Communication Networks 2
Exercise 4 - Interactive Protocols

Multimedia Communications Lab
TU Darmstadt

Problem 1 Interactive Protocols Setup Ftp

Please explain the connection setup of the FTP protocol.

Problem 2 Interactive Protocols Distinction Control Data

Why is there a strict distinction between a Control Channel and a Data Channel?

Problem 3 Interactive Protocols Ftp Problems

Please name and explain common problems of the FTP Protocol.

Problem 4 Interactive Protocols Telnet SSh Compare

Compare telnet and ssh. What are the differences between those protocols?

Problem 5 Interactive Protocols Netcat

The netcat command line utility is used for just about anything under the sun involving TCP or UDP. It can open TCP connections, send UDP packets, listen on arbitrary TCP and UDP ports, do port scanning, and deal with both IPv4 and IPv6.

- To install netcat under Ubuntu: Open Terminal and type

- > sudo apt-get install netcat

- If you are not familiar with Linux or the Terminal, see the following Screencast

Read the documentation of netcat. Explain the parameters -l -k and -p

Problem 6 Interactive Protocols Netcat Client

In this task you will use netcat to build a simple tcp socket client. We provide you the appropriate socket server.

The socket server address is test09.kom.e-technik.tu-darmstadt.de port 1132

Use netcat to connect to the socket server. What does the server output?

Problem 7 Interactive Protocols Server

Now you have used netcat as a client for a given server. But how could our socket server look like? You will see the server side in the next task:

Start netcat in the listening mode. Chose an arbitrary port number. Then open another terminal session and connect a second netcat instance to the listening instance. Press some chars in both of the terminals. What happens? What happens when you press the enter key?

Problem 8 Interactive Protocols Netcat Audio

You have seen the use of netcat to transfer textual data. Would it also be possible to transfer audio streams or even video streams using netcat? In which cases could this usage pattern cause problems? Assume that the bandwith is high enough.

Problem 9 Interactive Protocols Audio Server

In the last task, we have seen the client side of a simple audio streaming service. But how does the server look like? Please implement a server which could stream a MP3 file to a remote client using netcat.