SERIAL LINE IP PROTOCOL:- Connect a workstation to the internet over a dial-up line using a modem. The workstation sends raw IP packets over the line with a flag byte at the end for framing

- PROBLEM WITH SLIP PROTOCOL
  - 1   .Error detection.
  - 2 .It supports only IP.
  - 3.It is not possible to dynamically assign the address during the set up.
  - 4.Slip does not provide any Authentication. So neither party knows whom it is talking to
  - 5.It is not approved internet standard.

POINT TO POINT PROTOCOL

THIS PROTOCOL IS USED BY MILLIONS OF INTERNET USERS TO CONNECT THEIR HOME COMPUTERS TO THE SERVER OF AN INTERNET SERVICE PROVIDER. MOST OF THESE USERS HAVE TRADITIONAL MODEM.

✓ **SERVICES PROVIDED BY PPP:-**

The PPP protocol can operate over a full duplex point to point transmission link as well as over asynchronous links, the PPP was an improvement over the SLIP.

✓**TRANSITION STATES:-**

1.DEAD:-IT MEANS THAT THE LINK IS NOT BEING USED .

2.ESTBLISHING:-WHEN ONE OF THE END MACHINE STARTS THE COMMUNICATION, THE CONNECTION GOES INTO THE ESTABLISHING STATE.

3.AUTHENATICATING:-THE USER SENDS THE AUTHENTICATE REQUEST PACKET & INCLUDES THE USER NAME & PASSWORD.

4.NETWORKING:-THE EXCHANGE OF USER CONTROL AND DATA PACKETS CAN STARTED.

5.TERMINATING:-THE USERS SENDS THE TERMINATE THE LINK. WITH THE RECEPTION OF THE TERMINATE.

✓PPP STACK

PPP IS A DATA LINK PROTOCOL. BUT IT USES STACK OF OTHER PROTOCOLS IN ORDER TO ESTABLISH THE LINK, TO AUTHENTICATE
THE USERS AND TO CARRY THE NETWORK LAYER DATA.

1.LINK CONTROL PROTOCOL (LCP).
2.AUTHENTICATING PROTOCOLS .
3.NETWORK CONTROL PROTOCOLS (NCP).

FLAG	ADDRESS	CONTROL	PROTOCOL	PACKET FROM ONE OF THE PROTOCAL STACK	FCS	FLAG

FRAME FORMAY OF PPP

✓**FLAG:-**The PPP frame always begins & Ends with the standard HDLC Flag

✓**ADDRESS:-**Since PPP is used for a point to point connection , it uses the broadcast address of HDLC to avoid a data link address in the protocol.

✓**CONTROL:-**This field uses the format of the u-frame in HDLC. The value is 00000011 to show that the frame does not contain any sequence numbers and that thereis no flow or error control.

✓ **PROTOCAL:-**It defines what is being carried in the data field .

✓ **DATA FIELD:-**It carries the user data or other information.

FCFS:-The field is simply a2 or 4 byte. The PPPprotocolprovides many useful capabilities with the help of a LCP and the network control protocol.

LINK CONTROL PROTOCOL(LCP)

One of the protocol in the protocol stack is (LCP). The responsibility of LCP are as under:

- (i) To Establish Links.
- (ii) To maintain the establish links.
- (iii) To configure the links.
- (iv) Termination of the links.

Its also provide negotiation mechanisms. It may be noted that both the users should agree on the various options before establishing a link.

FLAG	ADDRESS	CONTROL	PROTOCOL	DATA	FCS	FLAG

CODE	ID	LENGTH	INFO FOR LCP PACKETS

LCP PACKET

The LCP packets are carried in the data field of PPP frame. The value in the protocol field indicates that the data field is carrying the LCP packets.

THE VARIOUS FIELDS IN LCP:-

- *1.CODE:-It is one byte length field.*
- *2.ID:-It is one byte length field which holds a value used to match a request with the reply.*
- *3.LENGTH:-It is a two byte long field which defines the length of entire LCP packets.*
- *4.INFORMATION:-It consists extra information needed for some LCP packets.*

CATEGORIZATION OF LCP PACKETS

•CONFIGURATION PACKETS

•LINK TERMINATION PACKETS

•LINK MONITORING AND DEBUGING PACKETS
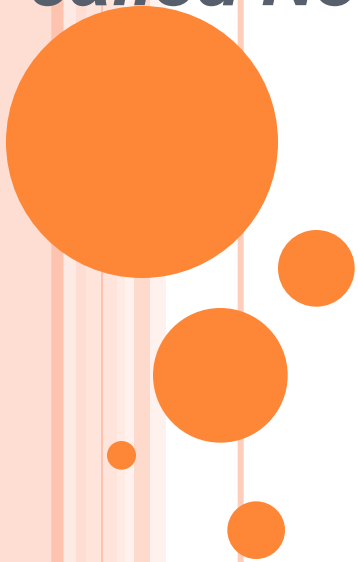
AUTHENTICATION PROTOCOLS

Validate the identify of a user who needs to access the set of resources. These are two protocols created by PPP for authentication purpose namely:

1. *PAP*
2. *CHAP*

These protocols are used during authentication state and during this state, no user data are exchanged.

NETWORK CONTROL PROTOCOL(NCP)

The next step after link establishment &authentication is getting connected to the network layer.PPPuses another protocol called Network Control.

THE

END