What is EdgeBSD?

Overview, status, perspectives of the project

vBSDCon
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Reston, VA, USA

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Personal

A few words about myself

Pierre Pronchery

OS Development hobbyist

Freelance IT-Security consultant since 2007

NetBSD developer since May 2012
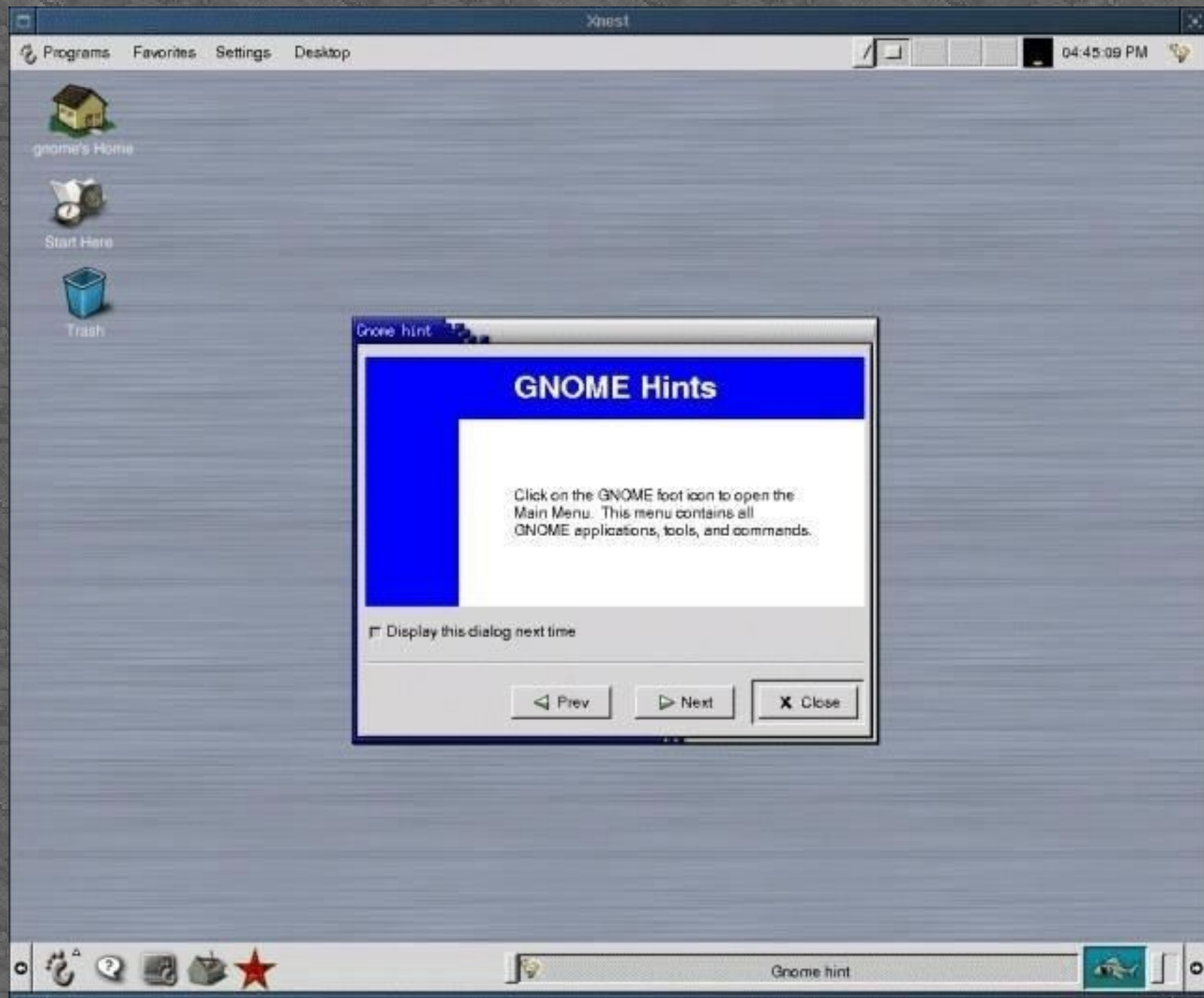
EdgeBSD founder since July 2013

Young

Before founding EdgeBSD

Forked Debian GNU/Linux in 2001

- Defora GNU/Linux, graphical installer for the coming "woody" release

Programs   Favorites   Settings   Desktop

04:45:09 PM

gnome's Home

Start Here

Trash

Gnome hint

GNOME Hints

Click on the GNOME foot icon to open the
Main Menu. This menu contains all
GNOME applications, tools, and commands.

☐ Display this dialog next time

◁ Prev   ▷ Next   ✕ Close

Gnome hint

Before founding EdgeBSD

Continued as a fork of Linux From Scratch

- Defora Linux, releases in 2003 and 2004
- Wrote "pkgr" for package management

DeforaOS

Then decided to do everything myself

- No specific deadline

- Learning a lot doing this

- Gathering what I learn in a project

- Need a base for this work

First contact with NetBSD in 2004

```
fdc0 at isa0 port 0x3f0-0x3f7 irq 6 drq 2
attimer0: attached to pcppi0
acpicpu0 at cpu0: ACPI CPU
vmt0 at cpu0: Unknown
vmware: open failed, eax=564d5868, ecx=0000001e, edx=00005658
vmt0: failed to open backdoor RPC channel (TCLO protocol)
wd0 at atabus0 drive 0
wd0: <QEMU HARDDISK>
wd0: 65536 KB, 130 cyl, 16 head, 63 sec, 512 bytes/sect x 131072 sectors
atapibus0 at atabus1: 2 targets
cd0 at atapibus0 drive 0: <QEMU DVD-ROM, QM00003, 0.15.1> cdrom removable
pad0: outputs: 44100Hz, 16-bit, stereo
audio0 at pad0: half duplex, playback, capture
boot device: wd0
root on wd0e dumps on wd0b
root file system type: ffs
Welcome to DeforaOS!

login: root
# uname -a
NetBSD  7.0_RC3 NetBSD 7.0_RC3 (GENERIC)
 amd64
# uptime
 16:54:34 up unknown,   0 users, load average: 0, 0, 0
#
```

Simulator - Lenovo IdeaPad S10-3t

File   View   Help

Mixer - Realtek product 0x0292

File   View   Help

🔊 Outputs | Inputs | 🔴 Record

🔊 master	🔊 master2	🔊 master3	🔊 master4	🔊 master5	dacsel
35 35	0 0	0 0	0 0	0 0	

☑ DAC00

Back

Media player

Volume mixer

System preferences

Date & time   Desktop   Login Photo

Bin
Mut

Panel preferences

General | Panels

Applets:

| 📶 GPS |
| 📱 GSM |
| ⌨ Keyboard |
| 🖥 Lock screen |
| 🏃 Logout |
| Main menu |
| 📈 Memory |
| 🔊 Mixer |

Bottom panel: ▼

☑ Enabled

Default

🏃 Main menu
⌨ Keyboard
🖥 Desktop switch
🖥 Lock screen
🏃 Logout

q	w	e	r	t	y	u	i	o	p
a	s	d	f	g	h	j	k	l	

⇧   z   x   c   v   b   n   m   ,   .

123   Ctrl   Alt   ↵   ⌫

Workspace 1 | Workspace 2 | Workspace 3 | Workspace 4

A learning process

jmmv@ "Burning Platform" Memo

Julio's self-interview in June 2013, pointing:

- Lack of leadership

- Inability to take risk

- No desire to recruit new users

- Some parting words

A lot of discussion, no action...

Reaction

Give developers good tools

Git is such a tool

This is how the project started:

```
$ git clone \
  git@github.com:jsonn/src.git \
  edgebsd-src.git
```

gitk: edgebsd-pkgsrc

File   Edit   View   Help

`pkgsrc_2015Q2` `remotes/origin/pkgsrc_2015Q2` Merge branch 'integration/options-misc' into pkgsrc_2015Q2	Pierre Pronchery <khorben@EdgeBSD.org>	2015-07-20 19:56:58
`integration/options-misc` `remotes/origin/integration/options-misc` Enable some minor options by default where relevant	Pierre Pronchery <khorben@EdgeBSD.org>	2015-07-20 19:55:57
Merge branch 'integration/options-opengl' into pkgsrc_2015Q2	Pierre Pronchery <khorben@EdgeBSD.org>	2015-07-20 19:54:47
`integration/options-opengl` `remotes/origin/integration/options-opengl` Enable OpenGL support by default where relevant	Pierre Pronchery <khorben@EdgeBSD.org>	2015-07-20 19:53:27
Merge branch 'integration/options-pulseaudio' into pkgsrc_2015Q2	Pierre Pronchery <khorben@EdgeBSD.org>	2015-07-20 19:47:17
`integration/options-pulseaudio` `remotes/origin/integration/options-pulseaudio` Enable pulseaudio support by default where relevant	Pierre Pronchery <khorben@EdgeBSD.org>	2015-07-20 19:44:56
Merge branch 'integration/options-xps' into pkgsrc_2015Q2	Pierre Pronchery <khorben@EdgeBSD.org>	2015-07-20 19:46:21
`integration/options-xps` `remotes/origin/integration/options-xps` Enable XPS support by default where relevant	Pierre Pronchery <khorben@EdgeBSD.org>	2015-07-20 19:31:40
Merge branch 'integration/options-dbus' into pkgsrc_2015Q2	Pierre Pronchery <khorben@EdgeBSD.org>	2015-07-20 19:42:51
`integration/options-dbus` `remotes/origin/integration/options-dbus` Enable support for DBUS by default where relevant	Pierre Pronchery <khorben@EdgeBSD.org>	2015-07-20 19:30:29
Enable LDAP support by default where relevant	Pierre Pronchery <khorben@EdgeBSD.org>	2015-07-20 18:26:14
Enable SASL support by default where relevant	Pierre Pronchery <khorben@EdgeBSD.org>	2015-07-20 17:49:23
Enable Bonjour support by default where relevant	Pierre Pronchery <khorben@EdgeBSD.org>	2015-07-20 18:57:58
Enable SLP support by default where relevant	Pierre Pronchery <khorben@EdgeBSD.org>	2015-07-20 18:00:02
Enable SSL by default where relevant	Pierre Pronchery <khorben@EdgeBSD.org>	2015-07-20 17:24:39
Enabled IPv6 by default where still relevant	Pierre Pronchery <khorben@EdgeBSD.org>	2015-07-20 17:34:28
Default to supporting cups in packages with the option	Pierre Pronchery <khorben@EdgeBSD.org>	2015-07-13 18:38:11
Merge branch 'integration/netbsd-gcc-flags' into pkgsrc_2015Q2	Pierre Pronchery <khorben@EdgeBSD.org>	2015-07-20 18:48:59
`integration/netbsd-gcc-flags` `remotes/origin/integration/netbsd-gcc-flags` Let the new security features be optional	Pierre Pronchery <khorben@EdgeBSD.org>	2015-07-20 18:45:07
Introduce a sink for NetBSD/gcc	Pierre Pronchery <khorben@defora.org>	2015-07-19 05:00:23
Detect more standard gcc flags	Pierre Pronchery <khorben@defora.org>	2015-07-19 04:13:49
It is not possible to build PIE at the moment	Pierre Pronchery <khorben@defora.org>	2015-07-19 03:18:15
Compile with stack protection, PIE, RELRO by default	Pierre Pronchery <khorben@defora.org>	2015-07-16 20:30:47
`remotes/netbsd/pkgsrc_2015Q2` Pullup ticket #4776.	tron <tron>	2015-07-19 19:59:02
Pullup ticket #4776 - requested by manu	tron <tron>	2015-07-19 19:58:43
Pullup tickets #4762, #4763 and #4766.	tron <tron>	2015-07-15 22:19:51
Pullup ticket #4766 - requested by taca	tron <tron>	2015-07-15 22:19:23
Pullup ticket #4763 - requested by joerg	tron <tron>	2015-07-15 22:10:45
Pullup ticket #4762 - requested by joerg	tron <tron>	2015-07-15 22:05:30
Pullup tickets #4765, #4771, #4772, #4773 and #4774.	tron <tron>	2015-07-15 00:19:50

SHA1 ID: `e33a2680d9dbffbdada966e50830dff70428cd30` ← → Row `19` / `235758`

Find ↓ ↑   commit `containing:`   [Exact ▾] [All fields ▾]

[Search]   `_____`

◆ Diff ○ Old version ○ New version   Lines of context: `3`   ☐ Ignore sp

◆ Patch ○ Tree

```
Parent: 3f735cc249c8d61b9679156f414efc6d4e99e0b4 (Introduce a sink 1 ▲
Child:  9bbbf762ba3f097447f5cd830c75593048e97328 (Merge branch 'inte
Branches: integration/netbsd-gcc-flags,
          integration/options-bonjour, pkgsrc_2015Q2,
          remotes/origin/integration/netbsd-gcc-flags,
          remotes/origin/integration/options-bonjour,
          remotes/origin/pkgsrc_2015Q2
Follows:
Precedes:

    Let the new security features be optional

    The same options as for NetBSD's own build system are used, and
    from mk.conf(5).

-------------------------- mk/platform/NetBSD.mk --------------------------
index 61f11e9..54d05a5 100644
@@ -133,19 +133,26 @@ FFLAGS+=    -mieee
 PKG_HAVE_KQUEUE=        # defined
 .endif

+.if ${USE_SSP:Uyes} != "no"
 # build with stack protection by default (with GCC)
 _GCC_CFLAGS+=   -fstack-protector
+.endif

+.if ${MKPIE:Uyes} != "no"
 # build position-independant code by default (with GCC, for ASLR)
-# FIXME this needs to differentiate between:
-# libraries:
```

Comments

mk/platform/NetBSD.mk
mk/wrapper/bsd.wrapper.mk
mk/wrapper/cmd-sink-netbsd-gcc

About gitk

Gitk - a commit viewer for git

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[Close]

Leadership

Democratic benevolent dictator

Project organization document:

- A single project leader
- A single authority for every aspect

Annual election process:

- Competing platforms & campaigns

Structure of the project since its infancy

Welcoming

Team

The EdgeBSD team

- bapt

- cfkoch

- drscream

- fallen

- gls

- kamil

- khorben

- kooda

- rkujawa

- youri

Induction process

- Send me a public SSH key

- Provide a username

- Valid e-mail address for redirection

- Be excellent to each other!

Clone of NetBSD

Distribution

Software distribution

Wikipedia:
« *process of delivering software to the end user* »

- Usable

- Stable

- Secure

Stable

Stability

Version number does not change (visibly)

- They have no meaning past the first digit

The system keeps working *the same way* after updates

Outside of major releases, only fixes and hardware support

Rolling release

Rolling release

Continuous builds of netbsd-{6,7}

Effectively called EdgeBSD 6 & 7

-current can be EdgeBSD 8 already

LTS support for corresponding pkgsrc branches (Joyent does it too now)

See «Carve your NetBSD», AsiaBSDCon 2013 together with gls@

Carve your NetBSD

Pierre Pronchery, DUEKIN Consulting
`<pierre.pronchery@duekin.com>`
Guillaume Lasmayous `<guigui2@guigui2.net>`

Revision History

Revision 0.1	2013-11-25	Pierre Pronchery
	Initial submission to AsiaBSDCon	
Revision 0.2	2014-01-22	Guillaume Lasmayous
	Imported first elements about CVS, Git, pkgsrc	
Revision 0.3	2014-01-31	Pierre Pronchery
	Submission as a paper to AsiaBSDCon	

Abstract

After over 20 years of active development [1], NetBSD [2] proves to be a resilient, attractive, featureful and stable platform for industrial products and research projects alike [3]. The reasons behind the technical and practical merits of the system will not be explored or debated here; however, there is always space for improvement. This paper (and associated talk) attempts to identify areas in which gaps may be determined, and presents ways and ongoing work to address them. The topics covered range from the development model to a more user-oriented release strategy, through the adoption of key industrial processes. The EdgeBSD Project is introduced [4] as a platform to experiment with these propositions. Additionally, user interfaces for both desktop and embedded environments are demonstrated, thanks to the DeforaOS Project [5].

Table of Contents

Introduction

NetBSD is one of the first Open Source projects to have adopted a community-based development model [6]. Established and first released as far back as 1993, it is developed using a "global" approach to the system, with the kernel and essential user-land components integrated together as a whole [7]. This is very different

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[1] Initial revision for `src/Makefile`, http://cvsweb.netbsd.org/bsdweb.cgi/src/Makefile?rev=1.1&content-type=text/x-cvsweb-markup
[2] The NetBSD Project, http://www.netbsd.org/
[3] « What is NetBSD? » in the NetBSD Guide, https://www.netbsd.org/docs/guide/en/chap-intro.html
[4] The EdgeBSD Project, https://www.edgebsd.org/
[5] The DeforaOS Project, https://www.defora.org/
[6] Open Sources: Voices from the Open Source Revolution, http://oreilly.com/catalog/opensources/book/kirkmck.html
[7] The NetBSD system, https://www.netbsd.org/about/system.html

Usable

Upgrade path

Binary packages & sets are 1st class citizens

EdgeBSD offers two tools:

- "edgebsd-update.sh" for the base system

- pkgin for the packages

...that's still one tool too many

```
100% |*******************************|  5979 KiB    1.05 MiB/s    00:00 ETA
Verifying set text...
netpgp: assuming signed data in "text.tgz"
Good signature for text.tgz.sig made Wed Jul 15 05:05:49 2015
using RSA (Encrypt or Sign) key d26d58b8dc86dd69
signature  4096/RSA (Encrypt or Sign) d26d58b8dc86dd69 2014-05-23 [EXPIRES 2024-
05-20]
Key fingerprint: d1ca ee28 3eab 8993 ac4c 3bcb d26d 58b8 dc86 dd69
uid              EdgeBSD sets <root@edgebsd.org>
encryption 4096/RSA (Encrypt or Sign) 96c7d5ee0d0de77e 2014-05-23 [EXPIRES 2024-
05-20]
Installing set text...
100% |*******************************|  2889 KiB    2.20 MiB/s    00:00 ETA
Configuring the system...
Removing set base...
Removing set etc...
Removing set games...
Removing set man...
Removing set misc...
Removing set modules...
Removing set text...
Update successful.
dawn#
[0] 0:ksh* 1:tail- 2:top  3:ksh              "dawn.edgebsd.org" 00:45 12-Sep-15
```

Simpler

Usability

Give less choice to the (regular) users

- No X in base

- No duplication between base and pkgsrc

Linux   Windows   Mac

(image source unknown)

Usability

More objectives:

- Pre-cooked images (etch.sh)

- Base as packages

- Single configuration file format (hi Jordan!)

- 1-click install...

Ambitious

More usability

Default options in pkgsrc:

- CUPS, dbus, IPv6, LDAP, Pulseaudio, SLP, SSL/TLS

Makes Gtk+ much more usable (printing)

Any kind of audio mixing is necessary

Default desktop environment

DeforaOS desktop:

- Same software for embedded use as well

- Currently re-licensing as BSD

- Working on better integration

«Touch your NetBSD», EuroBSDCon 2012

Alternatively XFCE (thx gls@ & youri@)

Responsibility

Secure packages

Signing packages:

- NetBSD had support since 2001

- Apparently never used (was broken)

- Fixes pushed to pkgsrc and NetBSD

- jperkin@ from Joyent committed further improvements (switch to netpgp)

Secure package delivery

May sound trivial but:

- HTTPS access for binaries
- SSH access for sources

...should be a requirement.

Signed packages & sets as mitigation

Focusing on security

Improving security

- Enabling SSP in **all** of base **and** in pkgsrc
- PaX ASLR & mprotect by default (x86)
- Set relevant binaries as NOT_PAX_SAFE
- Full ASLR needs PIE
- RELRO from OpenBSD
- Reproducible builds
- Security advisories for base **and** pkgsrc

Contributing back
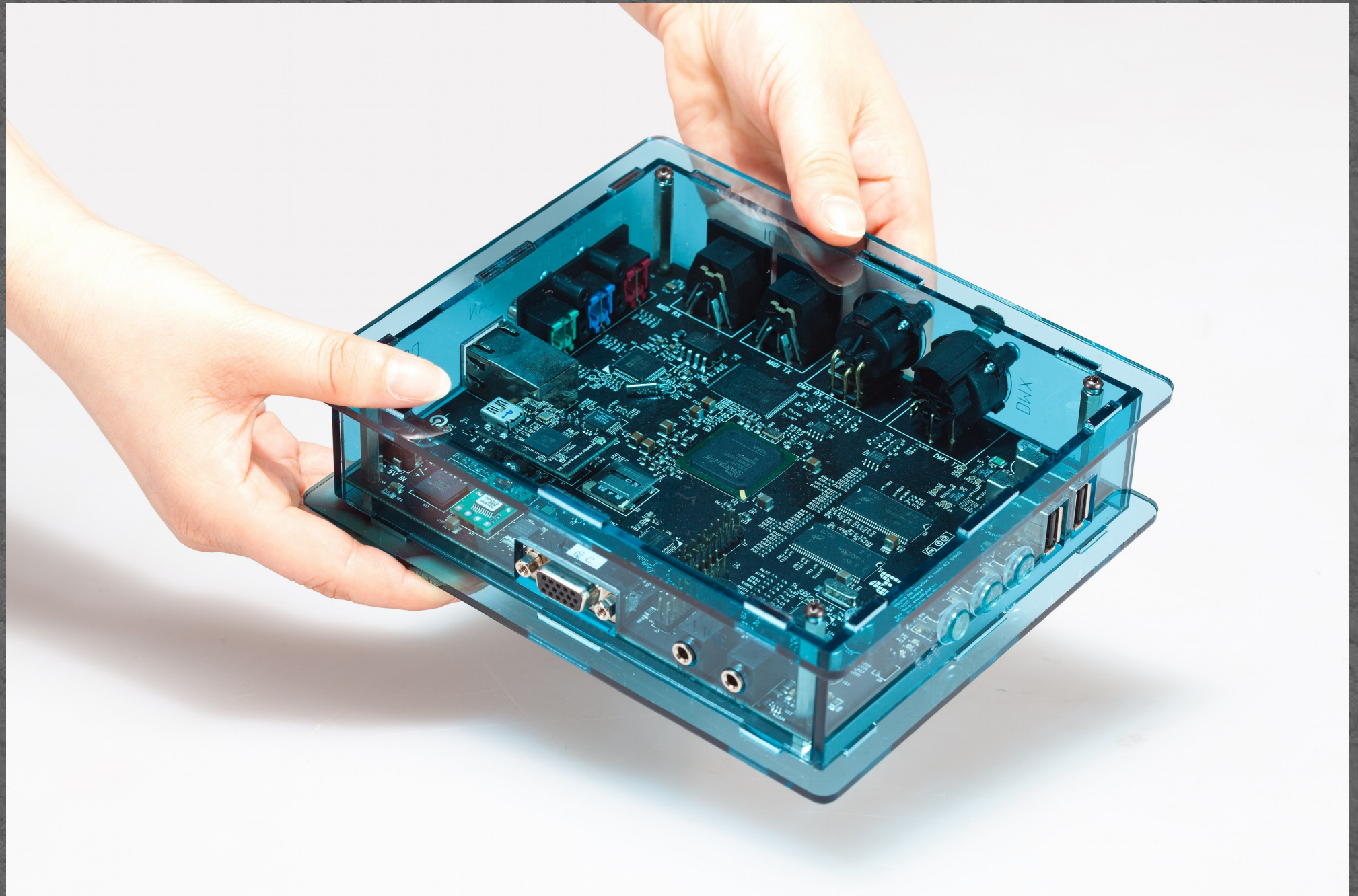
Achievements

Helped bring new developers to NetBSD:

- Kamil, Youri

New architecture port in progress (lm32)

Integrating patches:

- Package signing

- SSP support for pkgsrc…

Struggling

Existing issues

- Build infrastructure down (PR kern/48739)

- No regular builds

- Improve and push our patches for pkgsrc

Getting there

Where we are

- IRC #EdgeBSD on Freenode
- Mailing-lists at http://lists.edgebsd.org/
- Web at https://www.edgebsd.org/
- Going to BSD conferences :)

Thank you all for your attention

Special thanks to Verisign for inviting