Seminar in week 46 – Measuring a Message System

In preparation for the first seminar session, everyone's* task is to investigate the behavior of a real messaging system. Thereto, a UDP echo server is setup at 130.243.124.183:12345, which bounces each received UDP datagram message back to the sender. The server code is attached to this exercise on page 2.

Write a client that enables you to measure the properties of messaging systems. The client should send UDP datagrams** to the server and measure the time until the answer is received.

Measure the minimum, maximum and average time*** for each message roundtrip from different networks (Try the university eduroam Wifi at different times/places, your home ISP with and without Wifi [maybe you can even manipulate the MTU]; if you have access to some VPN, try some different countries; be creative!). Vary the size of messages and intensity/server load, check the route with the trace route tool. Under which conditions are datagrams lost? What is influencing the message round-trip time?

Prepare a very short (< 5min) presentation to be given in the seminar explaining what you did, which results you got (think about how to present those in a good way) and the insights to learn from this task.

*   groups of size 2

**   No ICMP probes like "ping", it has to be a proper message.

***   Ten messages will definitely not be enough to create meaningful statistics!

Echo Server
Python Code Listing

```python
import socket as sk

HOST = '0.0.0.0'
PORT = 12345

s = sk.socket(sk.AF_INET, sk.SOCK_DGRAM)

s.bind((HOST, PORT))

while 1:
    payload, client_address = s.recvfrom(65536)
    sent = s.sendto(payload, client_address)
```