Point-to-Point Protocol

Connecting to your ISP via modem, and other tales

Point-to-Point => Bilateral

[root@EMACH1 /root]# ifconfig ppp0
ppp0 Link encap:Point-to-Point Protocol
inet addr:206.170.218.155 P-t-P:209.233.193.30
UP POINTOPOINT RUNNING NOARP MULTICAST MTU:1524 Metric:1
RX packets:7 errors:0 dropped:0 overruns:0 frame:0
TX packets:7 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:10
PPP over a serial wire

“To use some serial line as a PPP link, you first establish the connection over your modem as usual, and subsequently convert the line to PPP mode. In this mode, all incoming data is passed to the PPP driver [pppd], which checks the incoming HDLC frames for validity…and unwraps and dispatches them.”

The Linux Network Administrator’s Guide
Olaf Kirsch

“Convert the [serial] line to PPP”

- Who does that?
  - pppd
- How? - establish pipe then pour
  - runs at both ends of a “pipe”
  - launch signature stream into pipe
  - handshake in the middle
Establish pipe then pour

1) No link (pre-dial)

2) Serial link (post-dial)

3) Run pppd (twice…) to “pour”

4) PPP link over serial link
Meeting in the Middle

- Opposing ppp streams must travel thru same device
- If ISP, reliably launches/pours stream at you upon answer
- You must launch a counter-stream back at him

Connecting by hand

- PPP HowTo - “Setting up the PPP connection manually”
- Good for
  - Tutorial value
  - Groundwork to ensure successful automation
Automating connection setup

- Establishing the pipe - chat
- Pouring ppp stream into it – pppd
- pppd specifies chat in its ‘connect’ option
- HowTo embodies this in
  - /etc/ppp/ppp-on
    - invokes ppp-on-dialer
  - /etc/ppp/ppp-on-dialer
    - exec’s chat

PPP components

- In-kernel driver
  - HDLC frames
  - packet carrier
- Daemon ‘pppd’ in user space
  - LCP, negotiator of connection terms
pppd files

- /usr/sbin/pppd
- /etc/ppp/options

/var/log/messages

Successful connection:

Jan 22 05:08:09 localhost pppd[1118]: Serial connection established.
Jan 22 05:08:09 localhost pppd[1118]: Using interface ppp0
Jan 22 05:08:09 localhost pppd[1118]: Connect: ppp0 <-> /dev/ttyS0
Jan 22 05:08:10 localhost kernel: PPP BSD Compression module registered
Jan 22 05:08:10 localhost kernel: PPP Deflate Compression module registered
Jan 22 05:08:10 localhost pppd[1118]: local IP address 206.170.217.235
Jan 22 05:08:10 localhost pppd[1118]: remote IP address 209.233.193.22