CS 4121 Due: 11/21/17

**GENI Assignment 5: OSPF (32 points)**

Assumption

This assignment assumes that you have completed all parts in “GENI Lab5 Instruction”. If not, go complete them and then come back.

Assignment Details

Question 1 **(4 points in total)**: Default Hello interval and Dead interval values.

What is the default Hello interval value? Your answer:

What is the default Dead interval value? Your answer:

Why? Your answer:

Question 2 **(8 points in total)**: From A, ping one of C's interfaces. See if you can trick OSPF into failing to route packets momentarily (causing ping to hang) even though the physical links are up. Describe how you did it below and copy screenshots of all four SSH terminals to support your answer. **Highlight the most important areas in your screenshots with block arrows.**  
  
Note, your approach can not cause ping to report “Destination unreachable” though.

Your answer:

Screenshots:

Question 3 **(20 points in total)**: Modify Hello interval and Dead interval values:

The hello interval and dead interval values can be configured in the ospfd configuration located at /etc/quagga/ospfd.conf. Modify this file on **each of the nodes**, adding two lines below **each interface** like this:

…

interface eth1

ip ospf hello-interval 2

ip ospf dead-interval 5

…

This changes the hello interval to 2 seconds, and the dead interval to 5 seconds.

Note: If you are familiar with editors such as vi and emacs, feel free to use them. Otherwise, you may use “pico” instead.

Change these values on **each** of the 4 nodes, and then restart quagga by typing the following on each node:

sudo /etc/init.d/quagga restart

Finally enter the router interface again by typing

vtysh

Redo Lab Details Part II and Part III in the “GENI Lab5 Instruction”, then answer the following questions:

1. (8 points) After making the above changes, what is different in how OSPF responds to broken links? Justify your answer using screenshots of the SSH terminals. **Highlight the most important areas in your screenshots with block arrows.**

Answer:

Screenshots:

1. (2 points) What types of networks would shorter hello-interval and dead-interval values be more suited for?

Answer:

1. (2 points) What is the downside of using shorter hello-intervals and dead-intervals?

Answer:

1. (8 points) In the steps above, we changed the hello-interval to 2 seconds and the dead-interval to 5 seconds for all interfaces on all nodes. Now, **on node D, for** **one interface**, change them to some different values, restart Quagga on node D, and redo Lab Details Part II and Part III in the “GENI Lab5 Instruction”, what happens? Justify your answer using screenshots of the SSH terminals. **Highlight the most important areas in your screenshots with block arrows.**

Answer:

Screenshots: