Name_____ _____/20 pts.

SE 4C03 Winter 2001

Lab Exercise 3

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Revised: 13 February 2001

Assigned: 14 February 2001
Lab report due: 7 March 2001

Do this lab exercise by yourself.

1. Study the "man" pages for `tcpdump`, `traceroute`, and `netstat`.

2. Make a directory in your personal account's home directory named `dump-files`. Before doing any of the rest of this exercise, use `tcpdump -w` (in the background) to collect in `dump-files/left-frames` all the frames that arrive at the left network interface of your host and in `dump-files/right-frames` all the frames that arrive at the right network interface of your host. Keep collecting frames until you are done with parts 3 and 4 of the exercise.
_____/2 pts.

3. Use `traceroute` to determine the route packets take from your host to each of the other 13 hosts on the Little Internet. Put the routes you find into a table. Mark the routes that do not satisfy the Little Internet Routing Specification. _____/6 pts.

4. Examine the `/etc/services` file which maps names of services to TCP and UDP port numbers. Let x be the number of your host and let H be the set

   $$\{y + 1 : y = x - 1 \bmod 14 \vee y = x + 3 \bmod 14 \vee y = x + 7 \bmod 14\}$$

   of host numbers . Using `telnet` and `netstat`, determine what network servers are listening at UDP and TCP ports on each host whose number is in H. Make a table that associates these servers with the UDP and TCP port numbers at which they are listening.
   _____/6 pts.

5. Do this part of the exercise after you are done with parts 3 and 4.

   (a) Stop the tcpdump processes and use `tcpdump -r` to put the header information of the frames in `dump-files/left-frames` and `dump-files/right-frames` into `dump-files/left-headers` and `dump-files/right-headers`, respectively. _____/1 pt.

   (b) How many frames arrived at the left _____ and right _____ network interfaces? _____/1 pt.

   (c) How many ARP packets arrived at the left _____ and right _____ network interfaces? _____/1 pt.

   (d) How many ICMP packets arrived at the left _____ and right _____ interfaces? _____/1 pt.

   (e) How many UDP packets arrived at the left _____ and right _____ network interfaces? _____/1 pt.

   (f) How many TCP packets arrived at the left _____ and right _____ network interfaces? _____/1 pt.

For your lab report, hand in the two sheets of this exercise, the required tables, and a copy of your log book.