

CS 407

Assignment #2

The goal of this assignment is to get some first hand experience with various wireless systems and compare it to a wired system.

We will provide you with special access to a testbed consisting of a WiMAX cellular base station and two clients. You will run some experiments on this WiMAX system and compare their performance to a WiFi system, and also a wired system.

In each system, you are required to run a ping test and an iperf experiment.

Ping is a tool that lets to measure latency between two end points. iPerf is a tool that lets you measure throughput between two endpoints.

For each platform (WiMAX, WiFi, and Ethernet), you should collect trace outputs for the ping and iperf experiments. The ping experiments should be at least 3 minutes long in each case.

There is a second document that describes how to run these experiments on WiMAX. For WiFi and Ethernet, you can use your own laptop. For Ethernet experiments, I recommend running this from a CS workstation in the lab.

To run iperf, use the following command (in Linux):

```
iperf -c iperf.wiscnet.net -i2
```

To run ping, use the following command (in Linux):

```
ping iperf.wiscnet.net
```

Both cases, there will be output generated and I would like you to plot the following data:

- (i) Latency vs time of different ping packets (indicating the packets that might be lost)
- (ii) Throughput vs time

Once you have plotted the above for the three different environments, describe what the key differences you observe between WiFi, WiMAX, and Ethernet. Read up on each system and explain why these differences might exist.

The assignment should be done per group.

I will make special exceptions for individuals who are working in a single person group. Please see me about this.