

Assignment 1: Recap on TCP and UDP

Due date: Wednesday, March 4, 2021 at 22:00

This is an individual assignment. You may discuss it with others, but your code and documentation must be written on your own.

The goal of this assignment is to refresh your knowledge on TCP, UDP and their characteristics. In particular, you are asked to extract some useful information from a *pcap* file attached to this document (on-line). For this purpose, you can choose any network analysis tools like *Wireshark*, *tcpdump* or even writing your own application.

Below is the information we are looking for in this assignment:

- **Flows**, list all the flows existing in the log file, identified by the 5-tuple information (addresses, ports, protocol).
- **Duration and Packets**, for each flow, specify the duration of the flow in seconds and number of packets in the flow.
- **Throughput**, for each TCP flow, plot two figures showing the throughput in each directions. In these figures, the *X*-axis indicates the time in seconds, and the *Y*-axis shows the throughput in KBps computed as a moving average over a time window of 1 second.
- **RTT**, for each TCP flow, draw the cumulative distribution function (CDF) of the round-trip time (RTT). In your figures, the *X*-axis indicates the RTT in milliseconds, and the *Y*-axis indicates the probability $P(RTT \leq x)$, which corresponds to the proportion of RTT measurements that are less than x .
- **Drop**, identify any sign of a packet loss in the network.

Submission Requirements and Instructions

To ensure you receive a full grade, you must indicate how you obtained the requested information. Specifically, include the commands you used, describe the features you used in network analysis tools, or attach the program you wrote.

Submit your solution through the iCorsi system.