Zachary Waters

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CS 3251

Homework 2:

1.

The 3 universities, their corresponding IP address range, and server location is below:
University of Georgia, UGA:
IP address range: 128.192.0.0 - 128.192.255.255
Server location: 33.9519, -83.3576

University of Tennessee, UT:
IP address range: 160.36.0.0 - 165.6.192.0

                         192.249.0.0 - 192.249.8.255

                         216.96.128.0 - 216.96.192.255

Server location: 35.9606, -83.9207

University of Alabama, UA:
IP address range: 130.160.0.0 - 130.160.224.255
Server location: 33.2072, -87.5482

You cannot use the whois service to determine with certainty the geographical location of
a specific IP address.

2.

From		Cost to				
		U	V	X	Y	Z
	V	1	0	3	3	5
	X	4	3	0	3	2
	Z	6	5	2	5	0

3.

    a.

        Dx(w) = 1

        Dx(y) = 4

        Dx(u) = 6

    b.

        if C(x, w) changes to 6 or greater, the minimum cost path will now travel through C(x, y) and will change the minimum cost to 10.

    c.

        Any change in the cost of C(x, y) will not cause x to inform its neighbors of a new minimum cost path.

4.

a.

Router Z	Informs W, $Dz(x) = \infty$
	Informs Y, $Dz(x) = 6$
Router W	Informs Y, $Dw(x) = \infty$
	Informs Z, $Dw(x) = 5$
Router Y	Informs W, $Dy(x) = 4$
	Informs Z, $Dy(x) = 4$

b.

No, there will not be count-to-infinity problem, with poison reverse, after changing $C(x, y)$ to 60, Z will send the message to Y because it still believes it can reach X in 5. Y receives the message, and because the cost to send it back is infinity it would send the message to x, with a cost of 60, this would then cause the routing and forwarding table of z to be updated to send it's messages straight to x going forwards.

5.

a.

I will be equal to I1 because this interface begins the least cost path from 1d towards the gateway router 1c.

b.

I2. Both routes have equal AS-PATH length, but I2 begins the path that has the closest NEXTHOP router.

c.

I1, as I1 begins the path that has the shortest ASPATH.

6.

Yes, it does matter if you want public or private peering. Google will prefer private over public peering links. Google controls 4 ASes: AS15169, AS36040, AS19527, and AS43515. Of these 4, it is only possible to peer with two of them, AS15169 and AS36040.