DeforaOS & pkgsrc

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Summary

1. Introduction

2. Probably talk about DeforaOS

3. Probably also talk about pkgsrc

4. With luck share a personal problem or two

5. Picture of a cat

6. Conclusion

7. Cake, ice cream, whatever is there to be eaten

Introduction

- Where babbling about oneself is done

- Freelance IT-Security Consultant

- Based in Berlin, Germany

- Thinks he's funny

- Likes to work on NetBSD and pkgsrc between a silly pun and the next one

- Can be serious too

About DeforaOS (1/2)

Open Source project since 2005

Born from my frustration with the existing stuff:

- I just wanted to synchronize IRC chat logs between my two computers!

- Rinse, repeat, apply (RSS, bookmarks, playlists, SCM, documents... possibly running programs)

Really:

- Ubiquitous computing
- Seamless networking

About DeforaOS (2/2)

Three parts:

Self-hosted capability
kernel, libc, assembler, compiler...

Distributed framework
RPC, interfaces, services...

Desktop environment
desktop, embedded devices...

Portable, also meant to run on today's systems

Not fully implemented...

About pkgsrc

- No need to tell you much here
- So I'll just skip to the next slide

DeforaOS & pkgsrc

What's relevant in pkgsrc

audio/deforaos-mixer

comms/deforaos-phone

databases/deforaos-libdatabase

devel/deforaos-coder

devel/deforaos-libsystem

editors/deforaos-editor

graphics/deforaos-camera

mail/deforaos-mailer

meta-pkgs/deforaos-desktop

multimedia/deforaos-player

print/deforaos-pdfviewer

sysutils/deforaos-browser

sysutils/deforaos-terminal

time/deforaos-todo

www/deforaos-surfer

x11/deforaos-keyboard

x11/deforaos-libdesktop

x11/deforaos-locker

x11/deforaos-panel

What works

- The desktop environment, featuring:
  - Meta-package
  - A lot of the functionality expected already there
  - A special mode for embedded devices (as a compile-time option)
- A couple development tools:
  - Embedded development simulator (needs Xephyr from wip though)
  - SQL console
- So, in no particular order...

The desktop: volume mixer
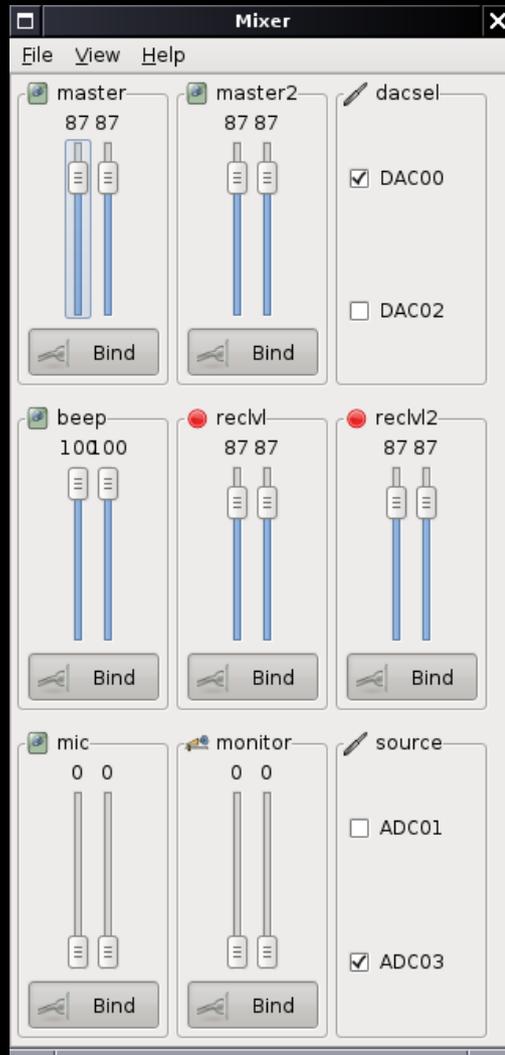
- audio/deforaos-mixer
- This is the vertical mode
- Has tabbed and horizontal modes too
- Defaults to OSS on other platforms

The desktop: **video camera**
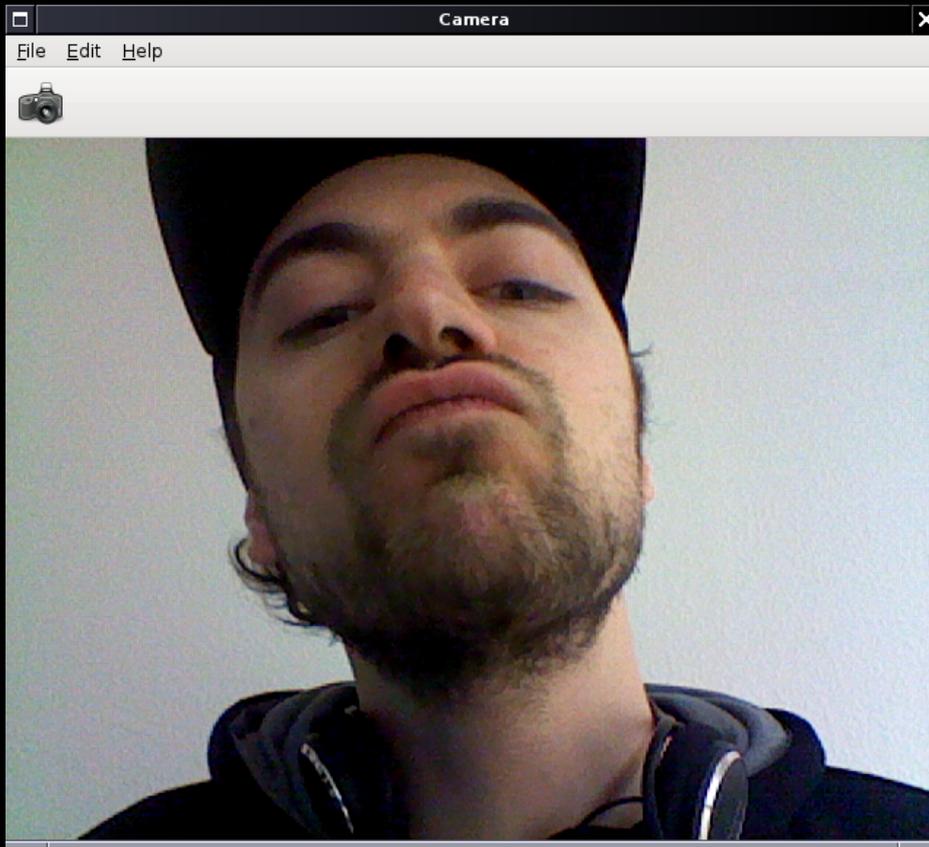
- graphics/deforaos-camera

- Can take pictures

- Meant to be used as a camera application on a phone

- Yes I have a boring office wall on this side

- I don't care, I don't see it when I work

The desktop: UMTS modems
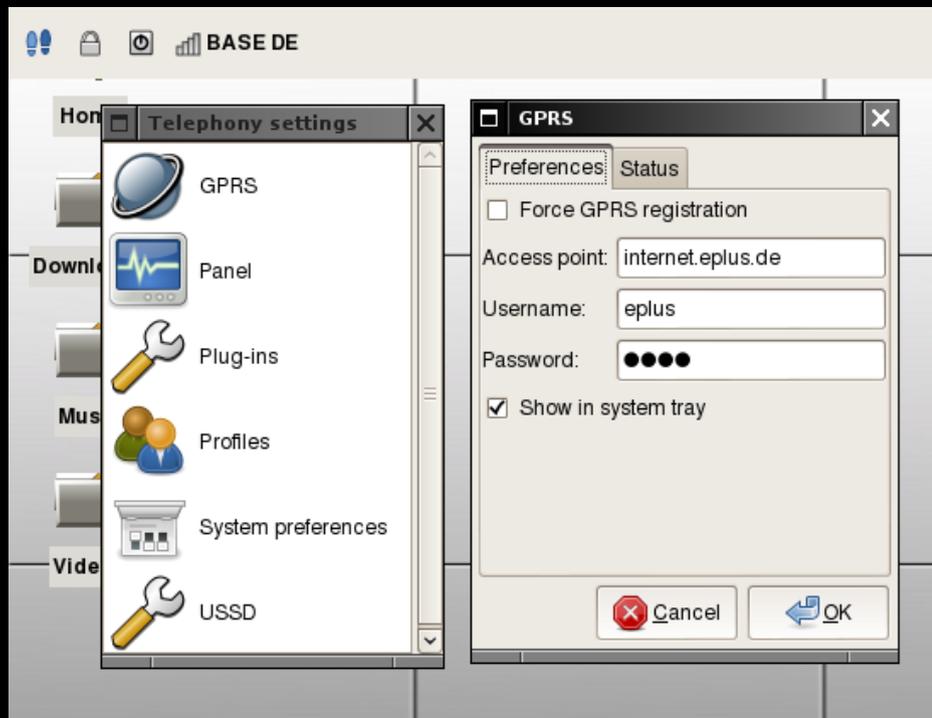
- comms/deforaos-phone

- Interfaces with pppd

- Works unprivileged

- No need for chat

- Full telephony on the Openmoko Freerunner

- Beginning of VoIP support

The desktop: panel

- x11/deforaos-panel

- Lots of applets available

- Some XDG support

- Integrates a virtual keyboard

The desktop: online help

- www/deforaos-surfer
- Also meant to read NetBSD manuals (as HTML) and more
- I need help myself
- Not implemented yet

The desktop: kick-ass file manager
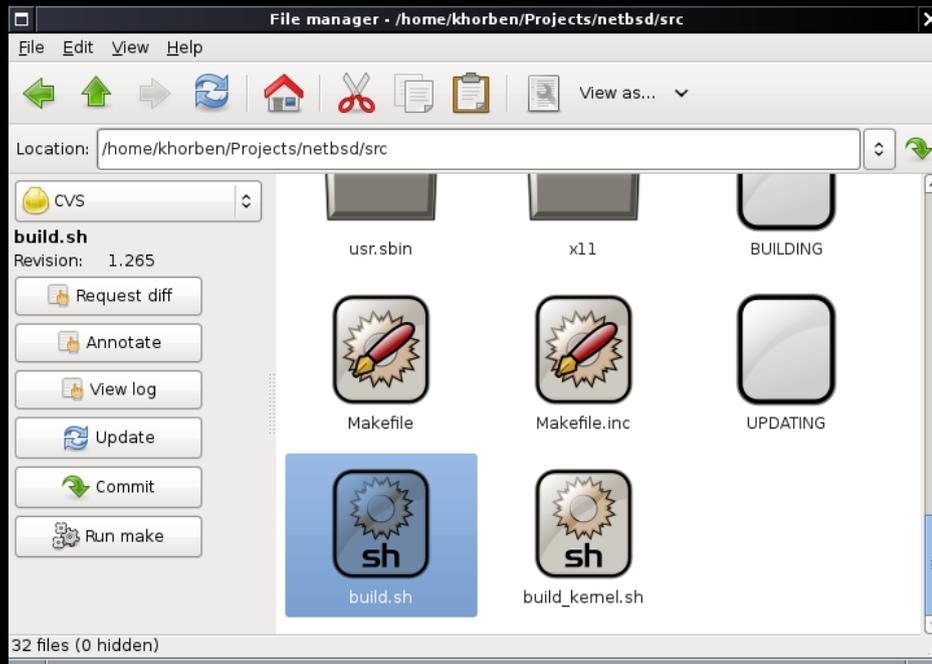
- sysutils/deforaos-browser

- Plug-in system:
  - CVS, Subversion, Git
  - Gtk+ favorites
  - Makes coffee
  - Saves the world from white sharks
  - My only finished project to date
  - (not all of this is true)

The desktop: mail client

- mail/deforaos-mailer

- Read-only access to mbox, POP3 and IMAP4 mailboxes

- A couple plug-ins
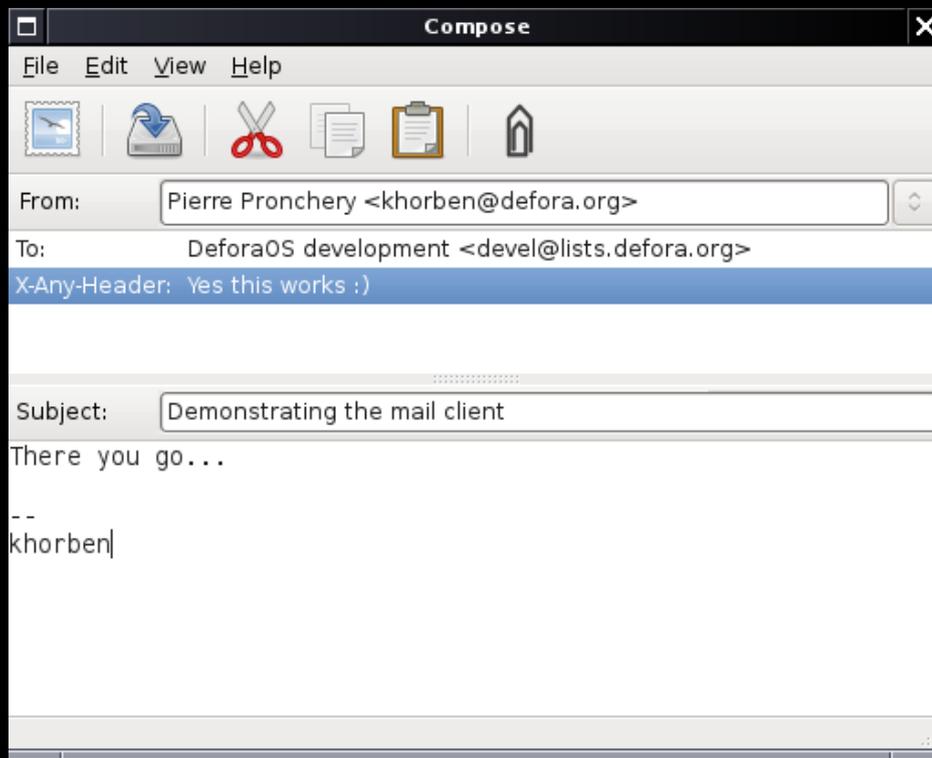
The desktop: PIM applications
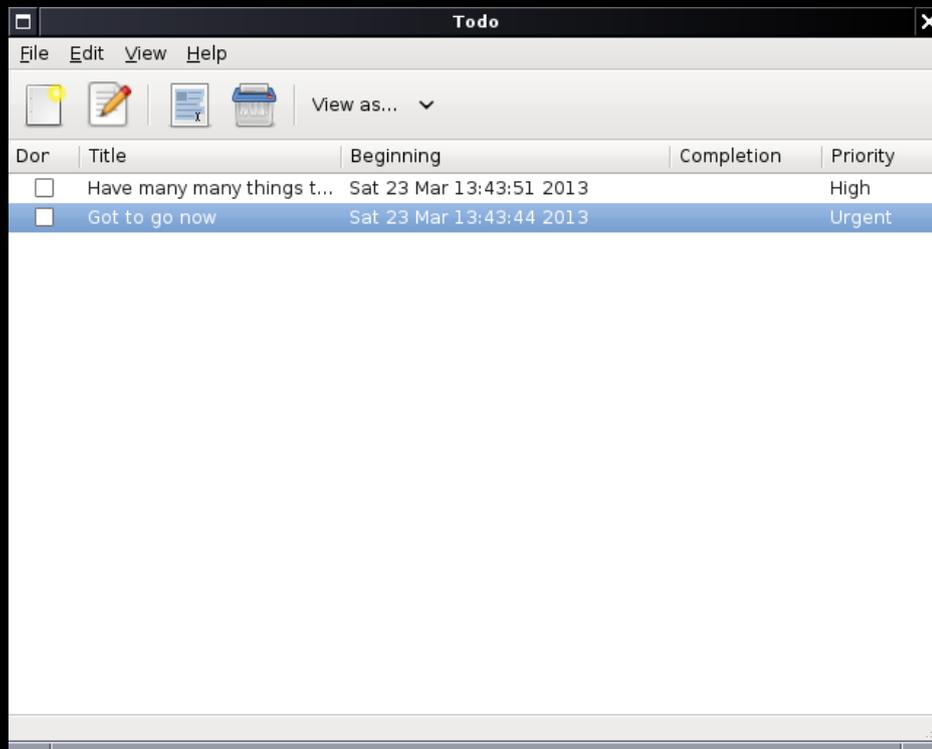
- time/deforaos-todo
- A Todo list (and a calendar once packaged)
- Available as plug-ins for the mail client

The desktop: web browser

- Supports multiple HTML rendering engines: WebKit, Gecko, libgtkhtml2, home-grown text-only...
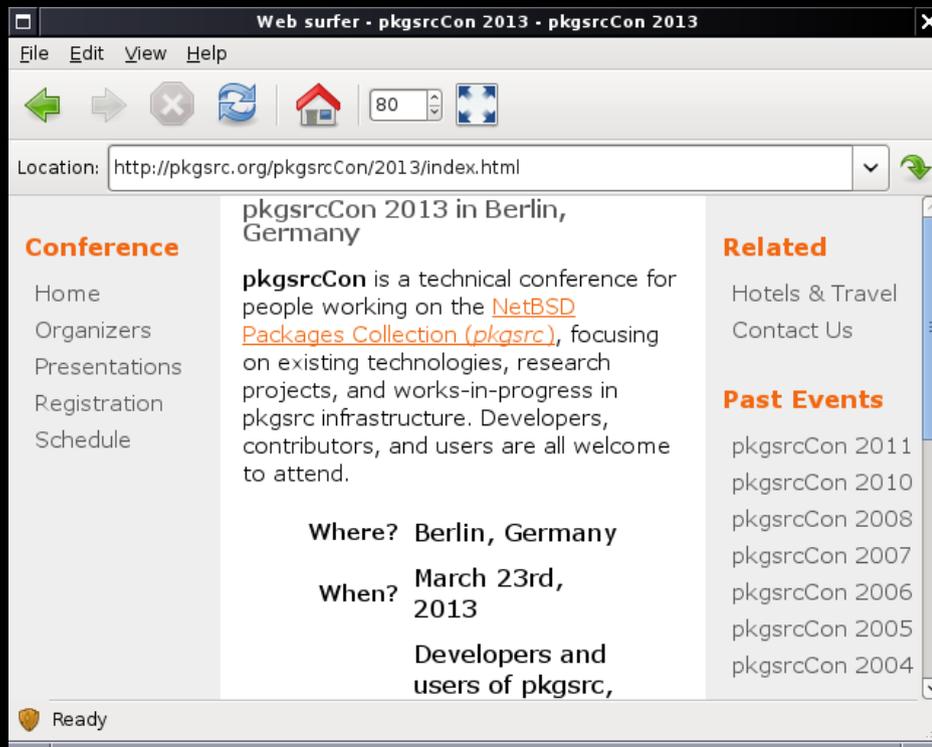
# The desktop: terminal emulator
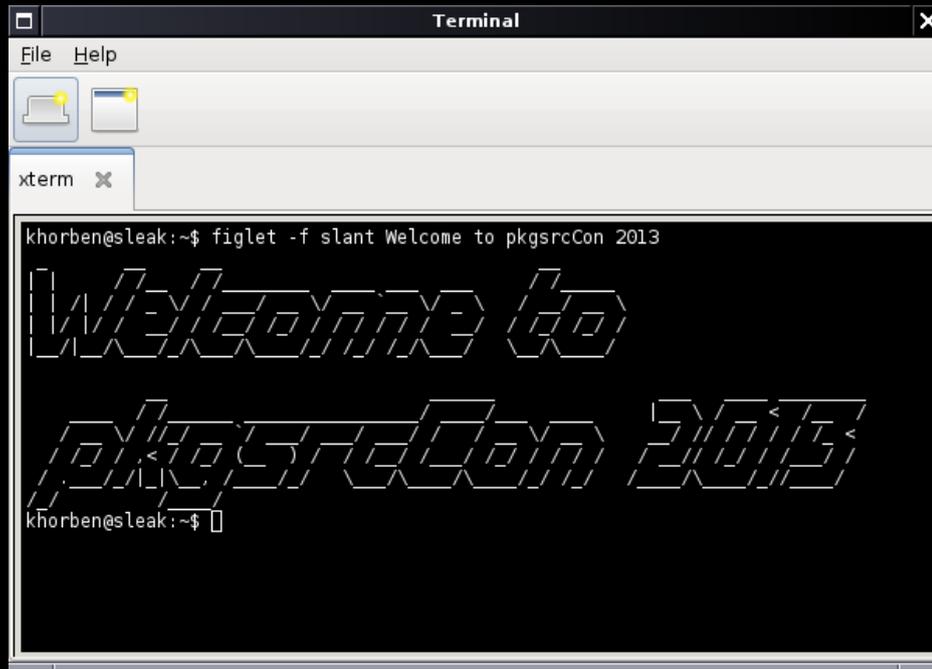
- sysutils/deforaos-terminal
- Really embeds xterm
- Supports multiple tabs
- Very young code

The desktop: media player
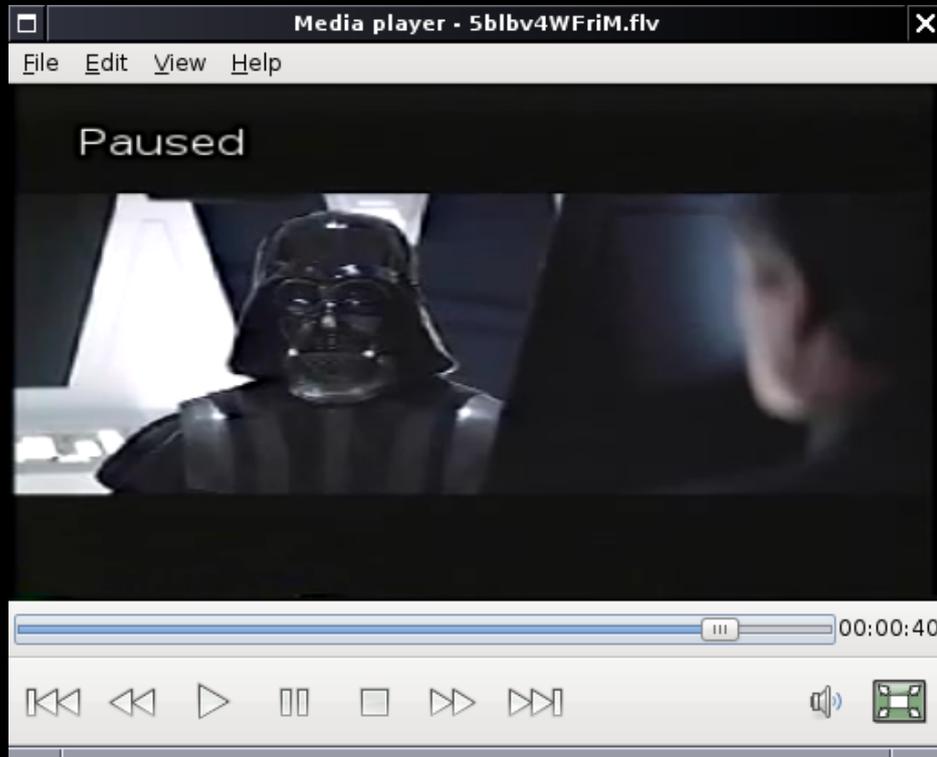
- multimedia/deforaos-player
- Really embeds mplayer (rather painful unfortunately)
- Slowly getting it to be actually usable

Development tool: simulator

- devel/deforaos-coder

- Simulates the display of embedded devices, here the Nokia N800 tablet
(much like wip/xoo does)

Development tool: SQL console

- devel/deforaos-coder
- Connects to a SQL database (SQLite 2 & 3, PostgreSQL are supported)
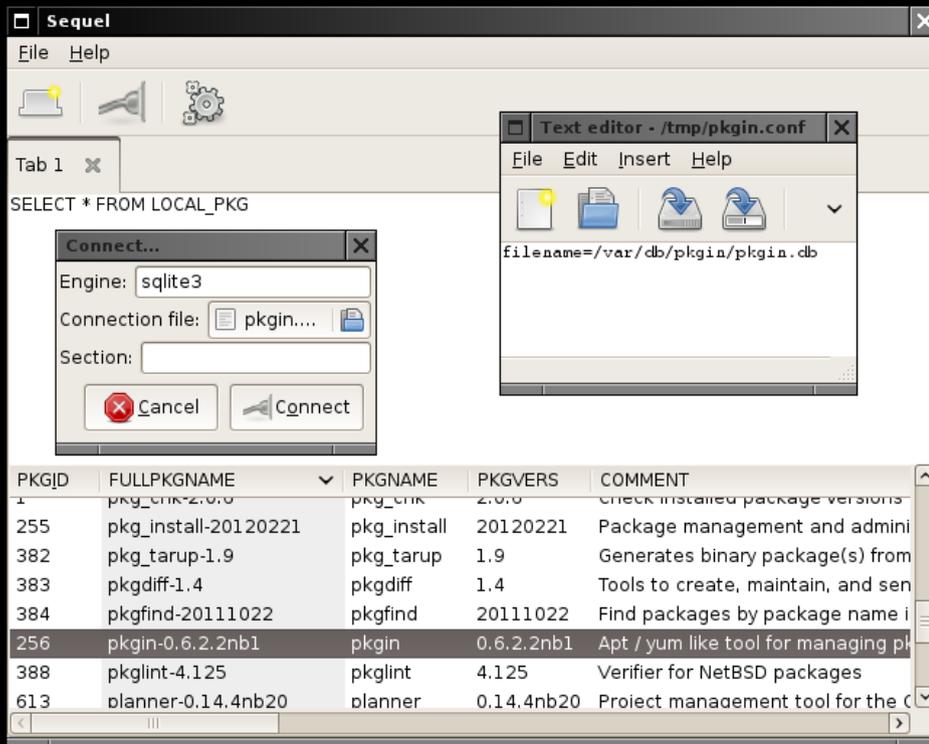
Embedded mode

- It is exactly the same code for the logic
- Slight modifications of the user interface:
  - No more menu bar
  - Missing functionality added to the toolbar
  - Missing keyboard shortcuts handled explicitly
- Otherwise some default values may change
- Compile-time option: `CPPFLAGS=-DEMBEDDED`
- In pkgsrc, the "embedded" option
- Meant to be used on touchscreens

My personal problem (1/2)

- I have big fingers
- I will spare you the second one

What doesn't work

- Building on Linux, MacOS X, probably more:

  - The Makefiles are meant to be very portable

  - They are automatically generated through the "configure" tool

  - Unfortunately some differences cannot be fully helped through Makefiles (libossaudio, libdl…)

  - Some packages need either re-running configure, or special handling code depending on the target platform

- The window manager is not nearly good enough (wip/deforaos-framer)

What's coming

Behold...
(and this happened to me in real life before)
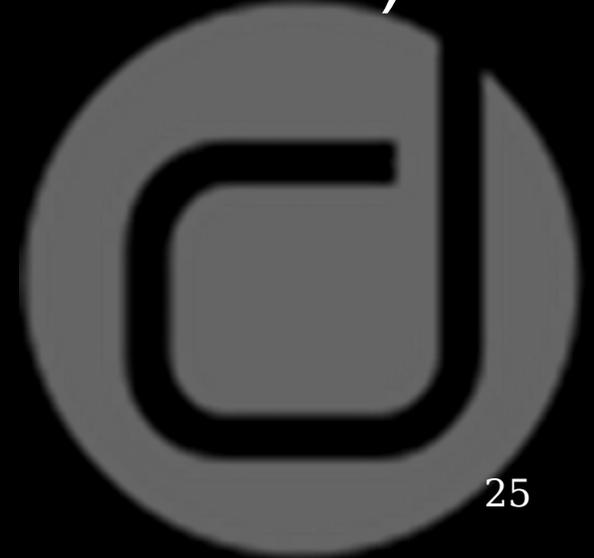
My cat (1/2)

(courtesy of my sister)

My cat (2/2)

DeforaOS & pkgsrc

(Dis-)Assembly framework

- Supports:
  ```
  Available architecture plug-ins:
  amd64, arm, armeb, armel, dalvik, i386,
  i386_real, i486, i586, i686, java, sparc,
  sparc64, yasep, yasep16, yasep32
  Available file format plug-ins:
  dex, elf, flat, java, pe
  ```

- In wip/deforaos-asm for the moment

- The GDeasm tool aforementioned is in devel/deforaos-coder, but not built by default
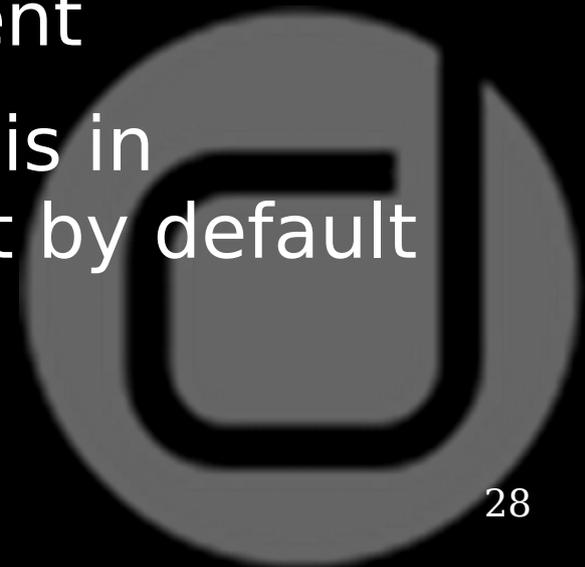
Compilation framework

- Likewise, very much work in progress

- Cannot do much besides generating call graphs at the moment

- Not even found in pkgsrc-wip yet

Distributed framework

- First prototype way too experimental

- Current rewrite too far from being ready

- Potential for:

  - Remote filesystem access (VFS)

  - Transparent, user-land VPN (much like net/tsocks)

  - OpenGL-based replacement for X

- Too soon to promise anything : (

A little more about the desktop

- Will package nodm soon:

  - It efficiently replaces gdm as a graphical auto-login program

  - Will be very useful on embedded targets

- The packages in pkgsrc-wip target Gtk+ 3:

  - deforaos-browser fails to build the "desktop" binary

  - A couple more packages may not build yet
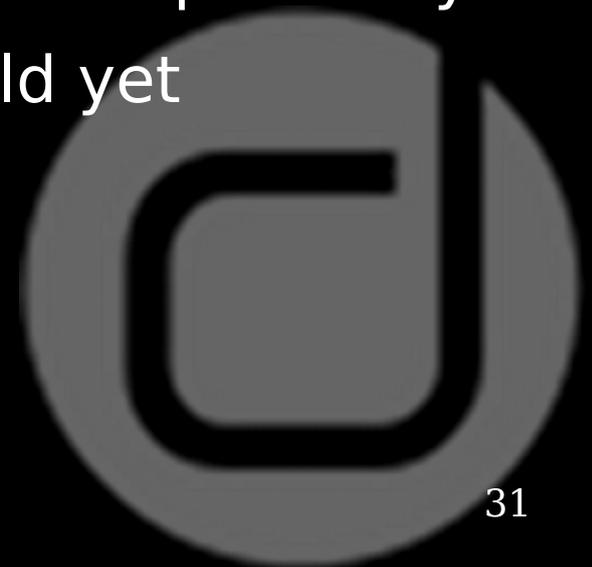
How much time do I have?

- What about some more demos:

  - Rewrite of the "progress" tool in Gtk+

  - Integration inside the panel

  - Desktop notifications (volume, power management, system events…)

Conclusion

- Hope it has piqued your interest

- Would love to see it running on more devices

- Patches welcome!

- Or any kind of feedback anyway

- As for food, help yourself (but you do know already)

Contact information

- Usual suspect:
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  khorben on the Freenode IRC network

- Professional consulting:
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  http://www.duekin.com/