

FOSDEM 2014 Brussels, Belgium

Pierre Pronchery (khorben@) Saturday, February 1st 2014

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



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About DeforaOS (2/2)

Three parts:

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

Distributed framework RPC, interfaces, services...

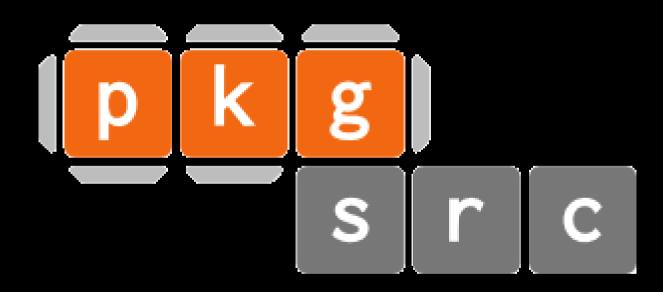


Desktop environment desktop, embedded devices...

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

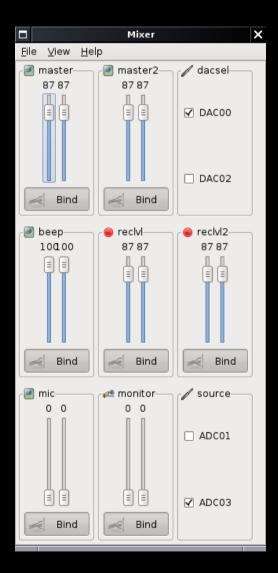


What works

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

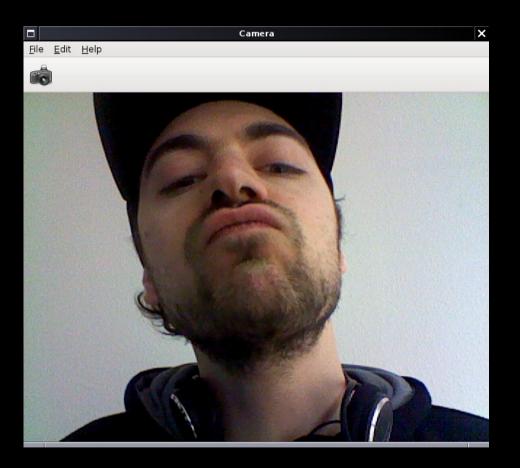


The desktop: volume mixer



- 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/deforaoscamera
- 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/deforaosphone
- 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

	Help browser - LS(1)				
<u>F</u> ile <u>∨</u> iew	Help				
		6			
LS(1)	General Commands Manual				
NAHE ls	– list directory contents				
SYNOPS	IS				

ls[-AaBbCcdFfghikLlHmnopqRrSsTtuWwx1] [file ...]

DESCRIPTION

For each operand that names a *file* of a type other than directory, **ls** dis as well as any requested, associated information. For each operand that n type directory, **ls** displays the names of files contained within that dire as any requested, associated information.

If no operands are given, the contents of the current directory are displ than one operand is given, non-directory operands are displayed first; di non-directory operands are sorted separately and in lexicographical order

The following options are available:

- A

List all entries except for '.' and '..'. Always set for the super u

-a

Include directory entries whose names begin with a dot ('.').

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

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DeforaOS & pkgsrc

The desktop: kick-ass file manager



- sysutils/deforaosbrowser
- 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)

DeforaOS & pkgsrc

The desktop: mail client

	Compose	×
<u>F</u> ile <u>E</u> dit	<u>V</u> iew <u>H</u> elp	
From:	Pierre Pronchery <khorben@defora.org></khorben@defora.org>	0
To:	DeforaOS development <devel@lists.defora.org></devel@lists.defora.org>	
X-Any-Heade	r: Yes this works :)	
Subject:	Demonstrating the mail client	
There you	go	
khorben		
		.:
_		

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



The desktop: PIM applications

	Todo						
<u>F</u> ile	<u>E</u> dit <u>V</u> iew <u>H</u> elp						
:		w as 🗸					
Dor	Title	Beginning	Completion	Priority			
	Have many many things t	Sat 23 Mar 13:43:51 2013		High			
	Got to go now	Sat 23 Mar 13:43:44 2013		Urgent			

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



The desktop: web browser

	Web surfer - pkg	gsrcCon 2013 • pkgsrcCon 2013		×
<u>F</u> ile <u>E</u> dit ⊻iew <u>H</u> elp)			
🔶 🔶 😫 🖡	2 🛕 80	×		
Location: http://pkgsro	c.org/pkgsrcCon/201	. 3/index.html	~	❥
Conference	pkgsrcCon 20 Germany	013 in Berlin,	Related	^
Home Organizers Presentations	pkgsrcCon is a people working Packages Colle	Hotels & Travel Contact Us	≡	
Registration Schedule	on existing technologies, research projects, and works-in-progress in pkgsrc infrastructure. Developers, contributors, and users are all welcome to attend.		Past Events pkgsrcCon 2011 pkgsrcCon 2010	
	Where? When?	Berlin, Germany March 23rd, 2013	pkgsrcCon 2008 pkgsrcCon 2007 pkgsrcCon 2006	
		Developers and users of pkgsrc,	pkgsrcCon 2005 pkgsrcCon 2004	
💚 Ready				

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

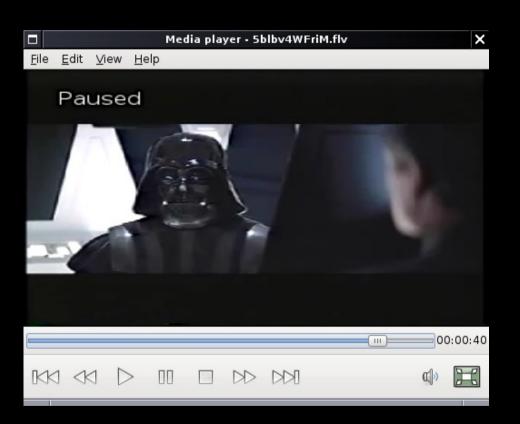


The desktop: terminal emulator

Terminal	×
<u>F</u> ile <u>H</u> elp	
xterm 🗶	
khorben@sleak:~\$ figlet -f slant Welcome to pkgsrcCon 2013	
//////////////////////////////////////	

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

The desktop: media player



- multimedia/deforaosplayer
- 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)

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Development tool: SQL console

Sequel					×
<u>F</u> ile <u>H</u> elp					
	505 505		Text	editor - /tmp/pkgin.conf 🛛 🗙	
Tab 1 🗶				it <u>I</u> nsert <u>H</u> elp	
SELECT * FROM LOCAL_PKG				🖹 🏝 🏝 🗸 🚽	
Connect		×	filename=	=/var/db/pkgin/pkgin.db	
Engine:	sqlite3				
Connectio	on file: 📃 pkgin 🛛				
Section:					
	Cancel	t			
	_PKGNAME 🗸	PKGNAME	PKGVERS	COMMENT	^
	install-20120221	pkg_crik pkg_install	20120221	Package management and admini	
F···5.	tarup-1.9	pkg_mstan pkg_tarup	1.9	Generates binary package(s) from	
	diff-1.4	pkgdiff	1.4	Tools to create, maintain, and sen	
1 5	ind-20111022	pkgfind	20111022	Find packages by package name i	
256 pkgi	n-0.6.2.2nb1	pkgin	0.6.2.2nb1	Apt / yum like tool for managing pl	
388 pkgl	int-4.125	pkglint	4.125	Verifier for NetBSD packages	
613 plan	ner-0.14.4nb20	planner	0.14.4nb20	Proiect management tool for the (
				>	

- 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		×
<u>F</u> ile <u>H</u> elp						
Functions	▶	.in	nit			
write	⊳	.pl	lt			Ξ
_libc_init	$\overline{}$		ext			
_start		00400e50 su		\$0xe4	\$0xf0	
close		00400e54 su		\$0xec	\$0x8	
err		00400e58 db		\$0x48		
_register_frame_info@@(00400e59 m		%edi	%edx	
setlocale50		00400e5b db	о	\$0x48		
fstat50		00400e5c m	ov	%esi	%ecx	
fprintf		00400e5e db	С	\$0x48		
syscall		00400e5f m	ov	%edx	%ebx	
swbuf		00400e61 jm	ηp	\$0x400e68		
exit		00400e66 nc	ор			
setprogname		00400e67 nc	ор			
		00400e68 pt	ush	%ebp		
getopt		00400e69 pt	ush	%ebx		
_srget		00400e6a su	du	\$0xec	\$0x8	
raw_cat		00400e6e db	С	\$0x48		
warn		00400e6f m	ov	%ebx	%edx	
main		00400e71 db	С	\$0x48		
		00400e72 te	est	%edx	%edx	
		00400e74 je		\$0x400f79		
Strings		00400e7a db	o	\$0x48		
		00400e7b m	ov	%eax	\$0x201357	
		00400e81 db	o	\$0x48		
		00400e82 m		[%eax]	%edx	
		00400084 db		¢0v49		~

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(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

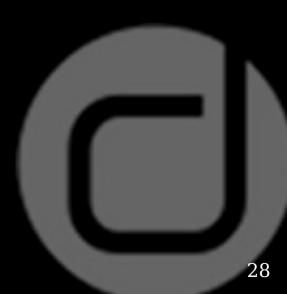
Compilation framework

- 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



DeforaOS & pkgsrc