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We are using a protocol in which the connection is initiated by a 'handshake' in which the client sends a packet containing the file name and the file size to the server, and the server responds with an ACK. The client waits for the response, and if it times out, sends the first packet again. When it receives the ACK from the server, it divides the file up into chunk of up to 512B and sends them all to the server at once, and waits for a cumulative ACK from the server. The server will send a cumulative ACK once it stops receiving packets. If the client times out, it sends all of the packets again. If the server sends an ACK that does not correspond to the sequence number of the last packet the client sent, the client resends after the sequence number (Go Back N). When the client has received the correct cumulative ACK from the server, it sends a packet with a sequence number of -1 indicating to the server that the connection should be closed.
The sequence and ACK numbers start at zero and increment by one. The timeout for the client is set to 1000ms. The packet header has the format:
sequence number \r\n
data
Where the data section will contain the data read from the file. When the client sends the handshake packet containing the file name and file size, the header packet will be
sequence number \r\n
file name \r\n
file size \r\n