CS 485/ECE 440/CS 585 Lab 2, Part 1

Due by 11:59pm on Thursday, 17 November, as an e-mail to the instructor (jedcrandall@gmail.com). Please send only PDF files.

50 points (out of 200 total for Lab 2)

For Lab 2, you should work in groups of at most 3 and at least 2. The expectations I have in terms of the quality and scope of Lab 2 are independent of group size.

The purpose of Lab 2 is to further understand resource allocation issues in computer networking, particularly for TCP. Compared to lab 1, your lab 2 setup should have routing behavior more typical of the Internet, including multiple-hop routes with congestion, packet loss, variable delay, and/or bandwidth limitations.

For part 1 you should write a proposal in the same format as your lab 1 proposal (hypothesis, etc.). Your network setup must include a TCP connection over a network with several router hops in it. Your hypothesis and experimental setup should center around this TCP connection (*e.g.*, looking at different levels of variability for a fixed latency, or simulating congestion by having a shared link). Your setup can include Tor, or you can just focus on TCP without Tor, it's up to you.

You probably won't need network address translation. You may use simple, static routing. If you choose to do something related to dynamic routing algorithms, such as OSPF or RIP, there are open source implementations of these protocols. In any case, be clear about the resources you'll need in your proposal.

You can re-use anything that any group did for lab 1, and I would encourage you to try to build upon what you learned in lab 1 and try to answer some unanswered questions that were raised. My expectations in terms of quality and scope are higher for Lab 2 than for Lab 1, despite you having less time for Lab 2, specifically because I'm assuming you'll build upon what you accomplished in Lab 1 and therefore need less time for setup.

The proposal should be 2 pages in 12-point font with normal margins, submitted to me as a PDF. Please make sure your spelling and grammar are adequate for me to be able to easily read your proposal, spelling and grammar can affect your grade.

Your proposal should clearly state:

- Your hypothesis
- Your proposed experimental methodology

- The resources that you'll need to carry out your experiments, and the setup tasks that will be necessary