Practical Work 1: TCP File Transfer

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1 Objective

Create a file transfer application using TCP/IP protocol in CLI using one server, one client and one socket connection. Then write a report to describe the implementation using figures and code snippets.

2 Socket

The nodes are divided into two categories: server and client. Both have the same step of creating a socket to communicate with each other, set up with the address structure and bind to the address. The server will listen to the incoming connection from the client and accept the connection. The client will connect to the server and send the file to the server. The server will receive the file and save it to the specified location.

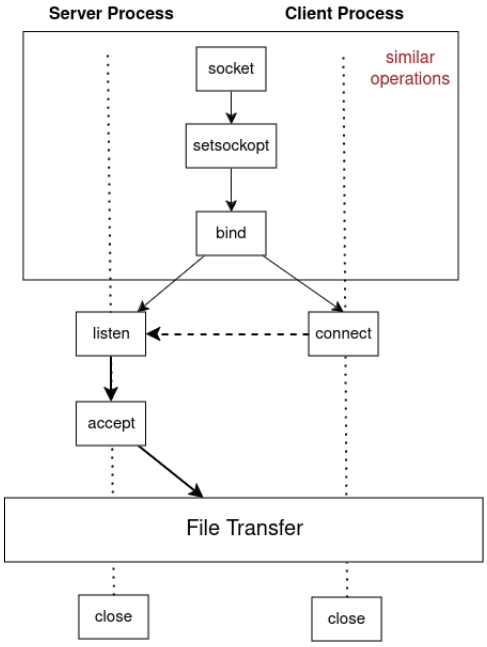

Figure 1: Socket

3 Protocol

By definition, TCP is a connection-oriented protocol that provides reliable, ordered, and error-checked delivery of a stream of bytes between applications running on hosts communicating over an IP network. It is a transport layer protocol in the OSI layer and is used to create a connection between a client and a server.

We create a similar handshake protocol to establish a connection between the server and client. The server will listen to the incoming connection from the client. The client will send a connection request to the server. The server will accept the connection and send a acknowledgement to the client. Every step of sending and receiving data is also acknowledged.

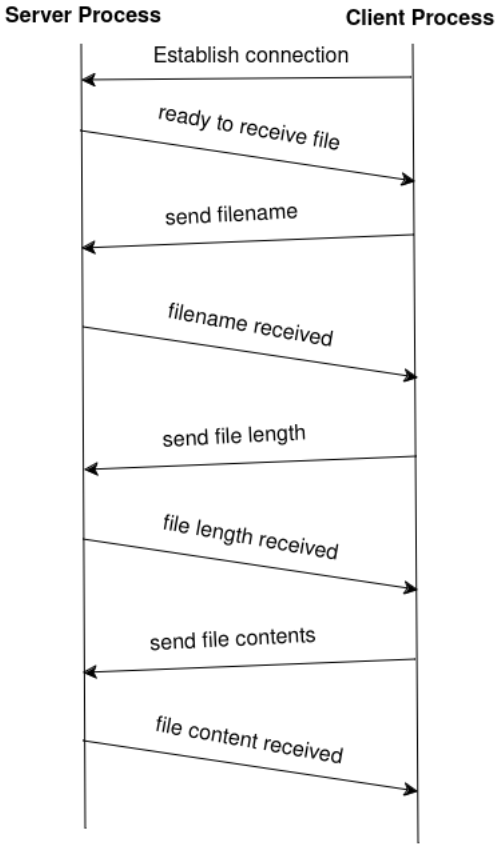

Figure 2: Protocol