
FOSDEM 2014
Brussels, Belgium

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# Summary

1. Introduction
2. Some slides in no particular order
3. Demo effect all over the place
4. Where to complain about the show

# Introduction

- Freelance IT-Security Consultant
- Based in Berlin, Germany
- Started the Defora(OS) project in 2001
- NetBSD developer since May 2012

# 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:

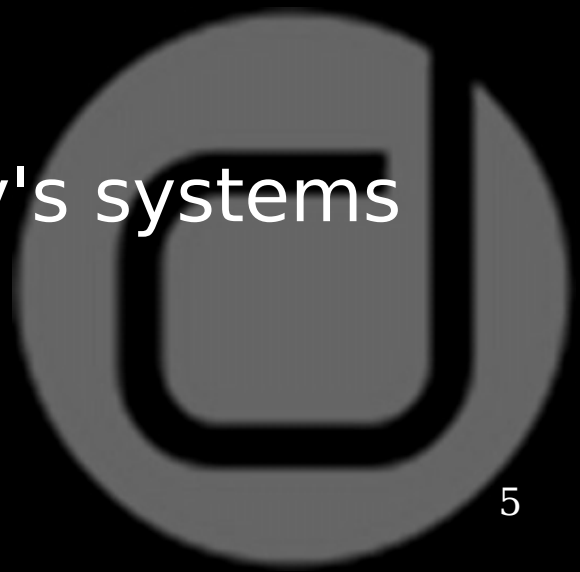
**Self-hosted capability**
kernel, libc, assembler, compiler...

**Distributed framework**
RPC, interfaces, services...

**Desktop environment**
desktop, embedded devices...

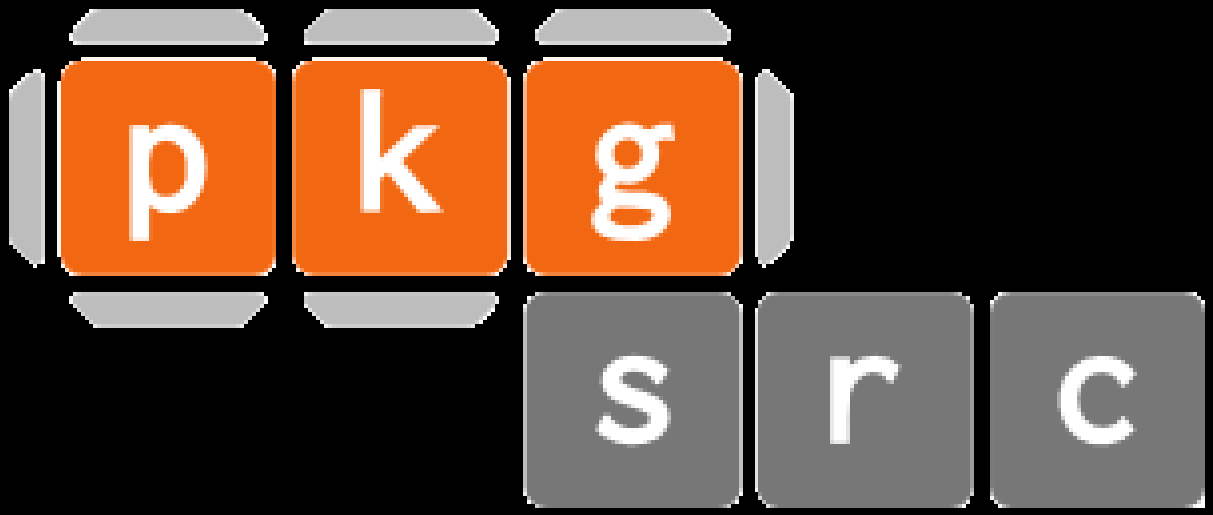
Portable, also meant to run on today's systems

Work in progress...



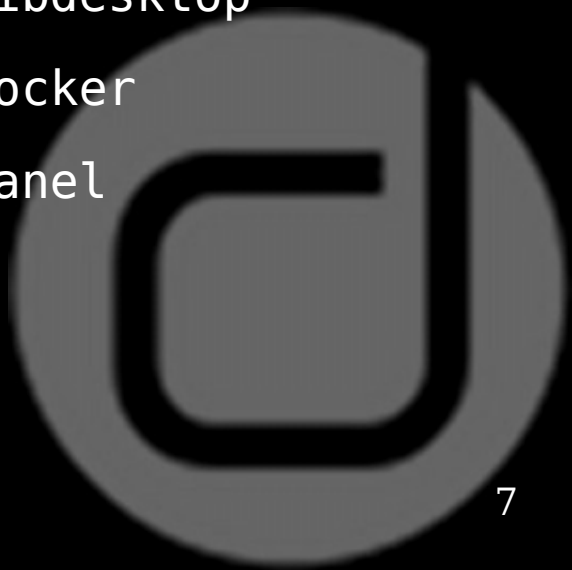
# The desktop is in pkgsrc

- How's that look?




# What's now 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's planned in pkgsrc

meta-pkgs/deforaos-sdk

print/deforaos-presenter

sysutils/deforaos-installer

devel/deforaos-asm

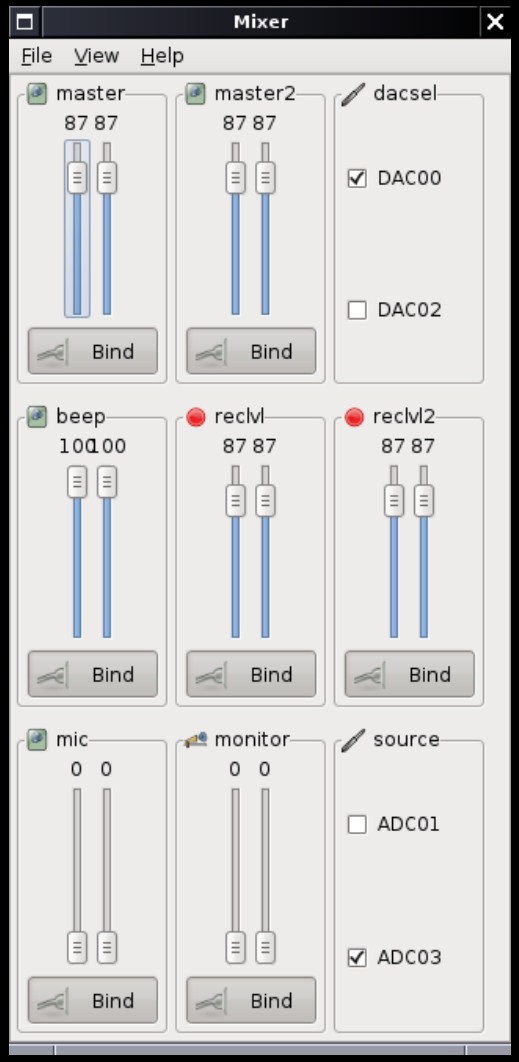
devel/deforaos-c99

devel/deforaos-cpp

# What works

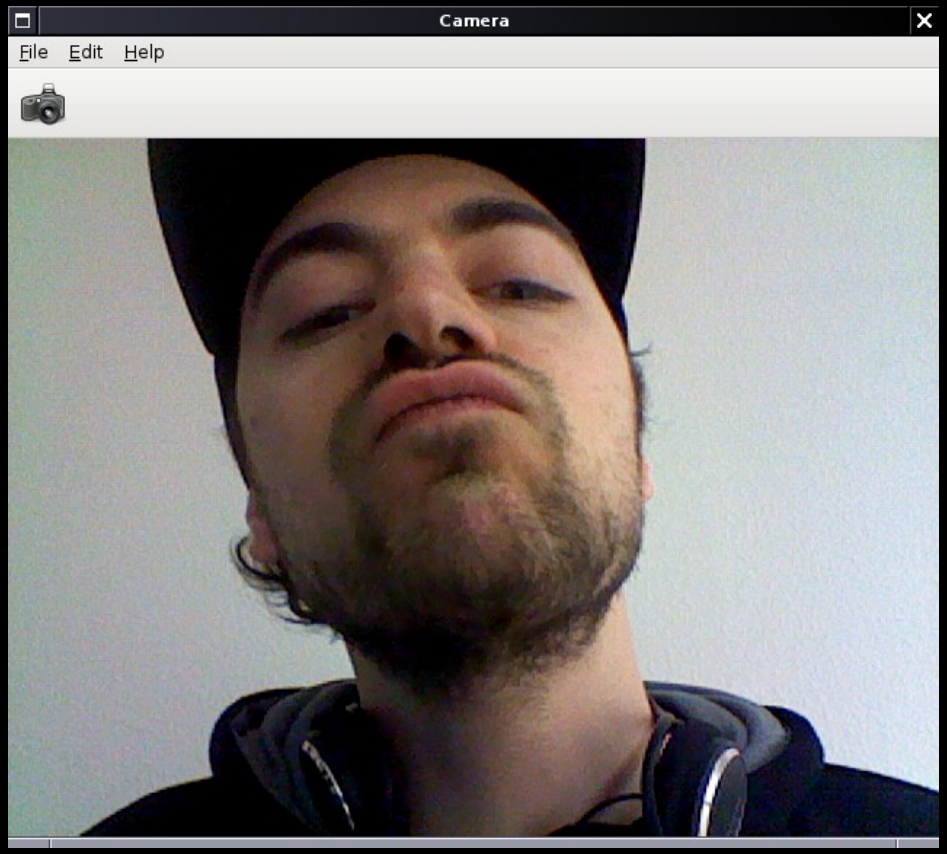
- The desktop environment, featuring:
  - Meta-package
  - A lot of the functionality expected already there
  - A special mode for embedded devices (as a compile-time option)
- A couple development tools:
  - Embedded development simulator (needs Xephyr from wip though)
  - SQL console
- So, in no particular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

# The desktop: volume mixer



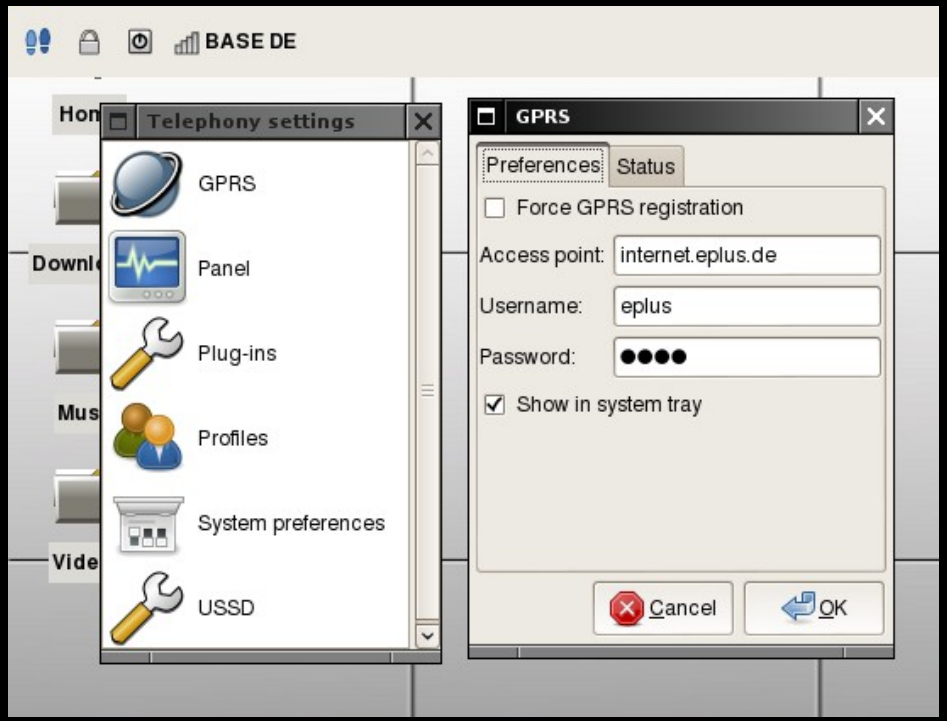

- audio/deforaos-mixer
- This is the vertical mode
- Has tabbed and horizontal modes too
- Defaults to OSS on other platforms

# The desktop: video camera



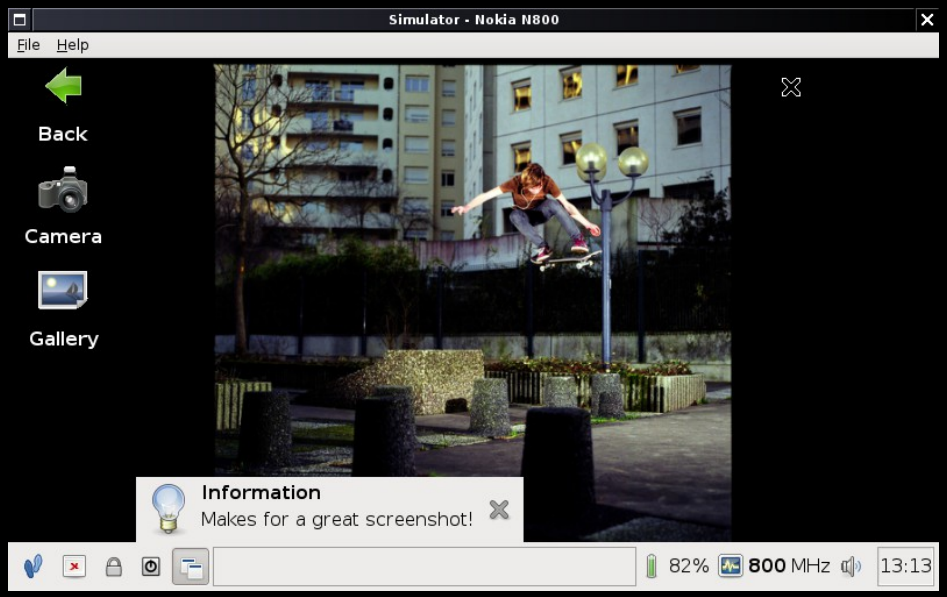

- graphics/deforaos-camera
- Can take pictures
- Meant to be used as a camera application on a phone
- Yes I have a boring office wall on this side
- I don't care, I don't see it when I work

# The desktop: UMTS modems



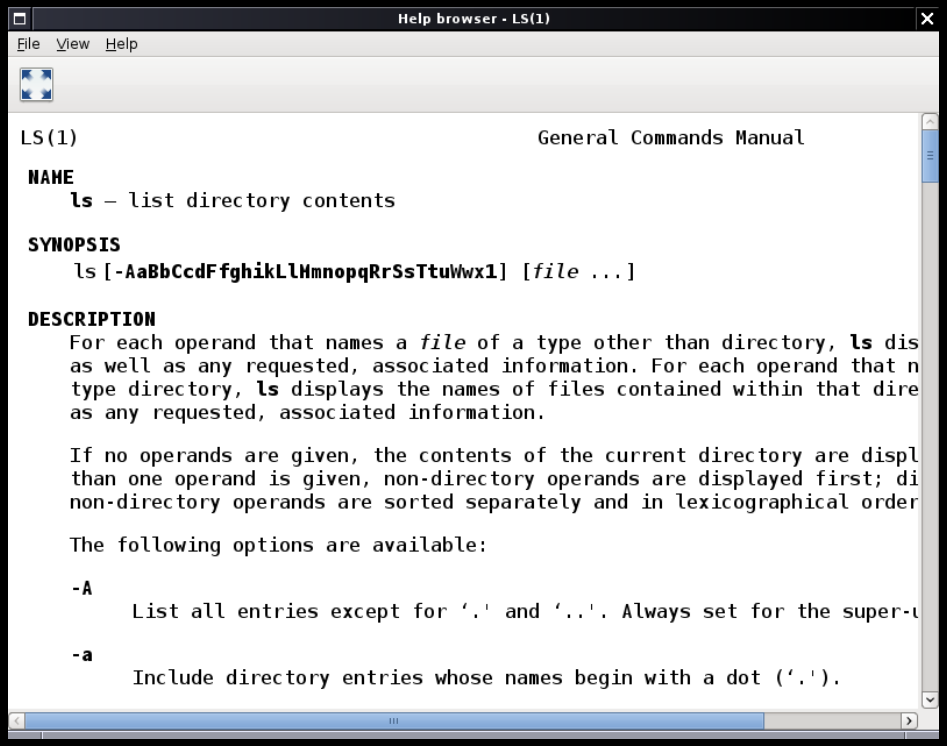

- comms/deforaos-phone
- Interfaces with pppd
- Works unprivileged
- No need for chat
- Full telephony on the Openmoko Freerunner
- Beginning of VoIP support

# The desktop: panel



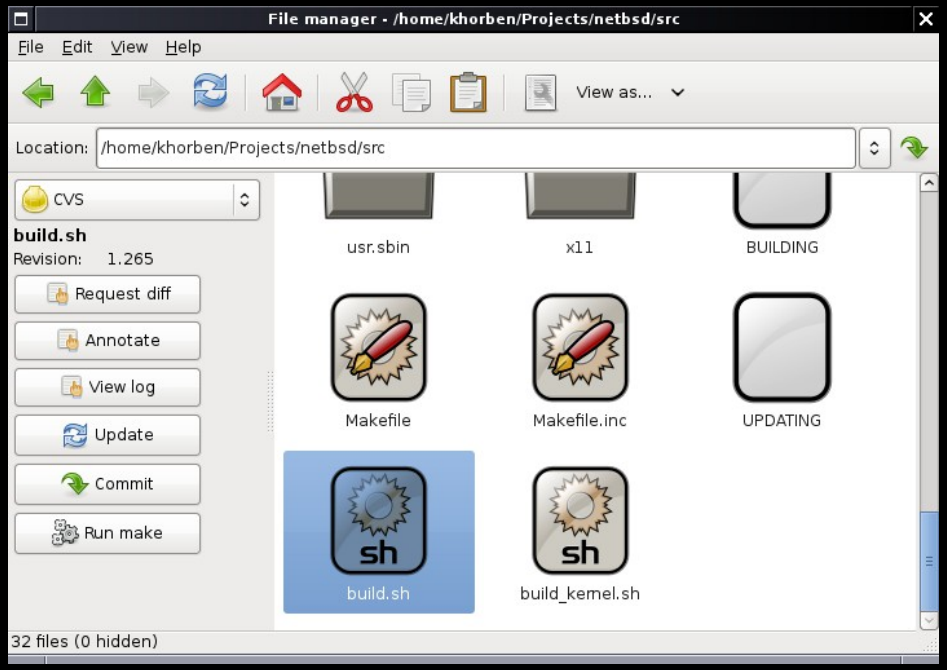

- x11/deforaos-panel
- Lots of applets available
- Some XDG support
- Integrates a virtual keyboard

# The desktop: online help



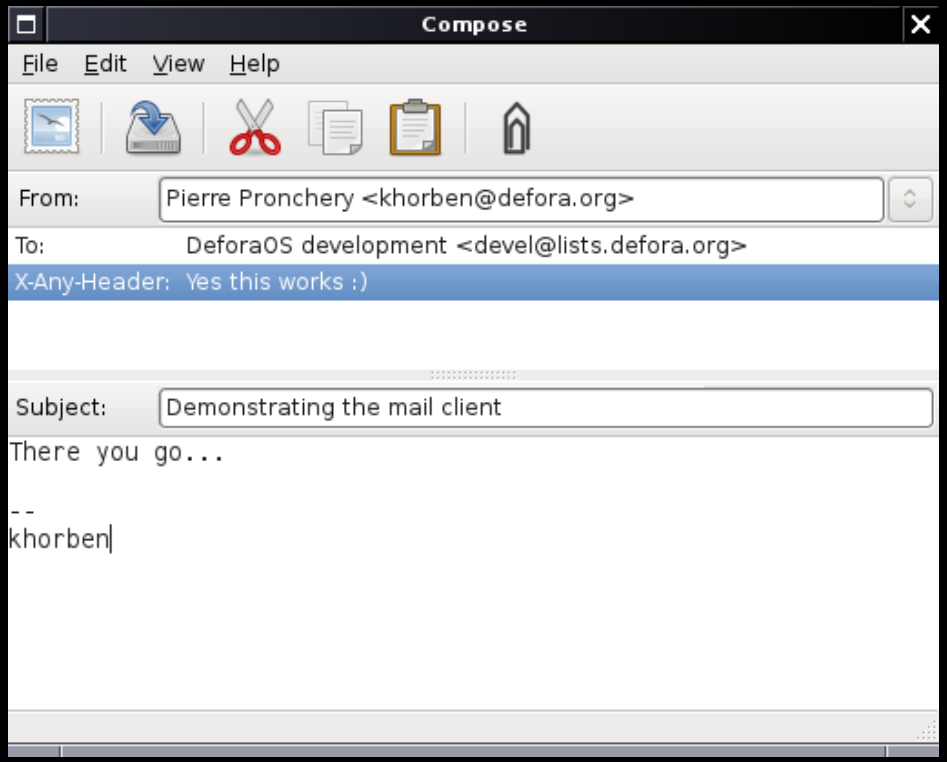

- www/deforaos-surfer
- Also meant to read NetBSD manuals (as HTML) and more
- I need help myself
- Not implemented yet

# The desktop: kick-ass file manager



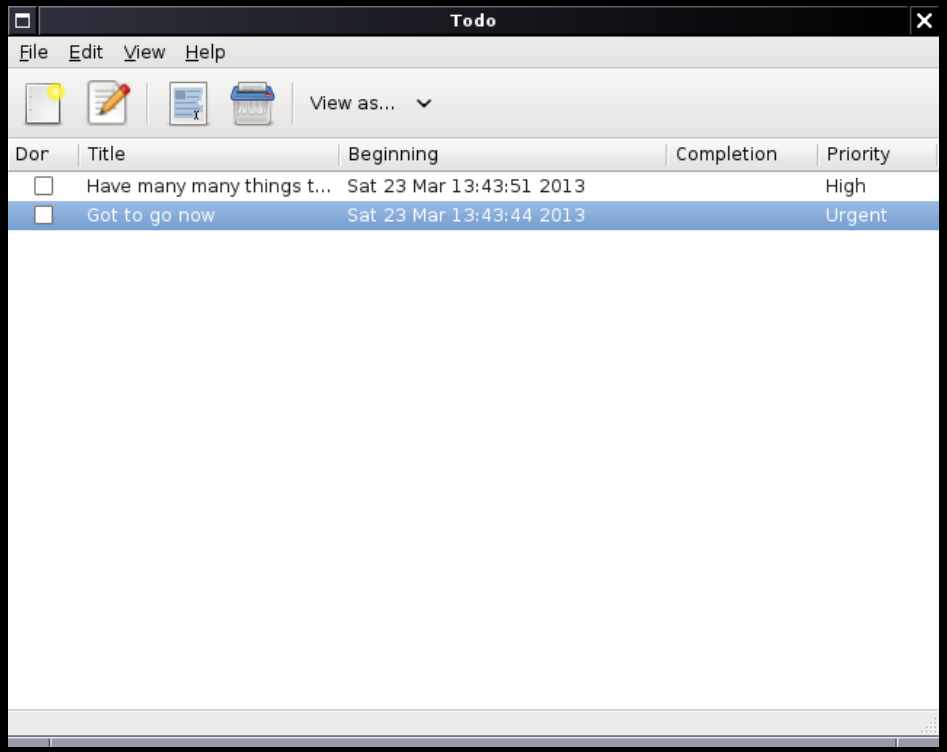

- sysutils/deforaos-browser
- Plug-in system:
  - CVS, Subversion, Git
  - Gtk+ favorites
  - Makes coffee
  - Saves the world from white sharks
  - My only finished project to date
  - (not all of this is true)

# The desktop: mail client



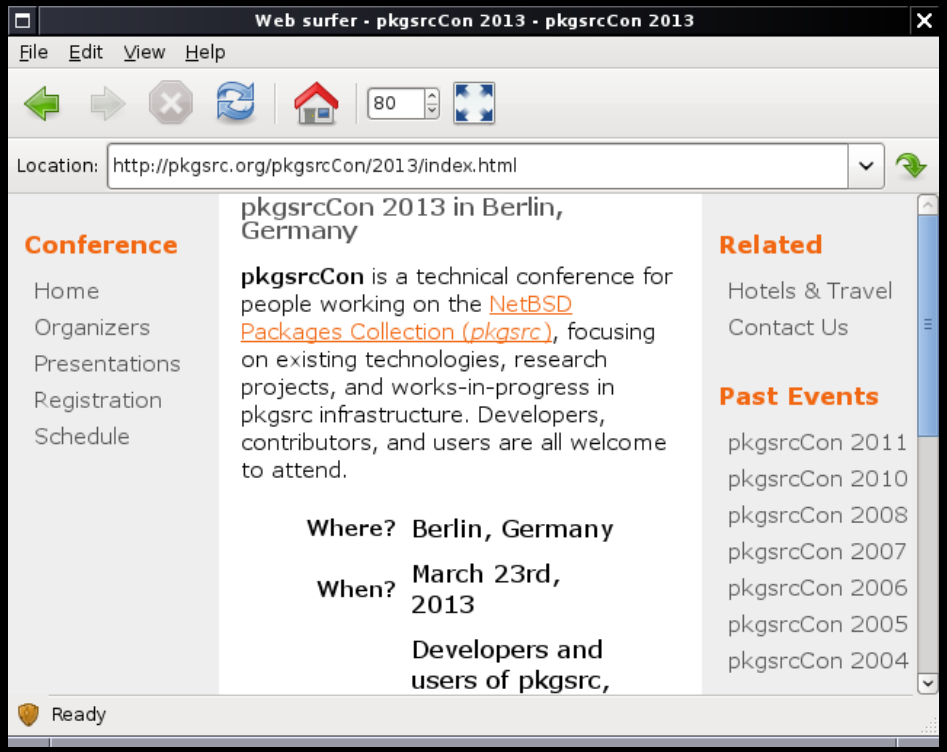

- mail/deforaos-mailer
- Read-only access to mbox, POP3 and IMAP4 mailboxes
- A couple plug-ins

# The desktop: PIM applications



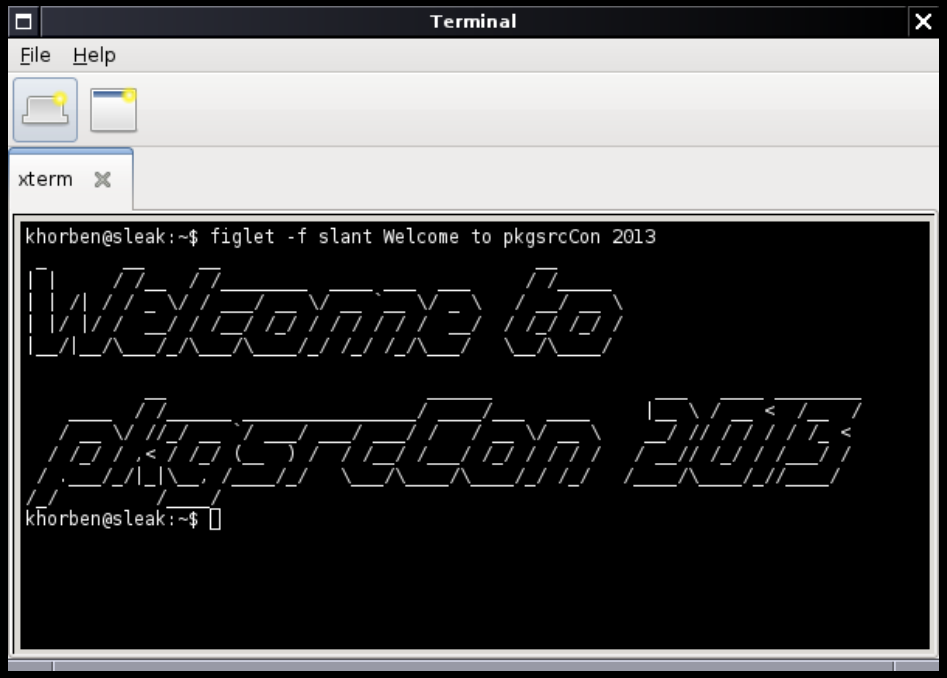

- time/deforaos-todo
- A Todo list (and a calendar once packaged)
- Available as plug-ins for the mail client

# The desktop: web browser



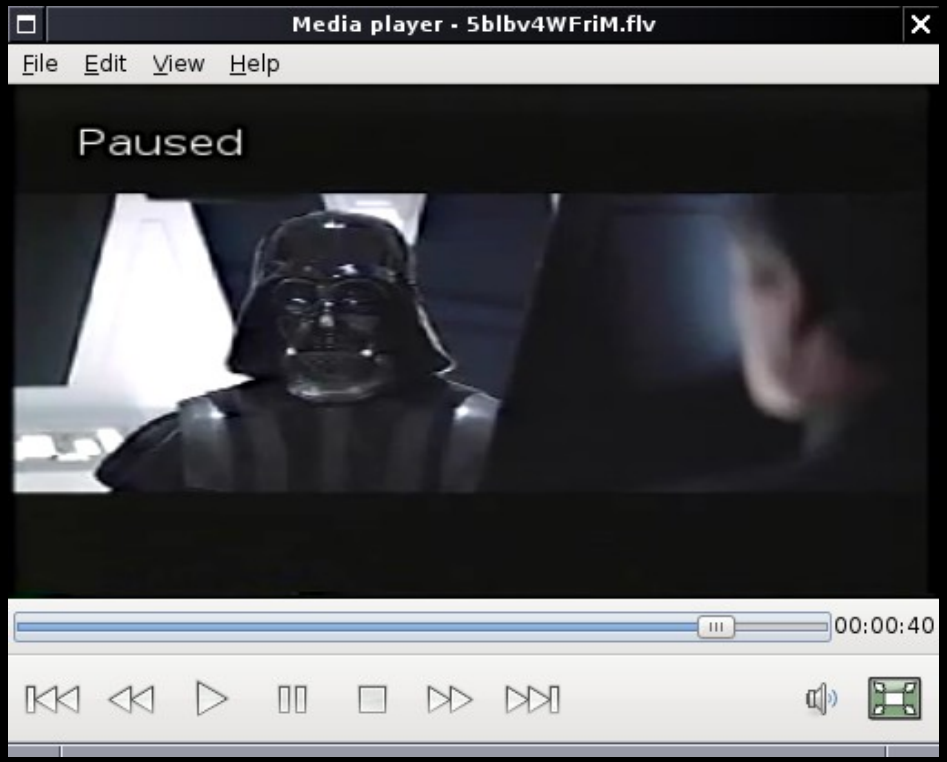

- Supports multiple HTML rendering engines: WebKit, Gecko, libgtkhtml2, home-grown text-only...

# The desktop: terminal emulator




- sysutils/deforaos-terminal
- Really embeds xterm
- Supports multiple tabs
- Very young code

# The desktop: media player

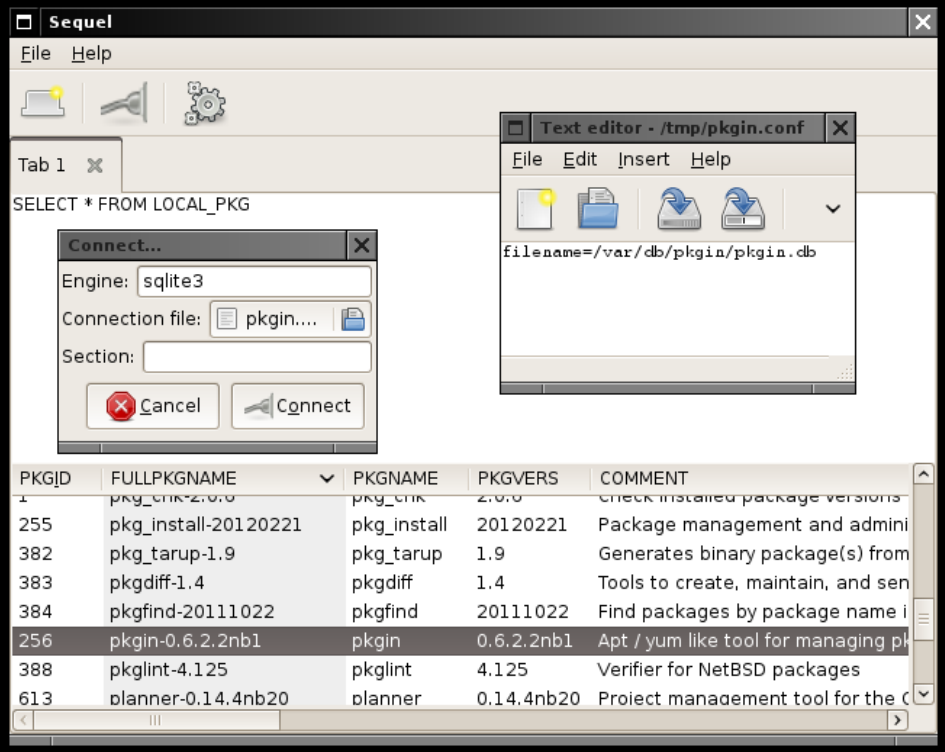



- multimedia/deforaos-player
- Really embeds mplayer (rather painful unfortunately)
- Slowly getting it to be actually usable

# Development tool: simulator


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

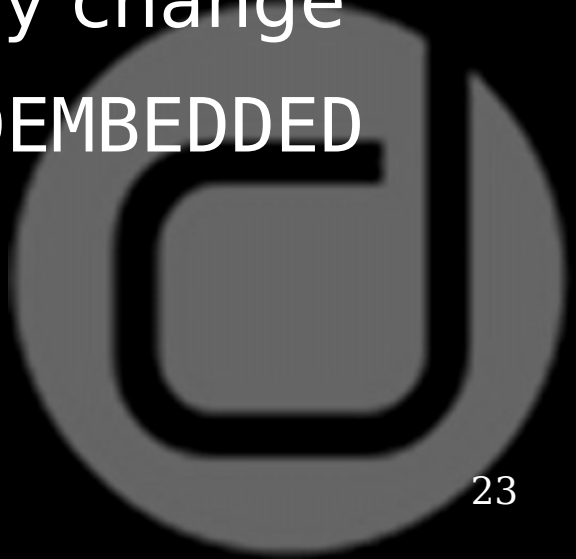
# Development tool: SQL console




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

# Embedded mode

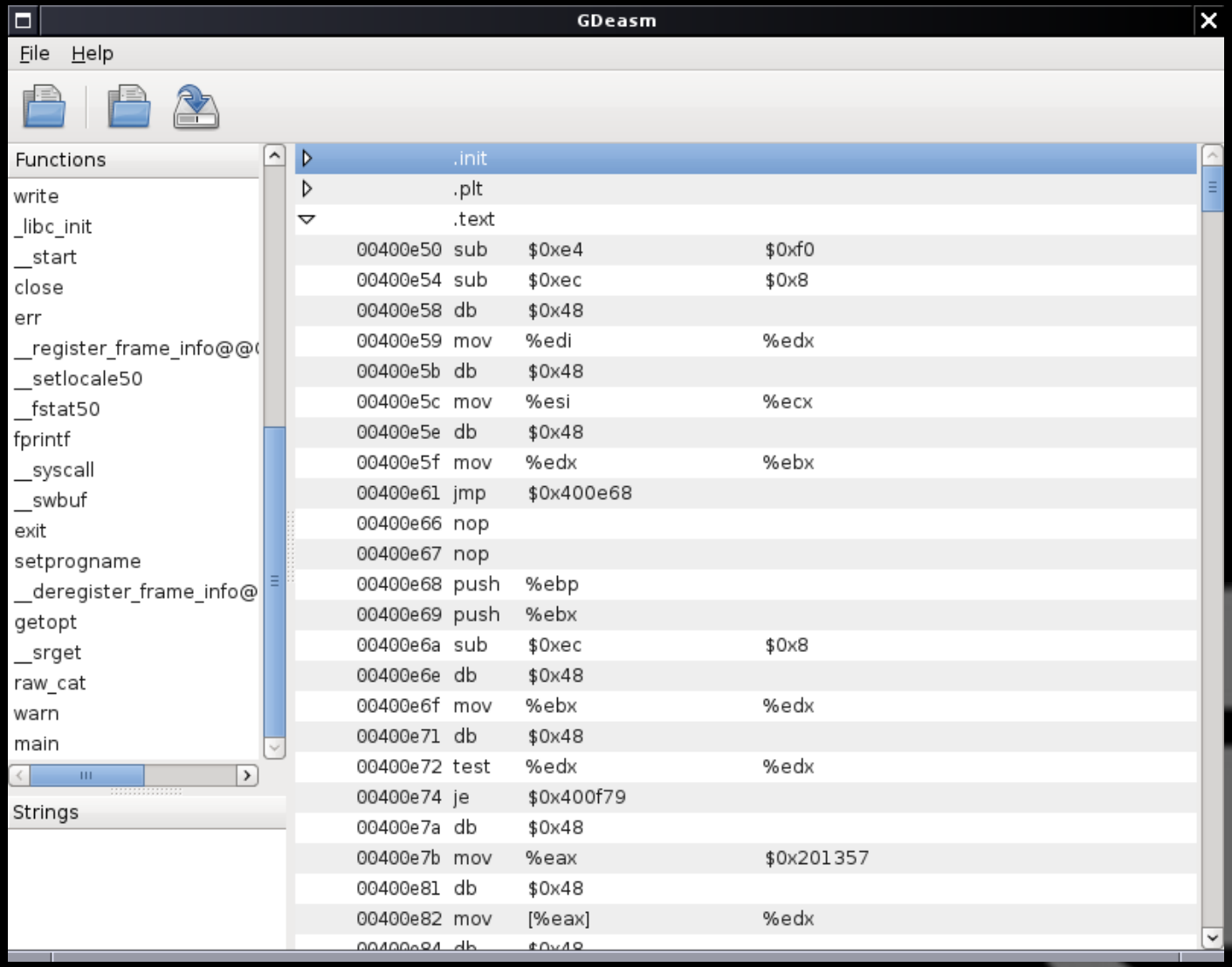
- It is exactly the same code for the logic
- Slight modifications of the user interface:
  - No more menu bar
  - Missing functionality added to the toolbar
  - Missing keyboard shortcuts handled explicitly
- Otherwise some default values may change
- Compile-time option: `CPPFLAGS=-DEMBEDDED`
- In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



# What doesn't work

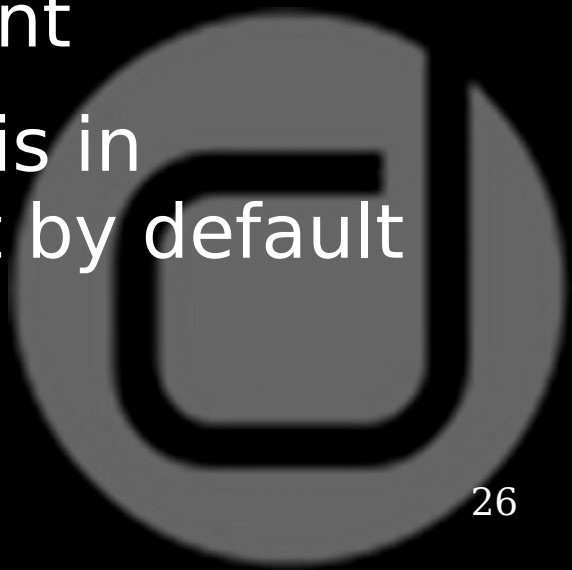
- Building on Linux, MacOS X, probably more:
  - The Makefiles are meant to be portable
  - They are automatically generated through DeforaOS' own “configure” tool
  - Unfortunately some differences cannot be fully helped through Makefiles (libossaudio, libdl...)
  - Some packages need either re-running configure, or special handling code depending on the target platform
- The window manager is not nearly good enough (wip/deforaos-framer)

# cat


GDeasm
File Help
Functions
write
_libc_init
__start
close
err
__register_frame_info@@(
__setlocale50
__fstat50
fprintf
__syscall
__swbuf
exit
setprogname
__deregister_frame_info@
getopt
__srget
raw_cat
warn
main
Strings
.init
.plt
.text
00400e50 sub $0xe4 $0xf0
00400e54 sub $0xec $0x8
00400e58 db $0x48
00400e59 mov %edi %edx
00400e5b db $0x48
00400e5c mov %esi %ecx
00400e5e db $0x48
00400e5f mov %edx %ebx
00400e61 jmp $0x400e68
00400e66 nop
00400e67 nop
00400e68 push %ebp
00400e69 push %ebx
00400e6a sub $0xec $0x8
00400e6e db $0x48
00400e6f mov %ebx %edx
00400e71 db $0x48
00400e72 test %edx %edx
00400e74 je $0x400f79
00400e7a db $0x48
00400e7b mov %eax $0x201357
00400e81 db $0x48
00400e82 mov [%eax] %edx

# (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

- The packages in pkgsrc-wip target Gtk+ 3:
  - deforaos-browser fails to build the “desktop” binary
  - A couple more packages may not fully 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!

# Contact information

- Usual suspect:
  Pierre Pronchery <khorben@defora.org>
  http://people.defora.org/~khorben/
  khorben on the Freenode IRC network