
Liberouter a NetBSD 3.0

Jiri Slaby

slaby@liberouter.org



History and present

- When I enter to the project, the state was:
 - NetBSD 1.6
 - No LKMs (modules)
 - Debugged (almost), solid code
- There was intention to:
 - Port to higher version of nbsd, then LKMs, then...
 - Preserve solidness and quality.
- Slides are about the difference and supported stuff

Support under NetBSD

- We can provide support for most tools and designs (not all yet, sorry)
 - Hardware drivers
 - Cesplx, i. e. „old“ combo6 cards are fully supported
 - Cespcr, i. e. combo6x still doesn't have dma transfers...
 - Designs
 - On both, there are functional cge, cgc, cgt, lbr, nific
 - Netflow would be part of my B. Sc. thesis
 - Tools
 - Surely csid, csbus, csboot, ppcboot with cvs libcombo

Drivers

- Nowadays: LKMs (file to load to kernel and work in kernelspace) under NetBSD v. 3.0, so why?
 - Easy to compile
 - Easy to update
 - Easy to de-bug
- Why not?
 - Hard to say. You have to have more files, not only one with kernel = /netbsd

LKMs – deeper

- You need CVS clone and kernel sources (+ untar)
- `liberouter/sys_sw/drivers/netbsd + ./install <path>`
- *Compilation of kernel may be missing!*
- `lkm/net + make` (no cesnet directory, not now)
- `lkm/net/*/{cesplx,cesplx,combo6,cge,...}.o`
- Load with *mod_load module.o*
- Unload *mod_unload module*, i. e. **no .o suffix**
- Get status by *mod_stat*

LKMs – deeper, cont.

- Enter `/usr/local/mcs/...`
- Then `./load_driver_netbsd` as usual
- Sure, it is the same as before (as 1.6)
- **See WIKI**, there are hypertext tips and instructions

LKMs – Linux vs. NetBSD

- Linux
 - has `/lib/modules` and `modprobe`, i. e. you don't need to know where the module is after *modules_install*
 - has `modules.dep` – can resolve dependencies
- NetBSD
 - doesn't have any of them, at least for the time being, so you have to specify full path including `.o` suffix and you need to comply with order of loading (hw-specific, `combo6`, design-specific)

Tools

- Csid
 - is fully supported, no change
 - implemented also -s output with some differences from linux, no PowerPC texts now
- Csboot
 - no change for users (I hope), but booting moved to kernelspace
 - added new target 1024 in past days (PowerPC ELF binary loading)

Tools, cont.

- Csbus
 - disallow read from fpga until design is properly loaded, so that box doesn't hang
- Ppcboot
 - can be used without problems for loading PowerPC programs (csboot doesn't load entry point)
- Libcombo (not a tool at all, but for completeness)
 - ifdefed sections were eliminated by porting to kernel
 - nicer code now, so enjoy...

Meeting with NetBSD 3.0

- Log on *morgon*
- Silently test if nobody else does (*w* command)
- Why we still use 1.6?
 - Actually don't know, we must convince support?!
 - Really, it's not so easy to port all boxes 2 versions upper (compatibility issues, if any and so on)
- Looking forward to situation after porting, so that I can test more cards, not only on one box

NetBSD, further steps

- My B. Sc. thesis would also contain
 - DMA transfers for combo6x
 - Netflow support
 - So these have to be done in near future
- Debugging
- Upgrading all boxes
- Tune make system