COE768: Network File Transfer Application

Description:

In this project, you will implement a file transfer application based on TCP. The server is a concurrent server that can handle multiple file transfer sessions. The client can both upload files to and download files from the server. In addition, the client can request the change of directory and list the files in a given directory. Figure 1 shows the PDU format to be used in the implementation.

Figure 1: PDU Format

The type field specifies the PDU type. The length field specifies the size of the Data field. The data field contains the data. There are eight PDU types.

- Type 'D' – This PDU is sent by the client to request a file download. The Data field contains the file name and the length field indicates the length of the name.
- Type 'U' – This PDU is sent by the client to request a file upload. The Data field contains the file name and the length field indicates the length of the name.
- Type 'R' – This PDU is sent by the server to indicate that it is ready.
- Type 'F' – This PDU contains the file data. The length field indicates the size of the file.
- Type 'E' – This PDU is used to report error. The Data field contains the error message and the length field indicates the size of the message.
- Type 'P' – This PDU is sent by the client to request the change of directory. The Data field contains the directory path name.
- Type 'L' – This PDU is sent by the client to request the list of files in a given directory. The Data field contains the directory path name.
- Type 'l' – This PDU is sent by the server. The data field contains the list of file names.

Flow Diagrams

Figures 2, 3, 4, 5 and 6 show the PDU exchange scenarios for the file download, file upload, error reporting, change directory and list directory, respectively.

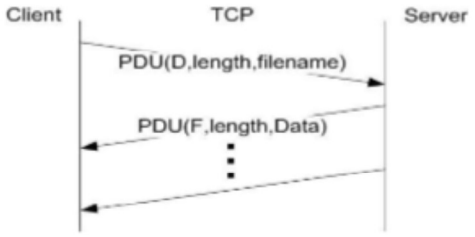

Fig 2: File Download

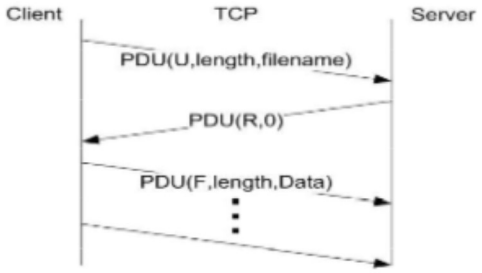

Fig 3: File Upload

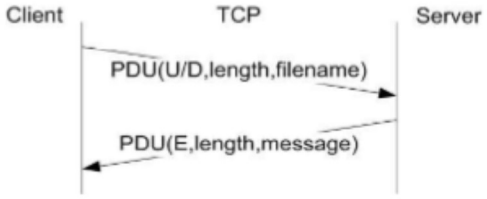

Fig 4: Error Reporting

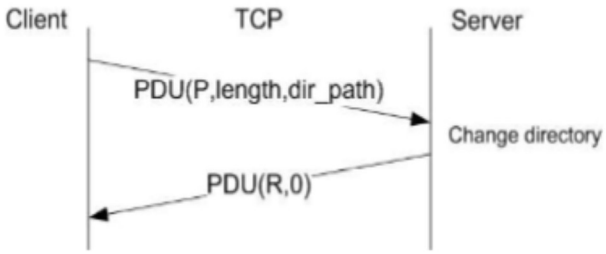

Fig 5: Change directory

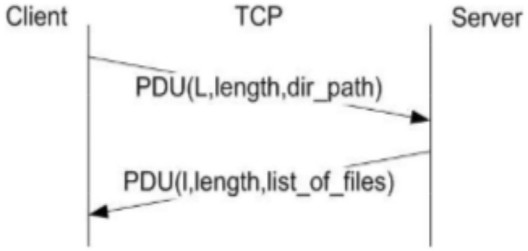

Fig 6: List Directory