Group 6: Enriched Traceroute

Mrinal Chandra Vinoth Kumar, Rafael Sanchez, Artur Shum

Stevens Institute of Technology

6 October 2022

Overview

Traceroute typically spews out a poorly-formatted table of opaque raw data. We aim to build on top of the basic `tracert` algorithm, make it look better, expand its functionality, and hopefully provide deeper insight into the path of the packets as well as the health of the nodes along the path.

Feature Ideas

- RTT Analysis
- Path Analysis
- Output Formatting Options
- Potential Optimizations

RTT Analysis

Similarly to the second assignment, we will provide insight regarding the numerical distribution of roundtrip times such as standard deviation, mean, as well as further numerical analyses as time allows. Additionally, further control over the frequency, count of pings, TTL, and hop numbers will be given to the user.

Path Analysis

Since the packets may take varied paths throughout the day, storing data regarding the jumps to be compared later against previous runs will help analyze the health of the nodes along the typical path to a destination.

Output Formatting Options

To amend `tracert`'s poorly formatted output, output format options will be provided to lend the output data to further analysis at the user's choice. Some variants of output will be `.csv`/`.tsv` files and the grouping of columns will be variable via an argument as well.

Potential Optimizations

Since `tracert` is a minimal program as is, it is unlikely we can make optimization the focus of the project. However, if time allows and we find areas where it can be improved, we will also look to handle the route tracing task more efficiently.

Links

- Prototype Traceroute Program with GUI Demo
- `mrinchanSIT/Traceroute` on Github