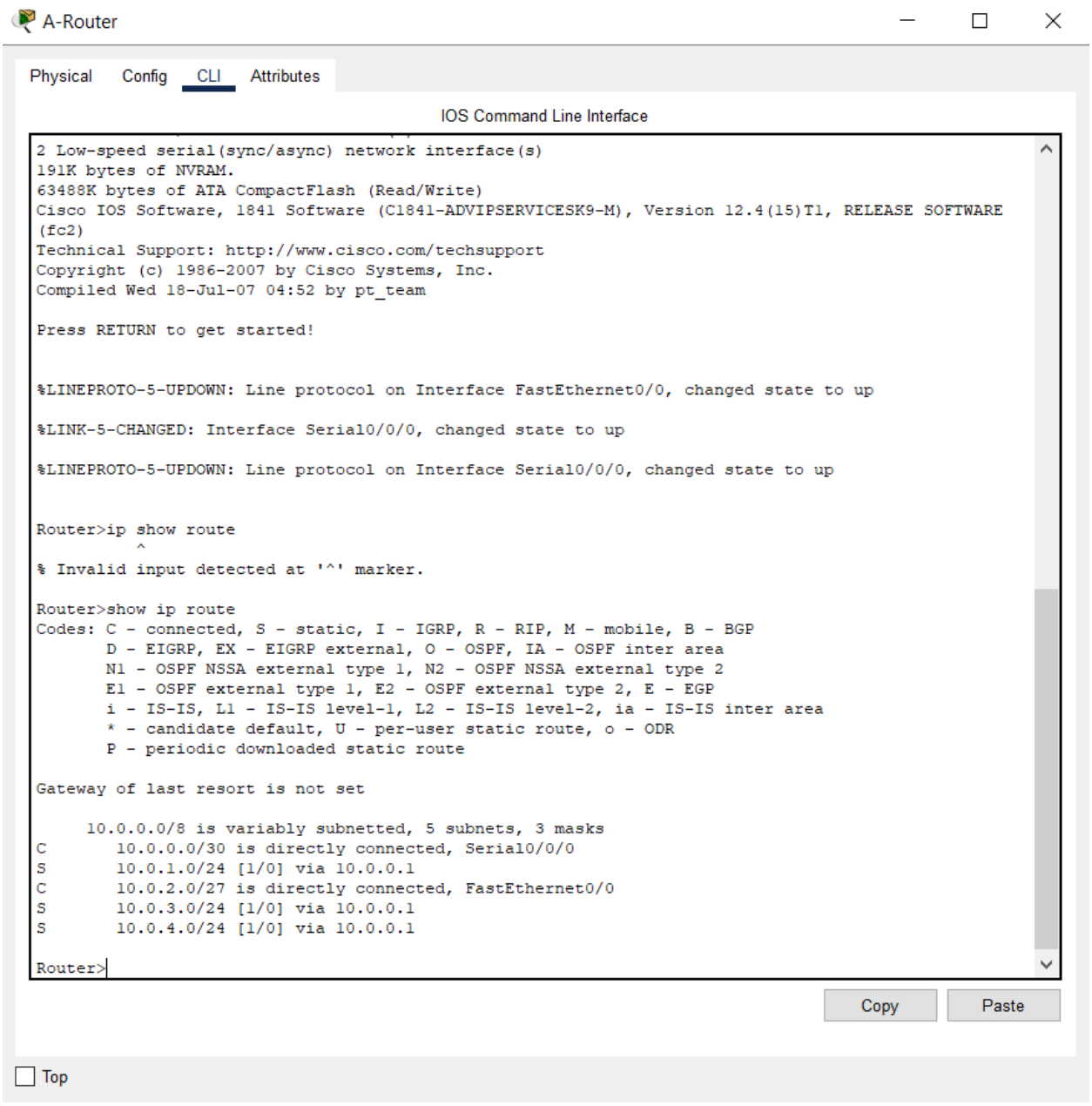

Figure 13: Branch-A Router routing table

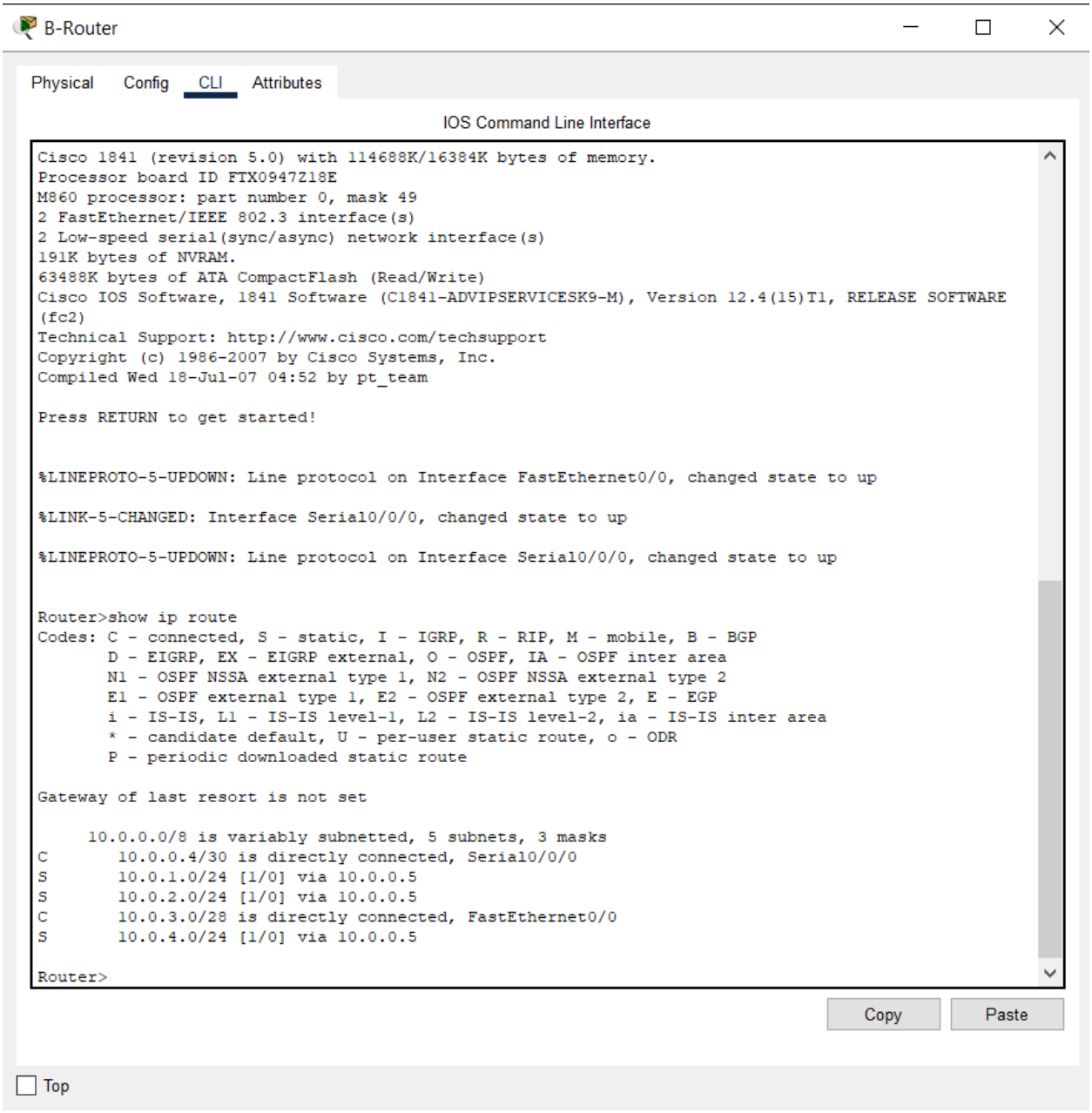

Figure 14: Branch-B Router routing table

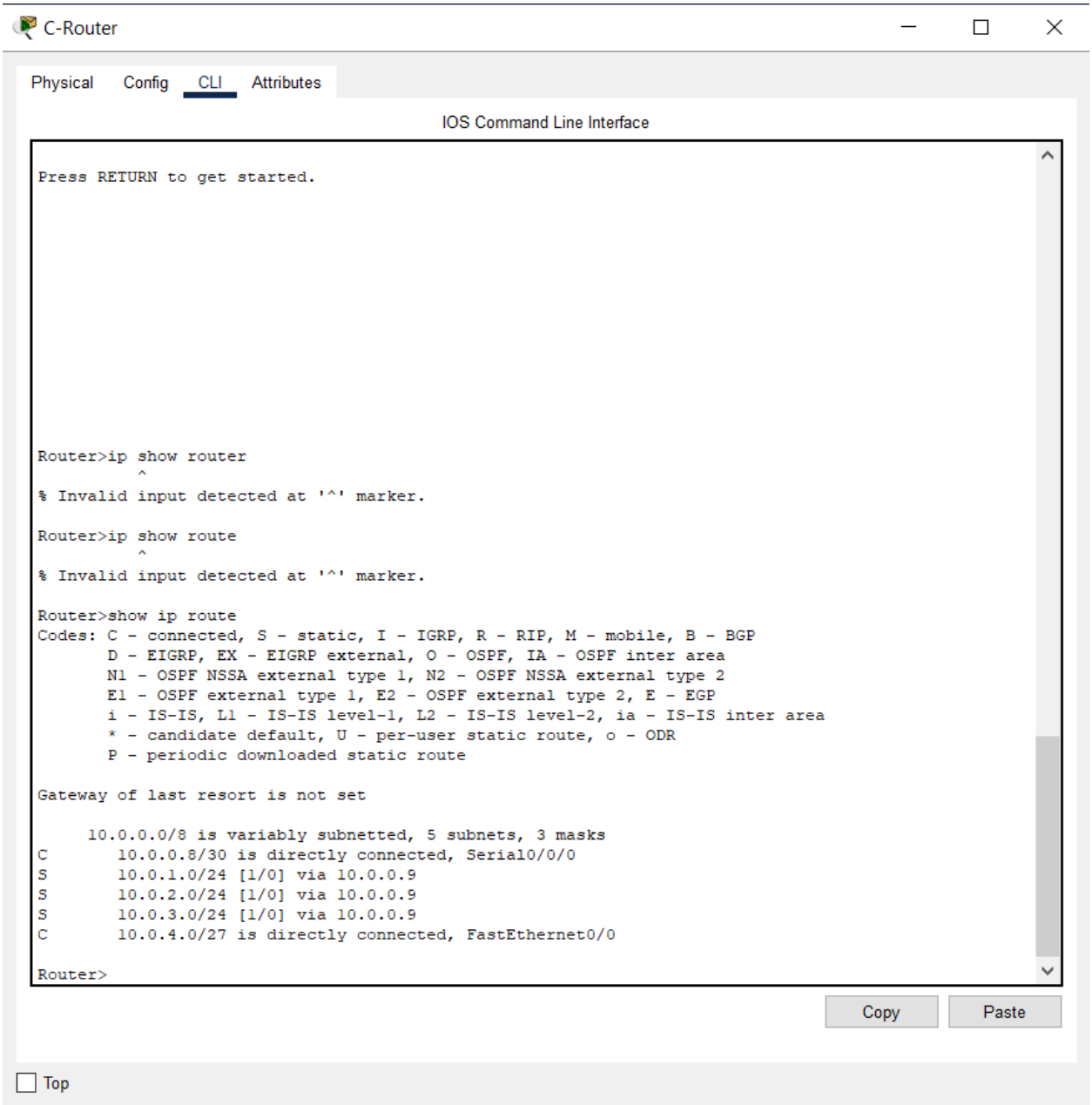

Figure 15: Branch-C Router routing table

6)

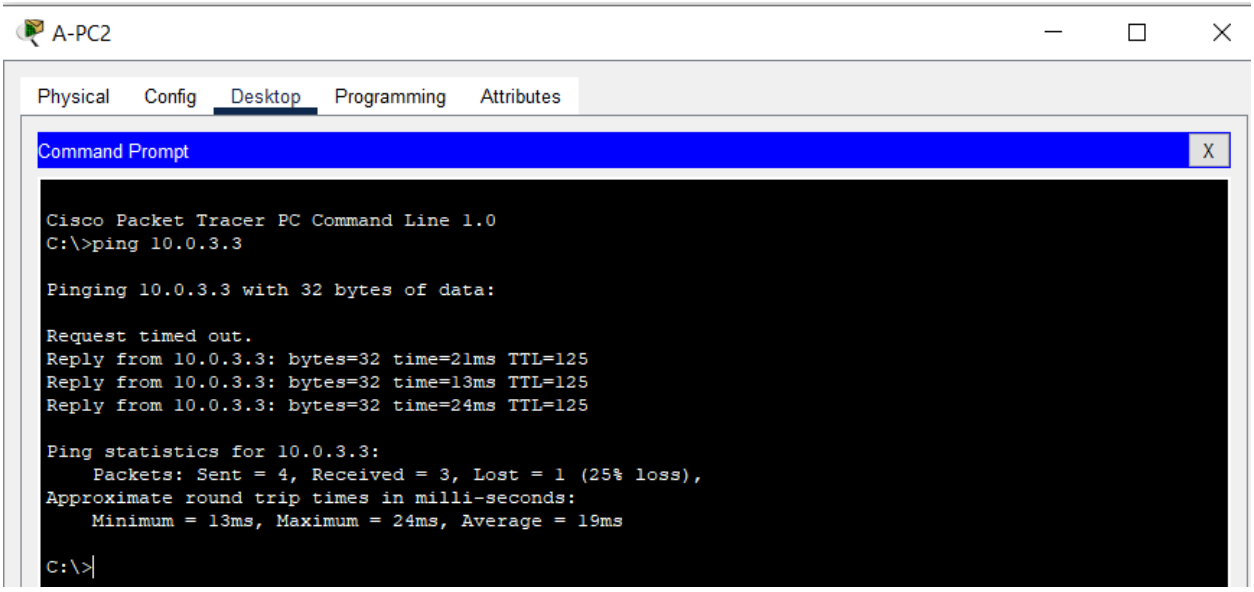

Figure 16: From A to B

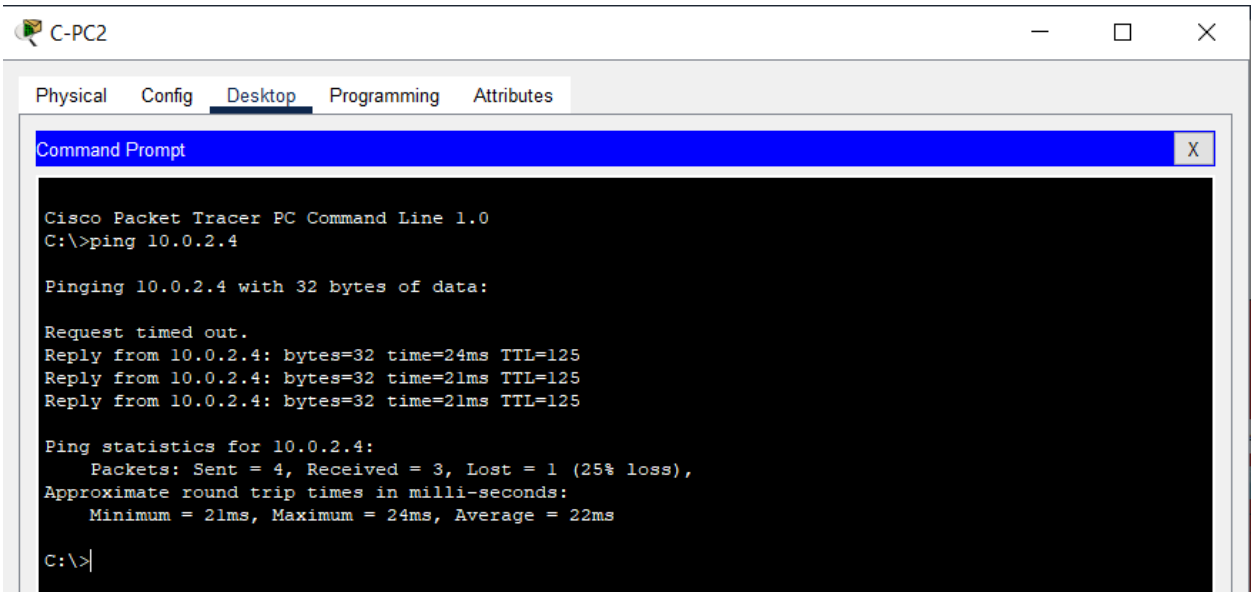

Figure 17: From C to A

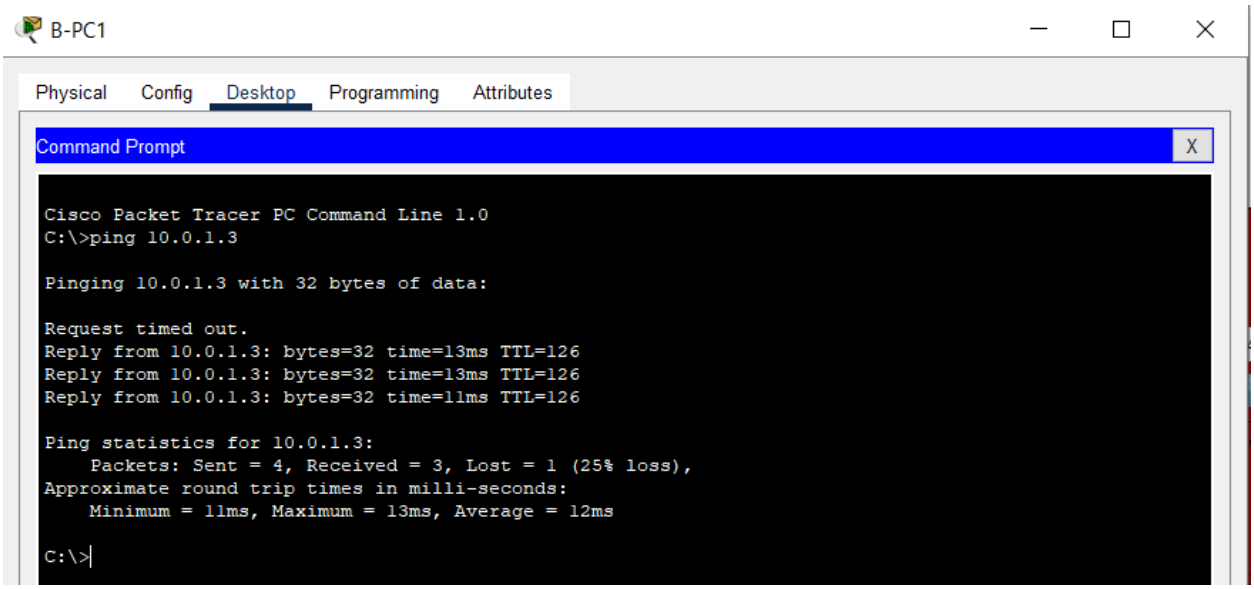

Figure 18: From B to HQ

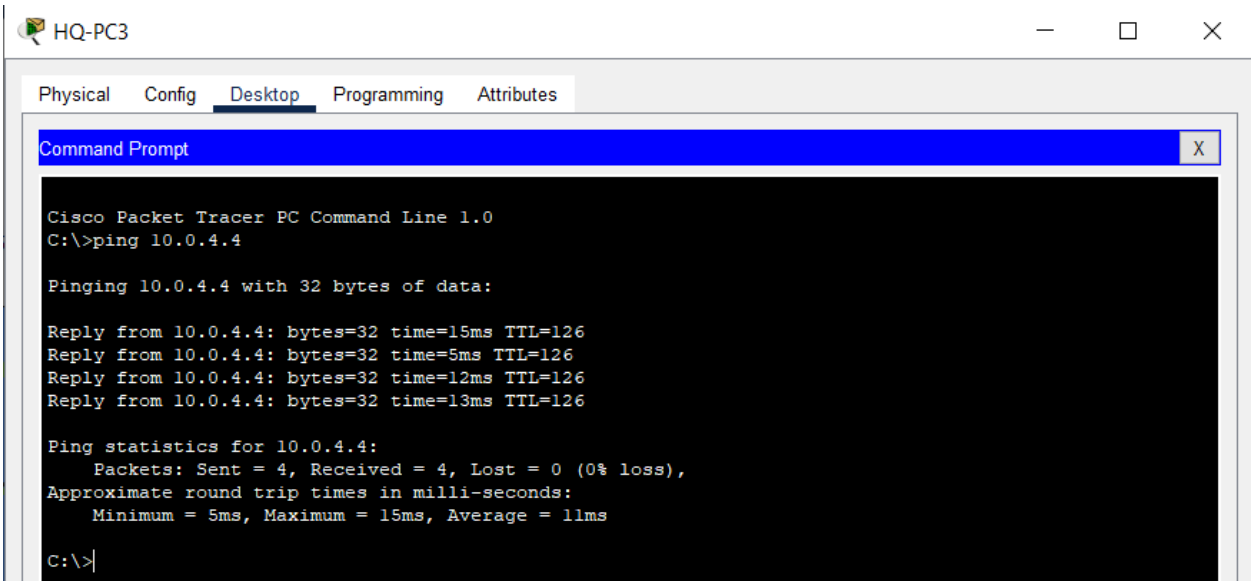

Figure 19: From HQ to C