BSD Driver Harmony

EuroBSDcon 2022 - NetBSD DevSummit

Pierre Pronchery <khorben@NetBSD.org> - Friday, September 16th 2022
Example Situations
From NetBSD to OpenBSD and back again but not quite

emuxki(4), sound card
• Originally from NetBSD
• Imported to OpenBSD
• Some fixes made it back, other improvements did not

umb(4), 4G USB modems
• Originally from OpenBSD

• Imported to NetBSD (easy)
• Imported to FreeBSD (tough!)
…95% of the code is the same

Many more possible examples:
• ACPI/ISA devices like aps(4) (accelerometer on ThinkPad laptops)
• DVB cards (CX23885, i²c…)
Not a New Topic
Reviving the discussion

• Mentioned at NetBSD’s Board last week

• Discussion between Bill Cromwell (NetBSD), George Neville-Neil (FreeBSD), Theo de Raadt (OpenBSD) in 2018

• Mentioned at the FreeBSD DevSummit 2022

• Perfect opportunity at BSD conferences
Bringing BSD Drivers Closer Together
Can we get there?

Improving collaboration between the major BSDs on driver development:
• FreeBSD, NetBSD, OpenBSD, more?

Introducing common idioms:
• e.g. listing supported devices, flags & quirks in `drivername_boards.c`

Renaming values:
• Register names, flags…

Modifying APIs, names, etc:
• Compatibility issues:
  • e.g. `void attach()` vs `int attach()`
  • Third-party drivers (e.g. FreeBSD Ports)

Time-consuming task:
• Cross-foundation committee?
• Common website, compatibility matrix?
• Funding from each foundation?