COSC 264 Problem Set
Simple Networking Tools

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1 Introduction

This problem set introduces a few basic Linux networking tools, all to be used from the command line. If you are not yet somewhat familiar with command line usage you could review the previous problem set. Your work with these networking tools are important but will not be marked.

2 Some Elementary Networking Tools

In this exercise we will get to know some of the tools that are useful in networking. All tools used here are available under Linux on the command line.

1. Skim the `man` page for `nslookup` and use this to find the IP address of `www.canterbury.ac.nz`.

2. Skim the `man` page for `traceroute` and use this to find out how many hops are needed to reach `www.canterbury.ac.nz`, `www.spiegel.de` and `www.nytimes.com`. If the `traceroute` command is not available, please give the command **/usr/sbin/traceroute**.

3. Skim the `man` page for the `ping` command and use this command to measure the round-trip time to `www.spiegel.de`. You will quite likely observe some variation in round-trip times. Do you have an explanation for this?

4. **Bonus problem**: use your `awk` script for calculating the average of a file with numbers (one number per line) from the first tutorial and some additional command line magic (likely involving `grep` and `sed`) to calculate the average round-trip time. Note that `ping` sends its output to `stdout`. You should start the `ping` command with the `-c` option.

You can use the `ping` and `traceroute` commands to test whether you can reach a given host. However, when you test `ping` with other hosts than above, you might not get answers despite these hosts being up and running. This has to do with the fact that `ping` uses special IP packets that cautious network administrators filter out with their firewalls to not give adversaries detailed information about their network.