CSE 473 – Introduction to Computer Networks

Quiz 2

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1. (5 points). The table at right represents a forwarding table foran IP router (for simplicity, we are using 8 bit addresses).

prefix	next hop	
	output	address
101*	2	1010 1111
0100*	4	0100 0110
0010 0*	6	-
1010 1*	7	-
0101 0*	5	0101 0011
1011 00*	3	1011 0000
0101 11*	1	0101 1100
0010 01*	9	-

   If a packet arrives with destination address 0101 0011, whatoutput is it sent to, and what is the IP address of the next network-level component to receive the packet?
   - 5, 0101 0011

   If a packet arrives with destination address 1010 1110, what output is it sent to, and what isthe IP address of the next network-level component to receive the packet?

   - 7, 1010 1110

   Does the address 1011 0000 belong to a host or a router? How do you know?

   - It belongs to a router. Only router addresses appear explicitly in the next-hop-address field

2. (5 points). Suppose a server with IP address 1.2.3.4 starts executing the following lines ofjava.

ServerSocket sock = new ServerSocket();
sock.bind(InetSocketAddress("1.2.3.4",14357)); Socket connsock1
= sock.accept();
Socket connsock2 = sock.accept(); InetAddress x =
connsock1.getInetAddress();InetAddress y =
connsock2.getLocalAddress();

Now, suppose a host with IP address 2.3.4.5 executes the following lines.

Socket sockA = new Socket(); sockA.bind(InetSocketAddress("2.3.4.5",23456))
sockA.connect(InetSocketAddress("1.2.3.4",14357))

At this point, how many sockets are there at the server?

- Initially the sever had two sockets, consocket_1, consocket_2.

A short while later, another host with IP address 3.4.5.6 executes the following lines.

Socket sockB = new Socket(); sockB.bind(InetSocketAddress("3.4.5.6", 54321))
sockB.connect(InetSocketAddress("1.2.3.4",14357))

At this point, how many sockets are there at the server?

- When socket A and socket B are connected to the sever, two more socket were created.
- Therefore, at this point a sever has the total number of socket of four.

How many port numbers are being used at the server?

- Each two socket connection involves two endpoints, one on the client side and the other one on the saver's side.
- Only one port number (14357) is being used at the sever.

What are the values of the variables *x* and *y* at the server?

x: The variable x represents the InetAddress of connsock1. Since connsock1 is connected to the client with IP address 2.3.4.5, x will be 2.3.4.5.

y: The variable y represents the InetAddress of **connsock2. Since connsock2 is a local socket on the server side, y will be the server's own IP address, which is 1.2.3.4.