

# Running Linux on a PDA

Manitoba Unix Users' Group  
Tuesday April 13, 2004  
Presented by Brian Doob

# Types of PDAs

- **Palm:** Traditionally inexpensive, long battery life, simple interface.
- **PocketPC / WinCE:** Traditionally expensive, powerful CPU, desktop-like interface.
- **Linux:** Traditionally non-existent (or at least obscure).

# Linux PDAs

- **Sharp Zaurus:** Fast CPU (200MHz – 400MHz ARM), Qtopia interface.
- **Softfield VR3:** 66MHz Mips processor, Palm-like interface.
- Others are also available.

# PDA Linux Distributions

- **Familiar Linux:** small system that runs on a 32MB PDA (without a flash card or HD).
- **Intimate Linux:** more complete Linux system that requires a flash card (140MB for the base image).
- **Ports of other Distributions:** Debian, Gentoo, not as mature.

# PDA Linux GUIs

- **Qtopia:** written by TrollTech, small version of Qt with PIM applications (open source with limitations).
- **Open Palmtop Integrated Environment (OPIE):** open source fork of Qtopia (binary compatible with Qtopia and Zaurus).
- **GPE Palmtop Environment (GPE):** Gtk+-2.2 on X.
- **X:** X windows, usually with BlackBox.

# Installing “bootldr”

- Transfer bootldr (a boot loader) and “BootBlaster” to the PDA (running PocketPC).
- BootBlaster writes bootldr onto the boot sector (in internal flash memory).
- bootldr can boot Linux or WinCE from internal flash memory or from a flash card.

# Installing Familiar Linux

- The memory image can be loaded over a serial (but not USB) line, or from a 32MB flash card.
- bootldr can accept a serial connection or read a flash card and write the system image to internal memory.

# USB Networking

- Uses TCP/IP over USB with a point-to-point connection.
- The Linux desktop uses the USB Network kernel module (usbnet.o).
- The desktop can provide a connection to the internet with IP Forwarding (NAT is not necessary).

Demo