

Networking in Embedded Linux

What to Expect?

- ★ Networks Supported in Embedded Linux
- ★ Enhancing Network Support

Networking Options

- ★ Embedded Linux supports most of the networking options what PC Linux supports, including
 - ◆ Wired (10/100/1000 Mbps)
 - ◆ Wireless (WEP, WPA-TKIP, WPA-PSK, ...)
- with various Network Hardware
- ★ Though, the drivers may need to be cross-compiled
- ★ And Linux is well suited for networking apps

Networking on Board

- ★ However, it finally depends on what all, the board supports
 - Whether the hardware is there directly on the board
 - Or, Extensions through USB dongles
 - Or, Anything else
- ★ If not on the final product, it should be there on the prototypes, and development boards
 - This makes the development activity highly productive
- ★ Though today, even Embedded Products are expected to have many networking capabilities
- ★ Let's understand for use

Enhancing Network Support

- ★ Assumption: Network support at hardware level
- ★ Let's see the available network support at the Embedded Applications level, and its impact (what it enhances)
- ★ By available support, we mean
 - ◆ Cross-compilable
 - ◆ Installable on target's RFS

Available Network Services

★inetd – Internet super-server

- Part of netkit (<ftp://ftp.uk.linux.org/pub/linux/Networking/netkit>)

★SNMP – For Remote Administration

- Download from <http://net-snmp.sourceforge.net>

★telnet – Network login

- telnetd – Part of netkit
- utelnetd by Robert Schwebel of Pengutronix

★ssh – Secure communications

- Dropbear – Light weight OSS from <http://matt.ucc.asn.au/dropbear/dropbear.html>

★http – Serving web content

- Boa from <http://www.boa.org>
- tthttpd from <http://www.acme.com/software/tthttpd>
- Use PHP as a CGI Engine

★dhcp – Dynamic configuration

- Part of busybox as udhcp

★And many more

Generic Steps to setup Apps

- ★ Download Application Source, say src.tgz
- ★ gunzip & untar it: `tar -zxvf src.tgz`
- ★ Configure it
 - ▶ `./configure --host=${TARGET} --prefix=${TARGET_PREFIX}`
- ★ Build it: `make`
- ★ Install it: `make install`

What all have we learnt?

- ★ Networks Supported in Embedded Linux
 - Wired
 - Wireless
- ★ Enhancing Network Support
 - By Networking Applications (Services)

Any Queries?