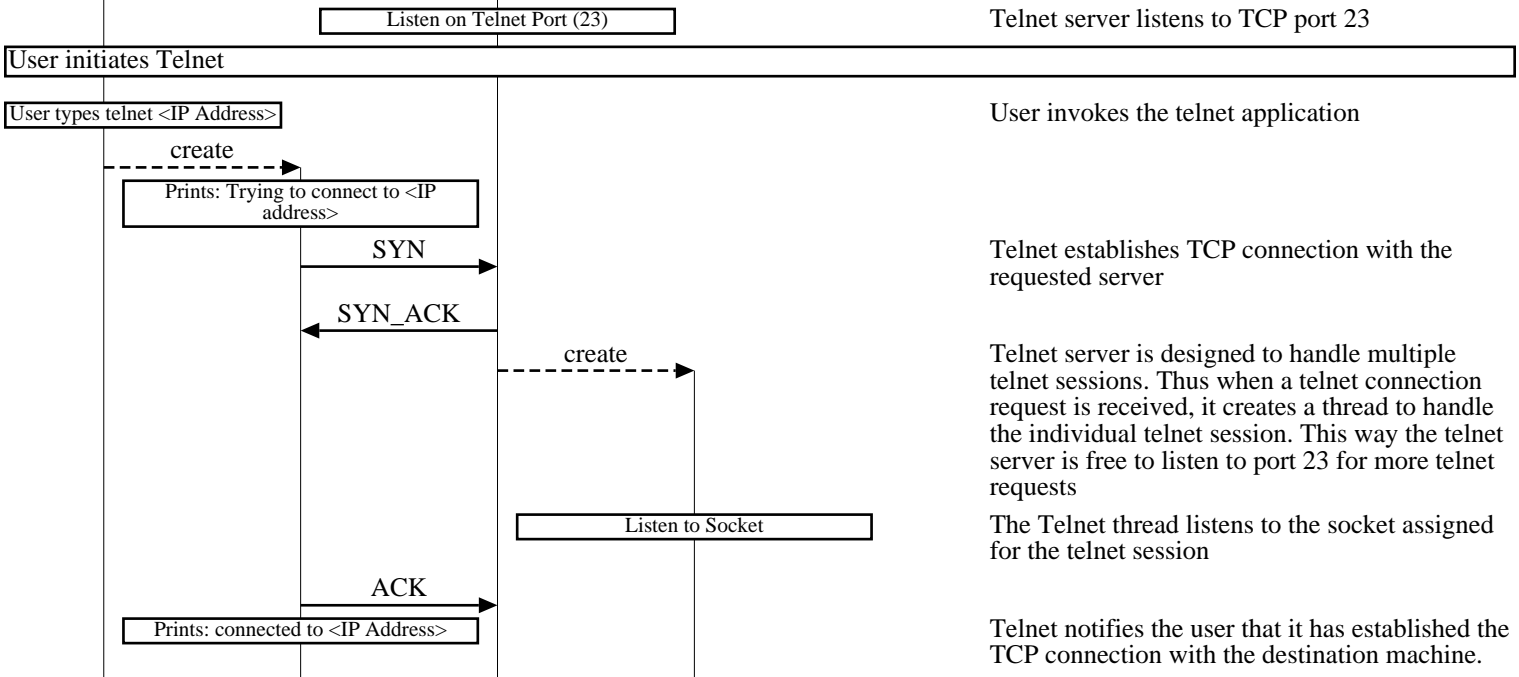


TCP - Transmission Control Protocol (Telnet)					
Client Node		Server Node			EventHelix.com/EventStudio 2.0
Client		Server			04-Jul-03 14:31 (Page 1)
User	Telnet	Telnet Server	Telnet Thread	Shell	

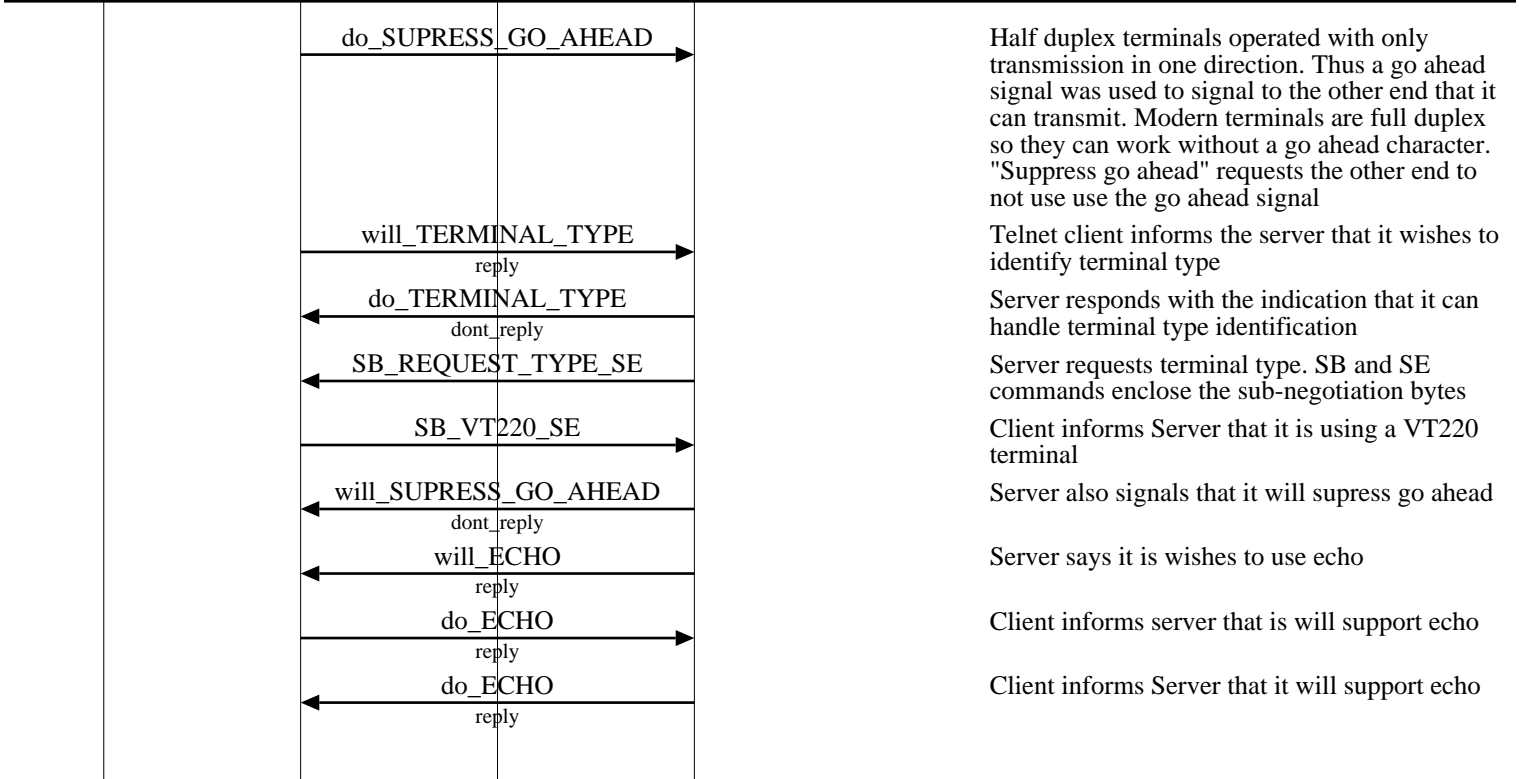
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Negotiation of Terminal Options

The communication between client and server is handled with internal commands, which are not accessible by users. All internal TELNET commands consist of 2 or 3-byte sequences, depending on the command type. The negotiation takes place using such commands. Commands begin with the Interpret As Command (IAC) character. IAC is defined as 255. When IAC is received in a telnet stream, the receiver interprets the next one or two bytes as command.

Telnet uses "will", "won't", "do" and "don't" commands to negotiate options between the client and server. "Will" shows desire to use, or confirmation of using, the option indicated by the code immediately following. "Won't" shows refusal to use or continue to use the option. "Do" requests that other party uses, or confirms that you are expecting the other party to use, the option indicated by the code immediately following. "Don't" demands that the other party stop using, or confirms that you are no longer expecting the other party to use, the option indicated by the code immediately following.



Half duplex terminals operated with only transmission in one direction. Thus a go ahead signal was used to signal to the other end that it can transmit. Modern terminals are full duplex so they can work without a go ahead character. "Suppress go ahead" requests the other end to not use the go ahead signal

Telnet client informs the server that it wishes to identify terminal type

Server responds with the indication that it can handle terminal type identification

Server requests terminal type. SB and SE commands enclose the sub-negotiation bytes

Client informs Server that it is using a VT220 terminal

Server also signals that it will suppress go ahead

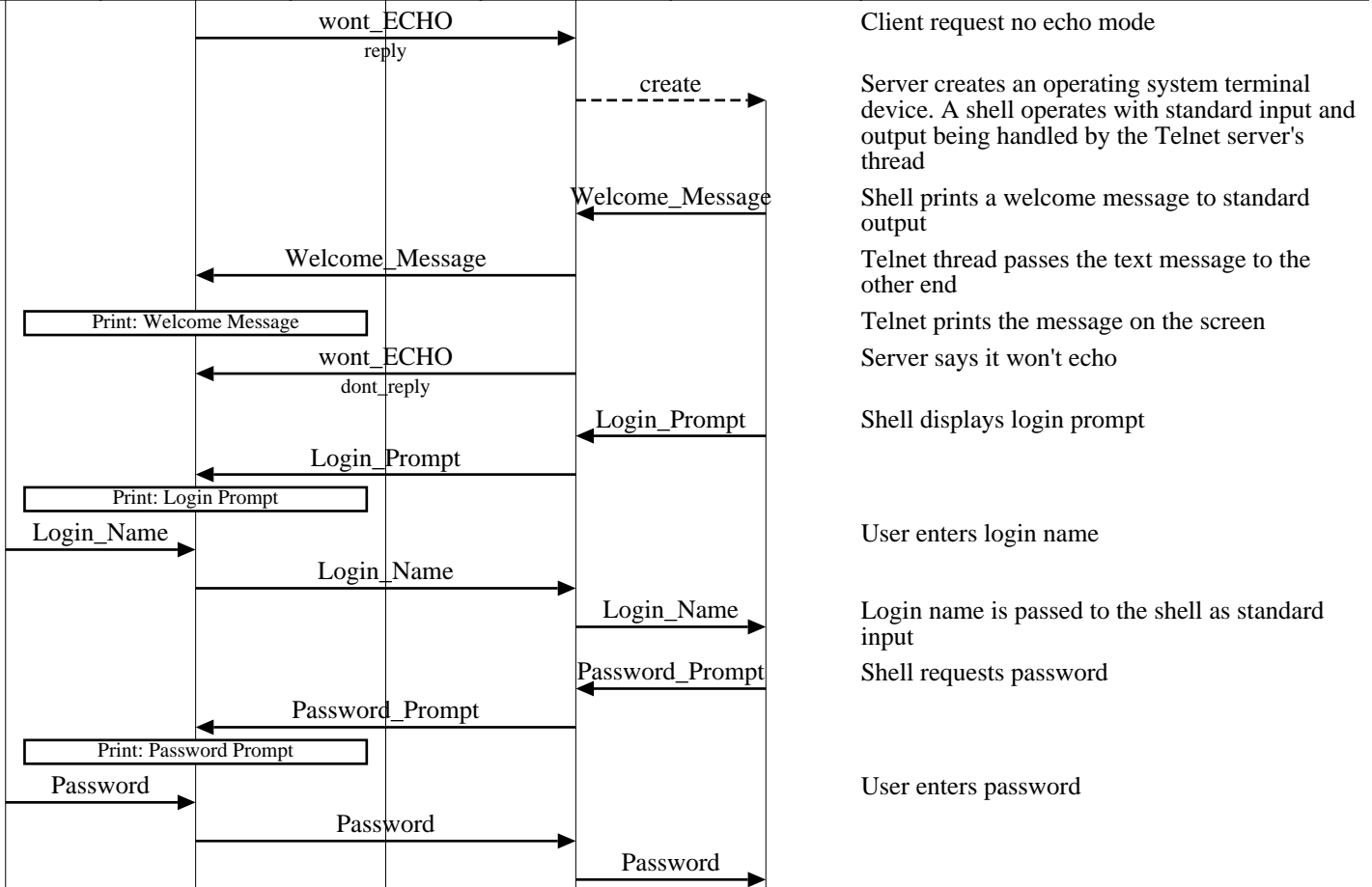
Server says it wishes to use echo

Client informs server that it will support echo

Client informs Server that it will support echo

TCP - Transmission Control Protocol (Telnet)

Client Node		Server Node			EventHelix.com/EventStudio 2.0
Client		Server			
User	Telnet	Telnet Server	Telnet Thread	Shell	04-Jul-03 14:31 (Page 2)



Client request no echo mode

Server creates an operating system terminal device. A shell operates with standard input and output being handled by the Telnet server's thread

Shell prints a welcome message to standard output

Telnet thread passes the text message to the other end

Telnet prints the message on the screen

Server says it won't echo

Shell displays login prompt

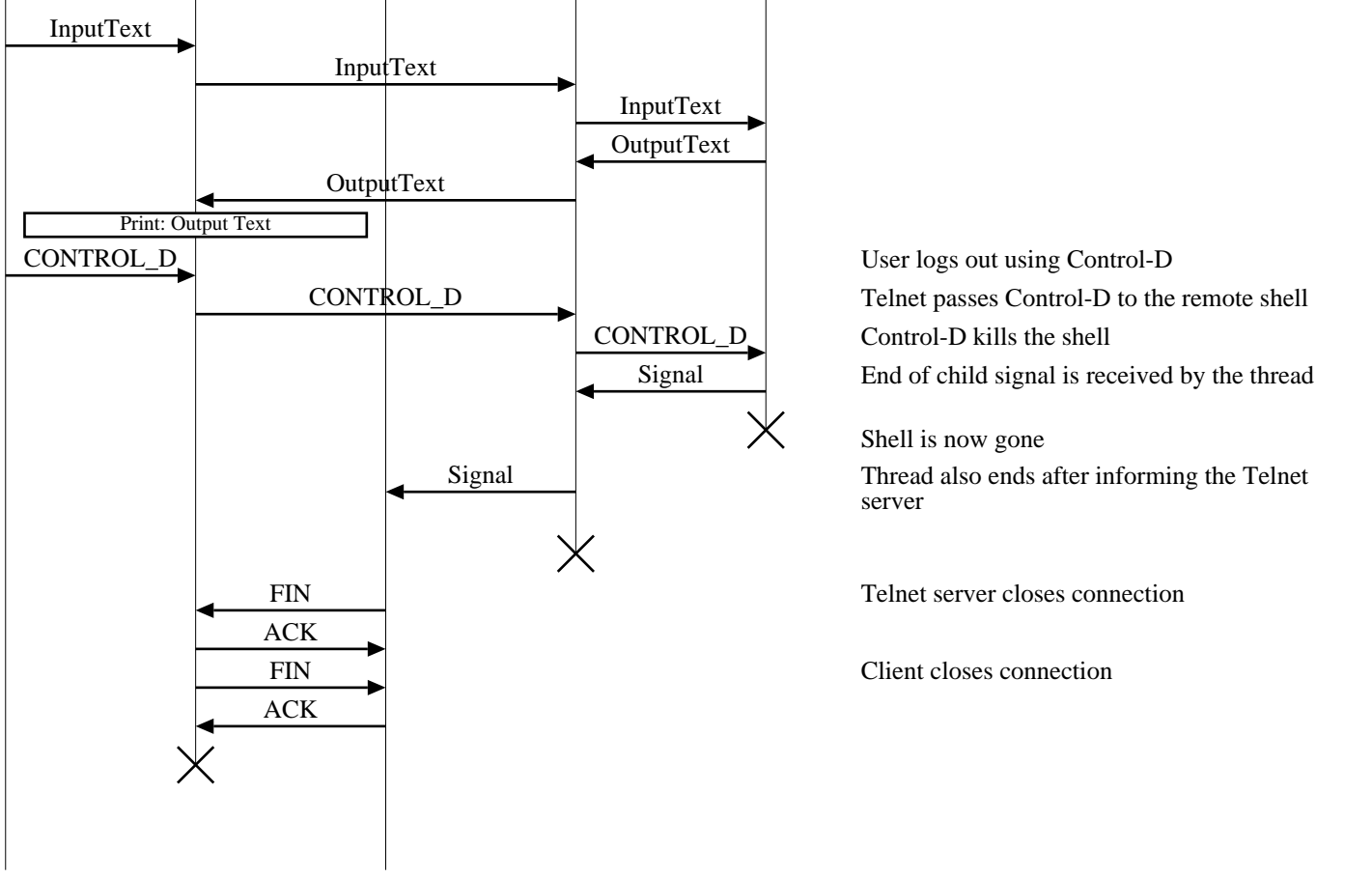
User enters login name

Login name is passed to the shell as standard input

Shell requests password

User enters password

Text is exchanged between the Telnet Server and Telnet



User logs out using Control-D

Telnet passes Control-D to the remote shell

Control-D kills the shell

End of child signal is received by the thread

Shell is now gone

Thread also ends after informing the Telnet server

Telnet server closes connection

Client closes connection