TELNET

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TELNET

- TELNET is an abbreviation for terminal network.

- It is a standard TCP/IP protocol for virtual terminal service.

- It is a general purpose client/server application program.

- TELNET enables the establishment of a connection to a remote system in such a way that the local terminal appears to be a terminal at the remote system.

- In other words, it allows the user to log on to a remote computer. After logging on, user can use the services available on the remote computer and transfer the results back to the local computer.

LOGGING

- To access the system, user logs into the system with user-id. The system also includes password checking to prevent an unauthorized user accessing the resources.

- Logging process can be local logging or remote logging.

- When the user logs into a local timesharing system, it is called local log-in.

- When the user wants to access an application program or utility located on a remote machine, it is called remote log-in.
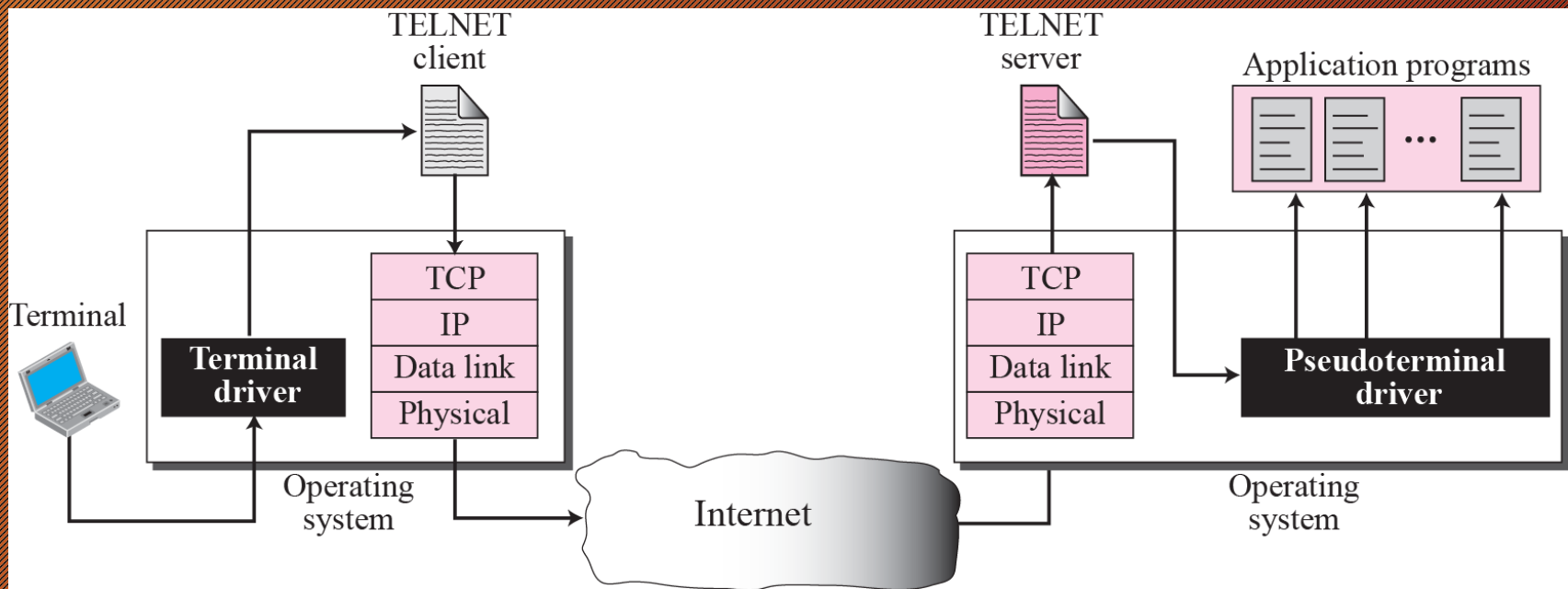
Figure
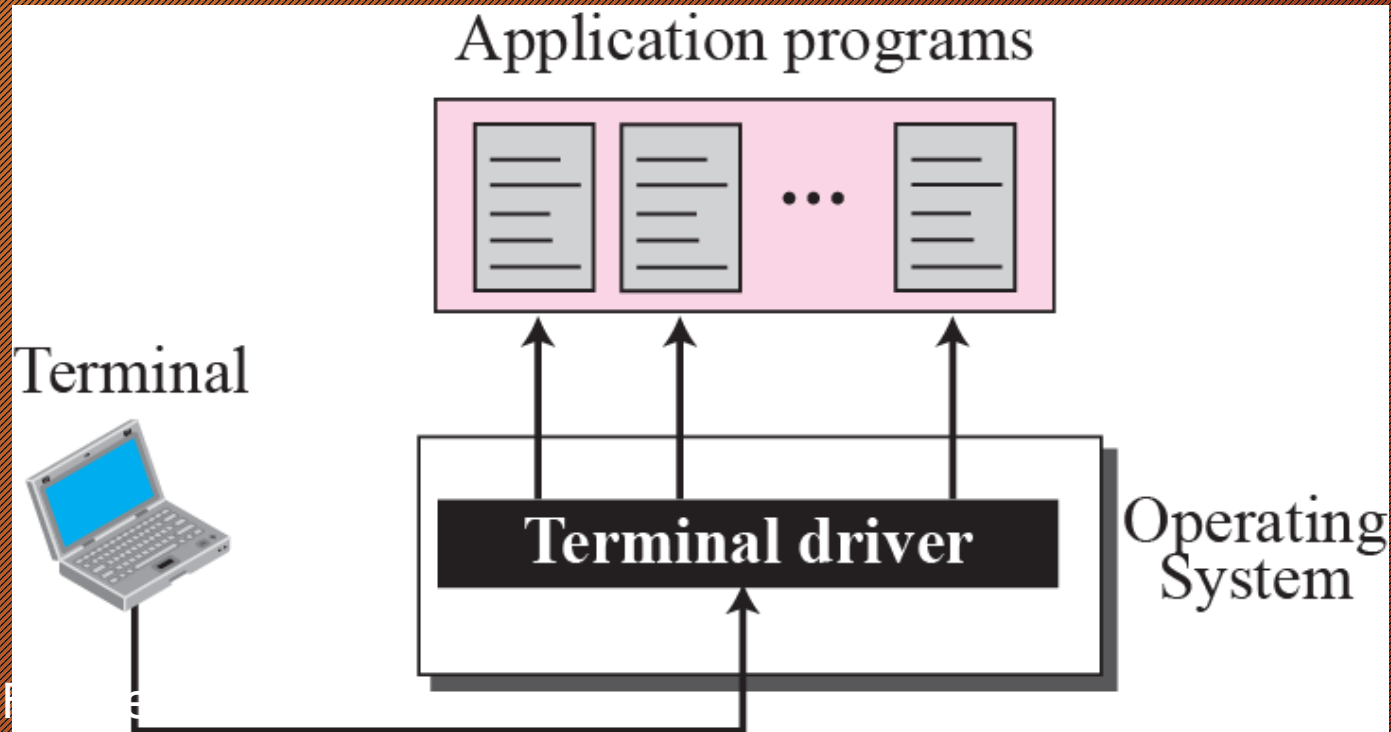
- When the user types at the terminal, the keystrokes are accepted by the terminal driver.

- The terminal driver passes the characters to the operating system.

- The operating system interprets the combination of characters and invokes the desired application program.

REMOTE LOG-IN

- The user sends the keystrokes to the terminal driver, where the local operating system accepts the characters but does not interpret them.

- The characters are sent to the TELNET client, which transforms the characters to a universal character set called network virtual terminal(NVT) characters and delivers them to the local TCP/IP protocol stack.

- The text in NVT form travel through the internet and arrive at the TCP/IP stack at the remote machine.

- The characters are delivered to the operating system and passed to the TELNET server which changes the characters to the corresponding characters understandable by the remote computer.

- However, the characters cannot be passed directly to the operating system because the remote operating system is not designed to receive characters from a TELNET server.

- It is designed to receive characters from a terminal driver.

- A software called a pseudo terminal driver is added which pretends that the characters are coming from a terminal.

CONCEPT OF NVT
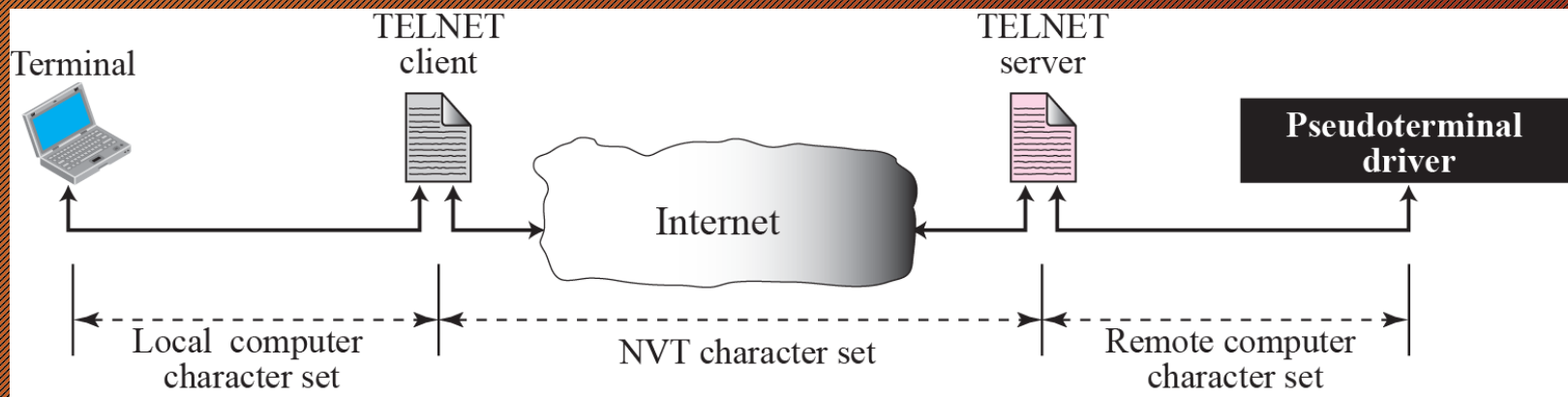## NETWORK VIRTUAL TERMINAL

Figure- 3

- The client telnet translates characters that come from local terminal into NVT form and delivers them to the network.

- The server telnet translates data and commands from NVT form into the form acceptable by the remote computer.

It uses two sets of characters one for data and other for control.

a. Data Character   b. Control Character

Figure- 4

- Telnet uses only one TCP connection.

- The same connection is used for sending both data and control characters.

- Telnet accomplishes this by embedding the control characters in the data stream.

- To distinguish data from control characters, each sequence of control characters is preceded by a special control character called interpret as control(IAC).

OPTIONS

- Options are extra features available to a user with a more sophisticated terminal.

- Some common options are as-

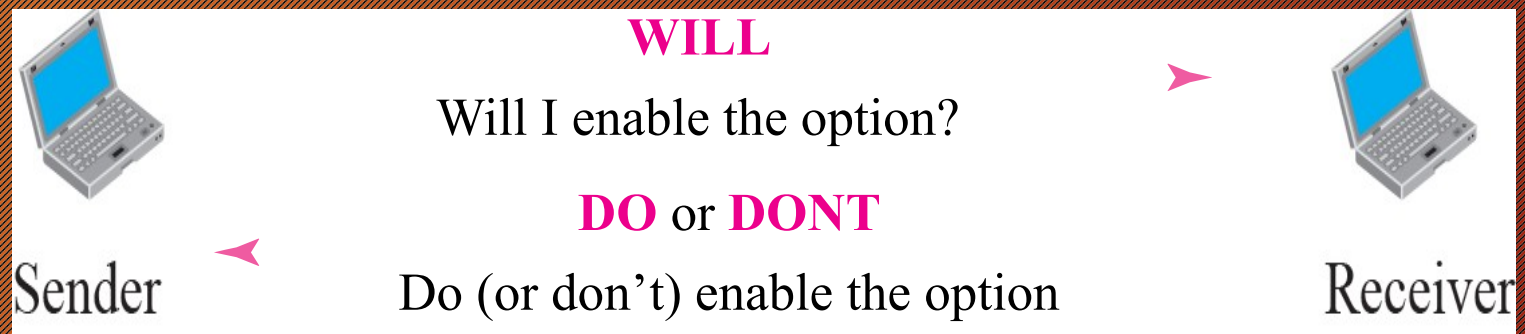| Code	Option	Meaning
0	Binary	Interpret as 8-bit binary transmission
1	Echo	Echo the data received on one side to the other
5	Status	Request the status of telnet
24	Terminal type	Set the terminal type
32	Terminal speed	Set the terminal speed
34	Line mode	Change to line mode

Figure- 6

OPTION NEGOTIATION

- Telnet lets the client and server negotiate options before or during the use of the service.

- Four control characters are used for this purpose-
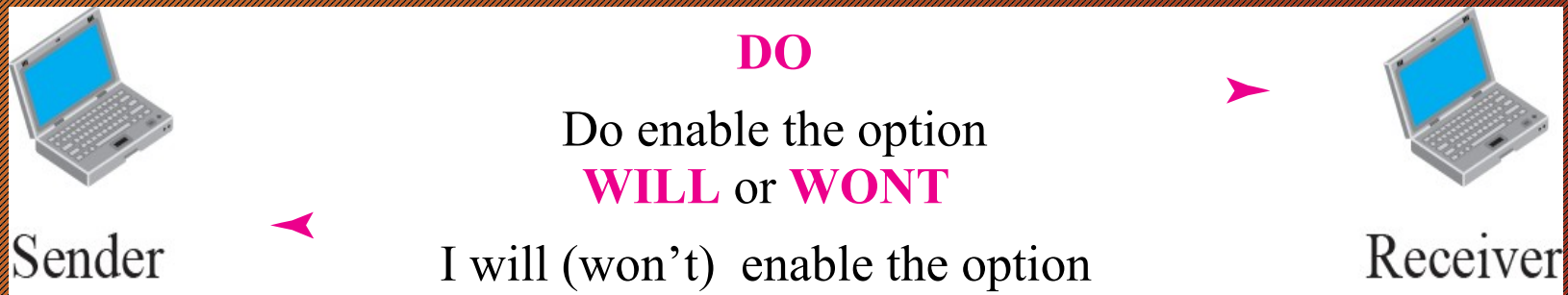
These control characters are as-

	Meaning
WILL	1. Offering to enable 2. Accepting a request to enable
WONT	1. 1.Rejecting a request to enable 2. 2.Offering to disable 3. 3.Accepting a request to disable
DO	1. 1.Approving an offer to enable 2. 2.Requesting to enable
DONT	1. 1.Dispproving an offer to enable 2. 2.Approving an offer to disable 3. 3.Requesting to disable

Figure- 7

WILL

Will I enable the option?

DO or **DONT**

Do (or don't) enable the option

Sender

Receiver

Offer to enable the option

Figure- 8

DO

Do enable the option
WILL or **WONT**

I will (won't) enable the option

Sender

Receiver

Request to enable an option

Figure- 9

WONT

I won't use the option any more

DONT

Don't use it

Sender

Receiver
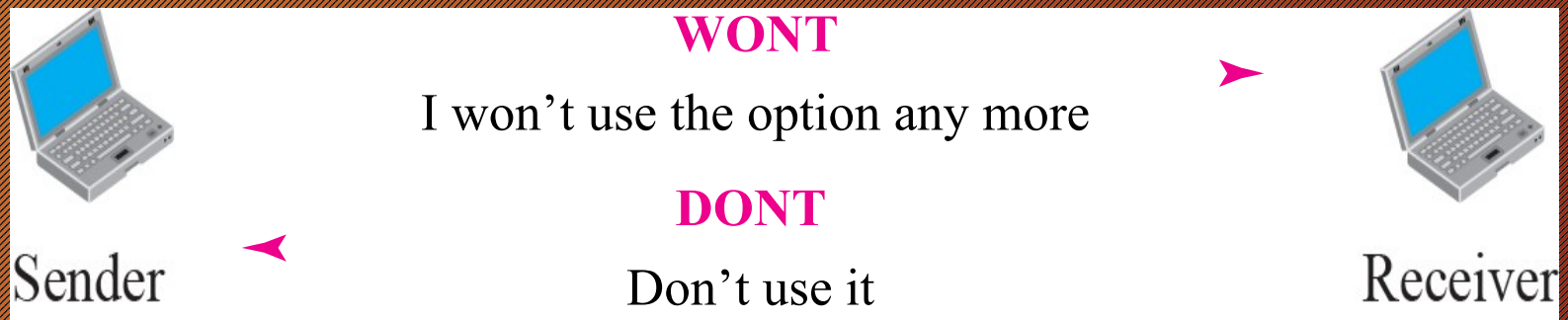
Offer to disable an option

Figure- 10
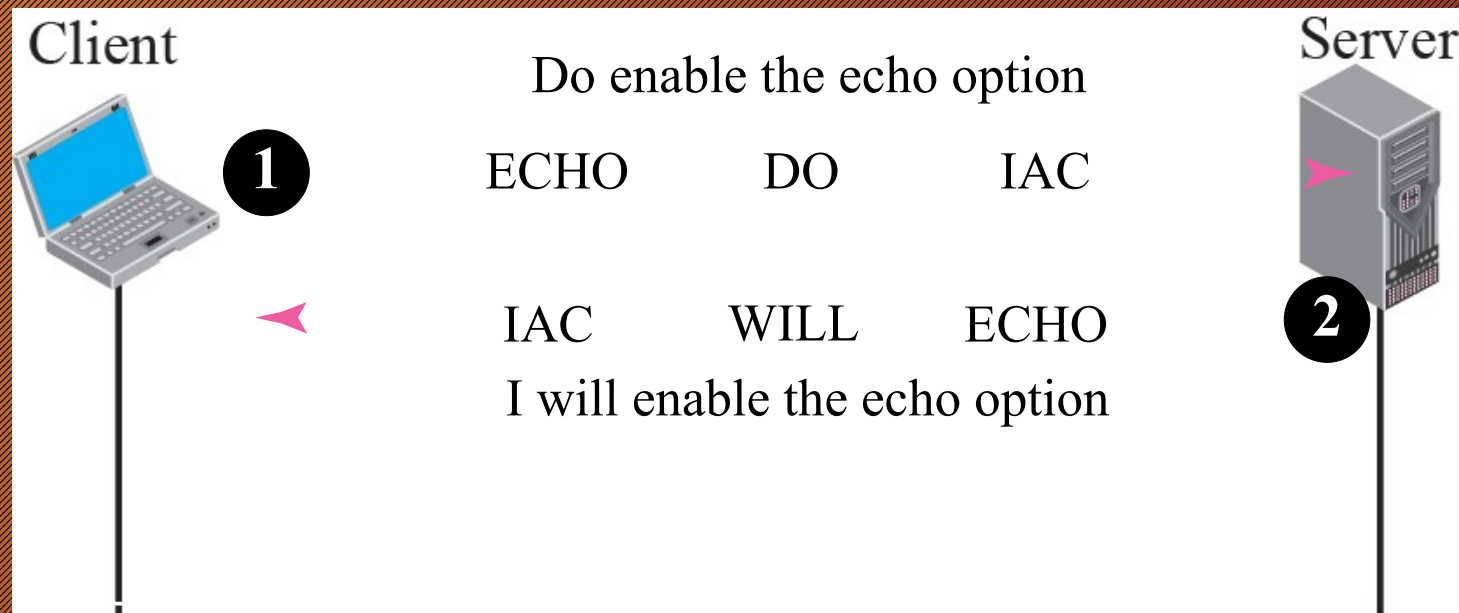
Figure- 11

Figure- 12

MODE OF OPERATION

Most Telnet implementation operate in one of three modes-

- Default mode
- Character mode
- Line mode

DEFAULT MODE

- This mode is used if no other modes are invoked through option negotiation

- Echoing is done by the client.

- The user types the character , client echoes the character but does not send it until a whole line is completed.

CHARACTER MODE

- Each character typed is sent by the client to the server.

- The server echoes the character back to be displayed on the client screen.

- Echoing of the character can be displayed if the transmission time is long.

LINE MODE

- It is proposed to compensate for the deficiencies of default mode and character mode.

- In this line echoing is done by the client.

- The client then sends the whole line to the server.

```
mTCP Telnet by M Brutman (mbbrutman@yahoo.com) (C)opyright 2009
   Version: Dec 27 2009

Resolving server address - press [ESC] to abort

Server thekeep.net resolved to 24.20.125.215
Connecting to port 23...

Remember to use Alt-H for help!

Connected to thekeep.net (24.20.125.215) on port 23

Auto-sensing...
Running WorldGroup Ver 3.2 - Reg number: 25314817 - 32 incoming lines
                                               The KEEP BBS  & Info Services
                                               The Electronic Renaissance
                                               Line 4 at 38400 Baud.

                                               Featuring:
                                               On-line Entertainment and
                                               friendly fun atmosphere!






                                               Internet Telnet
                                               thekeep.net
                                               Internet WWW Address
                                               www.thekeep.net

             - subscription system - Monthly Rates available -
     The KEEP has t-shirts, coffee mugs and more! Check out merchants row at
                    http://www.thekeep.net/merchant

Recent internet issues RESOLVED. If not please email me at mcgill@thekeep.net

If you already have a User-ID on this
system, type it in and press ENTER.
Otherwise type "new":
```

Places to Telnet

The text based internet can be exciting, informative, and fun. Using telnet, you can access a variety of these resources on the internet. Below you'll find lists of a few places to get you started.

Miscellaneous fun places
- rainmaker.wunderground.com :: weather via telnet!
- india.colorado.edu 13 (Get the time) :: get the time
- telehack.com 23 :: Telehack
- telehack.com :: Telehack - web
- towel.blinkenlights.nl 23 :: Star Wars asciimation
- towel.blinkenlights.nl 666 :: The Bofh Excuse Server