

Assignment #2, CS/ECE 707, UW-Madison

In this assignment, you will download some wireless packet traces and collect some statistics on them. Download the two traces from (these are large files 33 MB and 42 MB respectively):

<http://www.cs.wisc.edu/~suman/courses/707/rateadapt-assign/>

Throughout the problem, you will only be considering the ICMP traffic from 10.1.10.14 to 10.1.10.13. You will need to understand the different headers for the packets. For each of the subdivisions below, give a brief description in a few lines as to how you performed the required functionality.

- a) Find the average latency of ICMP packets for each of the two traces.
- b) Find the average throughput of the ICMP packet flows.
- c) Plot the data rate vs time for the two traces.
- d) Find the loss rate of the packets of the two traces.
- e) Given the variation of data rates over time, can you guess which of the above traces uses the “AMRR” algorithm for rate adaptation and which one uses the “Sample Rate” algorithm for rate adaptation. Give justification as to how you arrived at your answer.

Helpful notes:

You can use the *dpkt* python module for parsing the traces (please do a search for the *dpkt* python module). However, feel free to parse however you like. You can assume that all packets to be analyzed are identical and employ your own filters for the data concerned. Please also feel free to use the wireshark tool for assistance. In wireshark, open the pcap file and type “icmp” in the filter textbox for filtering the appropriate packets.

A pointer to a paper that does a performance evaluation study of different rate adaptation algorithms is also available from:

<http://www.cs.wisc.edu/~suman/courses/707/rateadapt-assign>

Please feel free to browse through other material on the Internet. You can use any programming language of your choice for doing the parsing of the trace files. Search for pcap parsing functions from the Internet. **Please attach the code** (however small they may be) for each of the above parts at the end of the answer sheet.