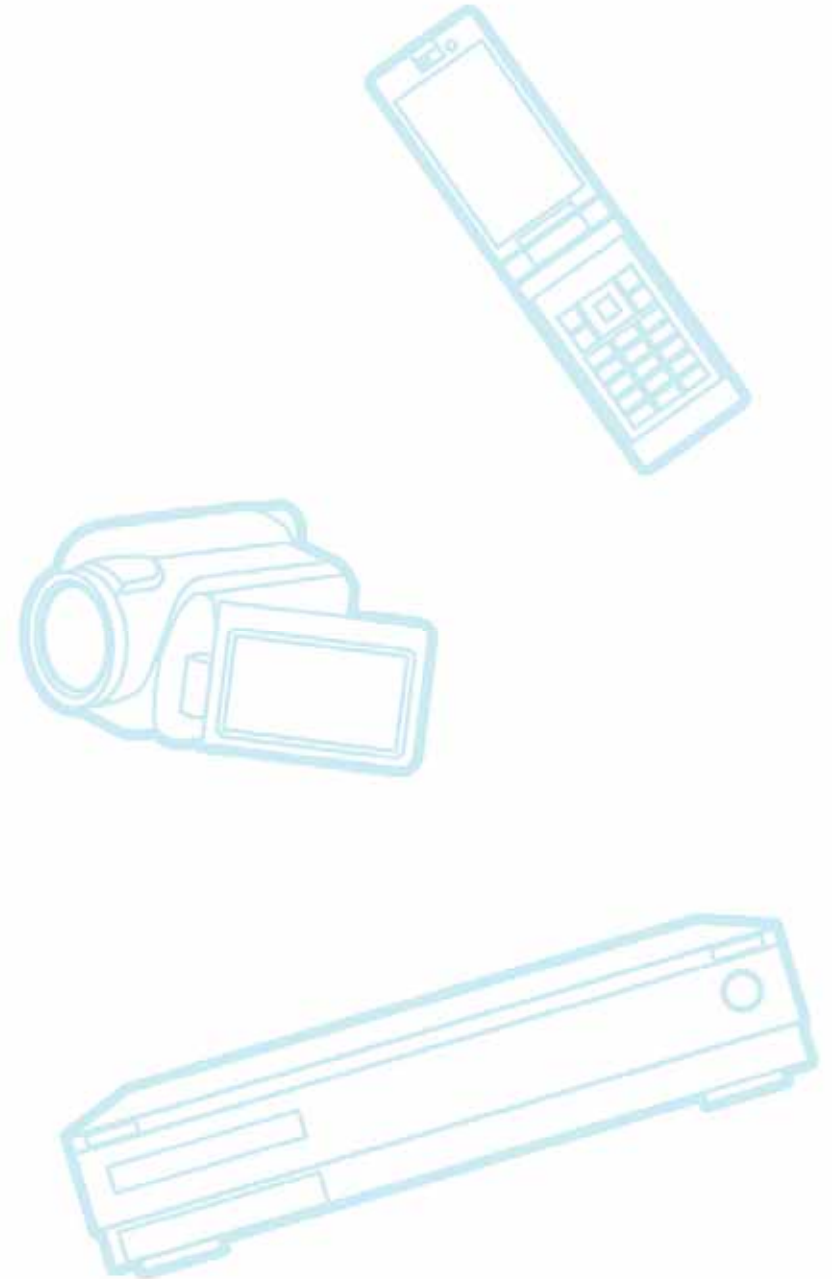# CELF Project Information

Tim Bird

CELF Architecture Group Chair

Agenda
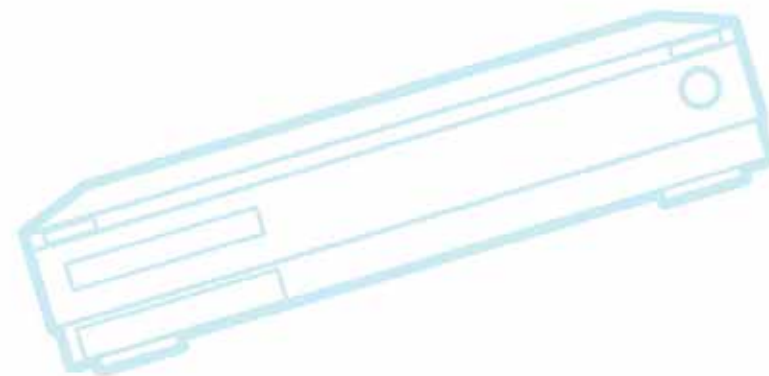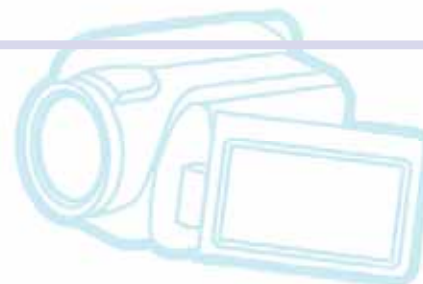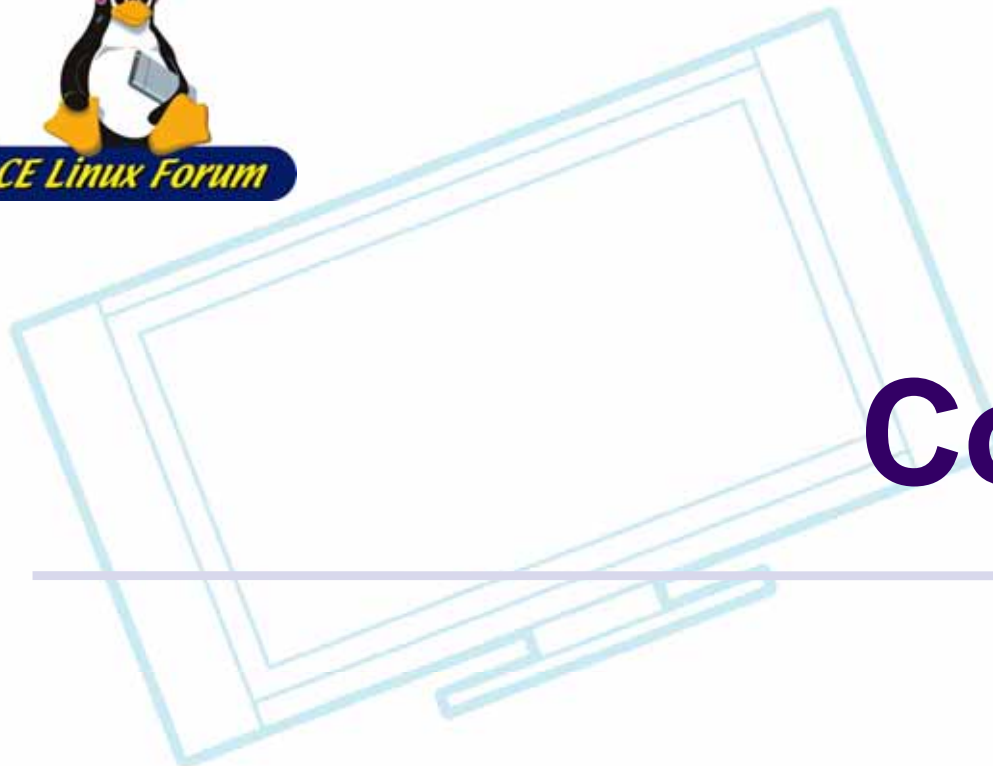
- Current contract work
- Open Project Proposals
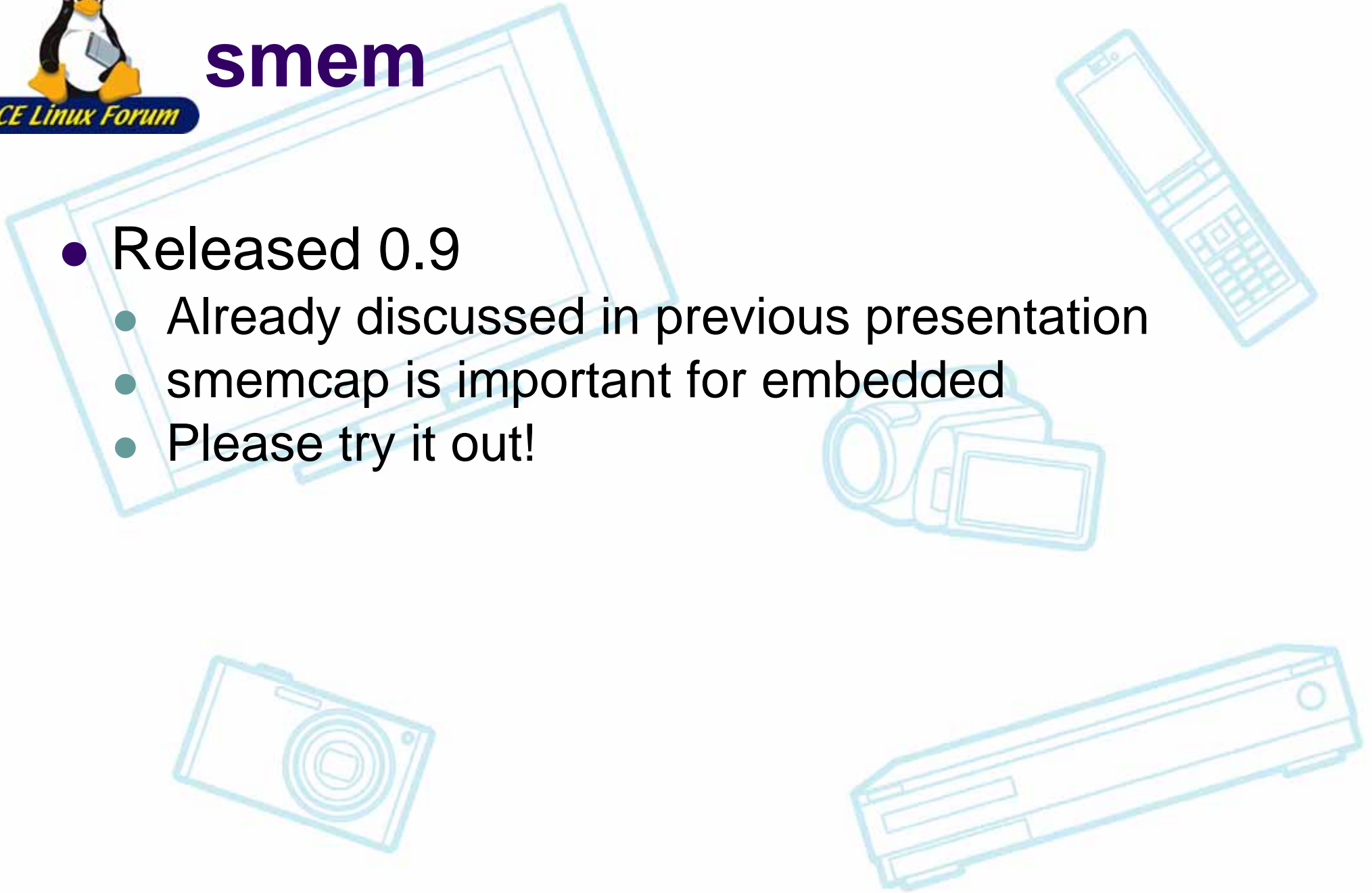 - Discussion

Current Contract Work

Recent Contract Work

- smem
- SquashFS enhancements
- Flash Filesystem testing
- Device Tree support for ARM
- Matt Mackall – embedded maintainership

smem

- Released 0.9
  - Already discussed in previous presentation
  - smemcap is important for embedded
  - Please try it out!

SquashFS LZMA support

- Phillip Lougher added LZMA support to SquashFS
  - Was already available as set of external patches
  - Now is submitted to mainline, by Phillip
- CELF considering funding LZO work as well

Flash Filesystem Testing

- Perform testing different of flash filesystems
  - Compare results for performance, size, robustness
  - Build automated test framework
- Status:
  - Free Electrons is working on visualization (charts and graphs) for the result data
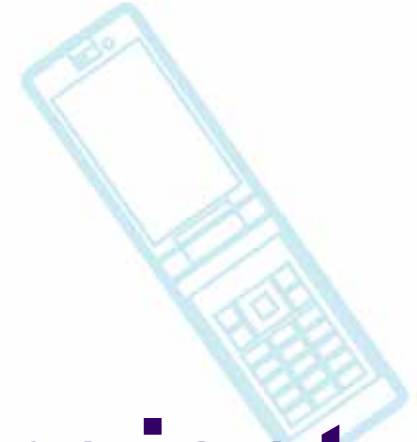 - Should be completed early next year

Device Tree for ARM

- Add support for "device tree" for ARM platforms
- Status:
  - Patches for updated device tree code are in linux-next
    - Merge of common DT parsing code
  - Working on ARM support
- Contractor: Secret Labs (Grant Likely)
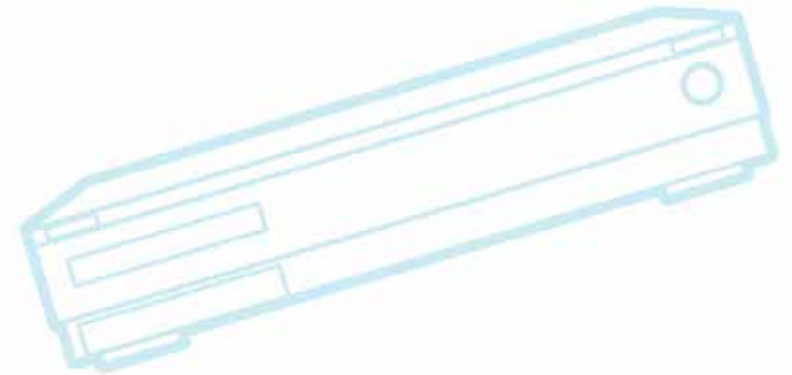 - Grant is now maintainer of DT code for all architectures

Matt Mackall

- CELF sponsor's Matt to do general "embedded Linux" maintenance tasks
  - CELF pay him part time to work on task of general interest for embedded Linux
- Status:
  - Completed smem 0.9 release
  - Recently defended SLOB again on the LKML

Open Project Proposals

Contract Project Planning

- CELF is using an open process for 2010 project planning
- Public can propose a project to be worked on
  - CELF will decide which ones to work on, up to our annual contractor budget
- See http://elinux.org/CELF_Open_Project_Proposal_2010

Current Proposals

- http://elinux.org/Project_Proposals_for_2010

- Boot Time
  - Add bootchart boot logger functionality to busybox

- Boot Technologies
  - Add DFU support to U-Boot
    - DFU = Device Firmware Upgrade
  - Refactor the Qi lightweight bootloader
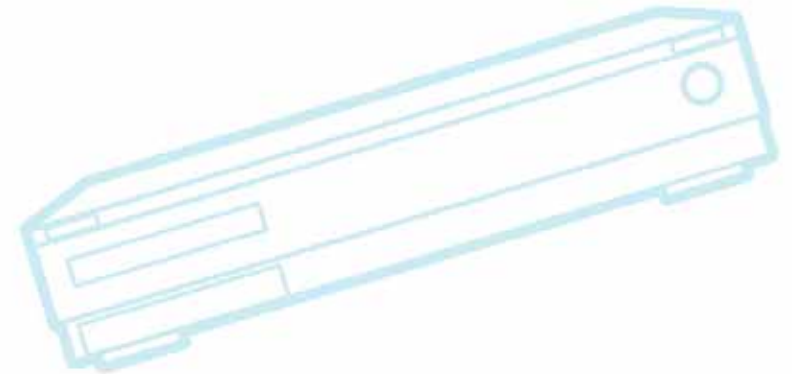 - Improve kexecboot

Proposals (cont.)

- Graphics
  - Decrease X.org XFree86 server footprint

- Media Handling
  - Create Bluray decoding library
  - Extend DLNA specifications

- Sound
  - Complete hardware, use-case handling in ALSA

Proposals (cont.)

- **File systems**
  - Add Pramfs filesystem to the kernel mainline
  - Add LZO compression support to Squashfs
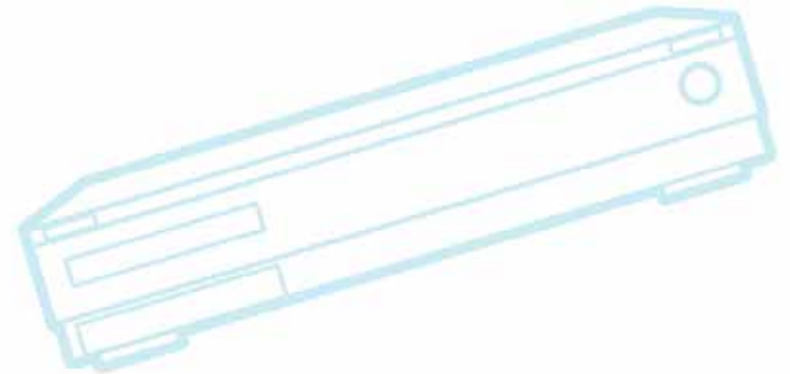 - UBIFS mount time speedups

Proposals (cont.)

- ## Power Management
  - Add behavior-oriented power management

- ## Realtime
  - Add sleeping spinlocks to mainline kernel

- ## Exception Handling
  - Create a watchdog framework for the Linux kernel
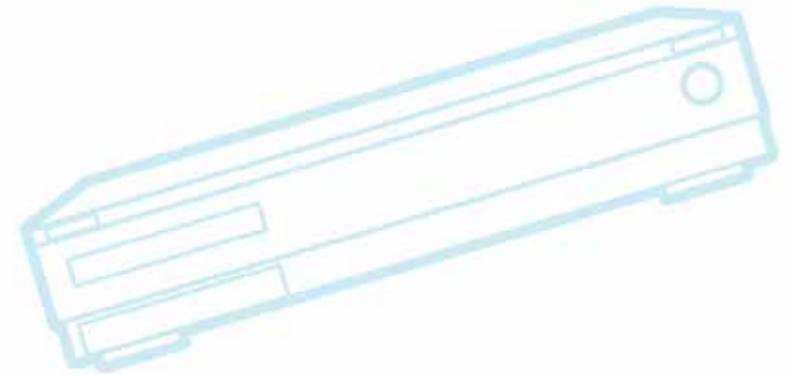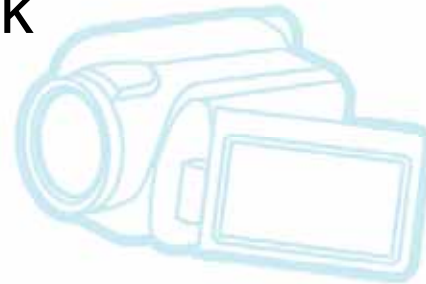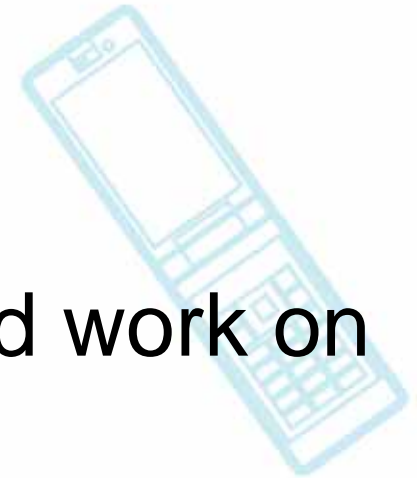
Proposals (cont.)

- Tools
  - Create tool to edit ihex or srec files
  - Create LabView equivalent for Linux
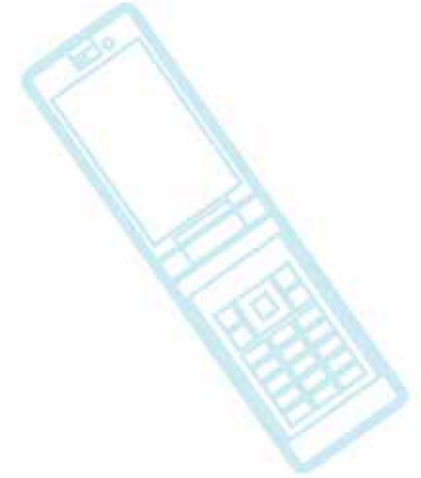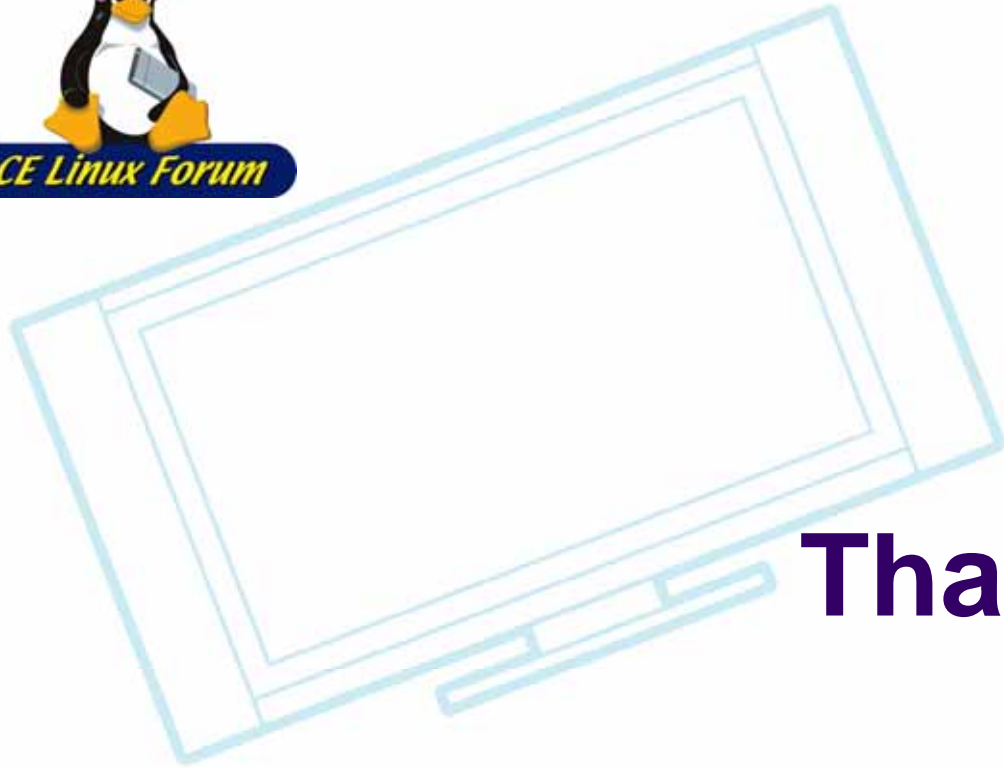 - Add Device Tree emulation support to QEMU

Discussion

- Any other projects that CELF should work on
  - Size
    - We've dropped Linux-tiny work
    - Maybe –ffunction_sections??
    - Is small size still a big issue?
  - Multi-core stuff
    - Fast cpu hotplug (for dynamic power management)
- Android stuff
  - Android on DirectFB??

Thanks!