Debian and its ecosystem

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Free Software & your [digital] life

Lester picked up a screwdriver. "You see this? It's a tool. You can pick it up and you can unscrew stuff or screw stuff in. You can use the handle for a hammer. You can use the blade to open paint cans. You can throw it away, loan it out, or paint it purple and frame it." He thumped the printer. "This [Disney in a Box] thing is a tool, too, but it's not your tool. It belongs to someone else — Disney. It isn't interested in listening to you or obeying you. It doesn't want to give you more control over your life." [. . .]

"If you don't control your life, you're miserable. Think of the people who don't get to run their own lives: prisoners, reform-school kids, mental patients. There's something inherently awful about living like that. Autonomy makes us happy."

— Cory Doctorow, Makers
`http://craphound.com/makers/`

Free Software, raw

> *foo* is cool, let's install it!

1. download foo-1.0.tar.gz
   - checksum mismatch, missing public key, etc.
2. ./configure
   - error: missing bar, baz, . . .
3. foreach (bar, baz, . . .) go to 1
   until (recursive) success
4. make
   - error: symbol not found
5. make install
   - error: cp: cannot create regular file /some/weird/path

now try scale that up to ≈20'000 sources releasing ≈3'000 new
version/month

Free Software, à point: distributions
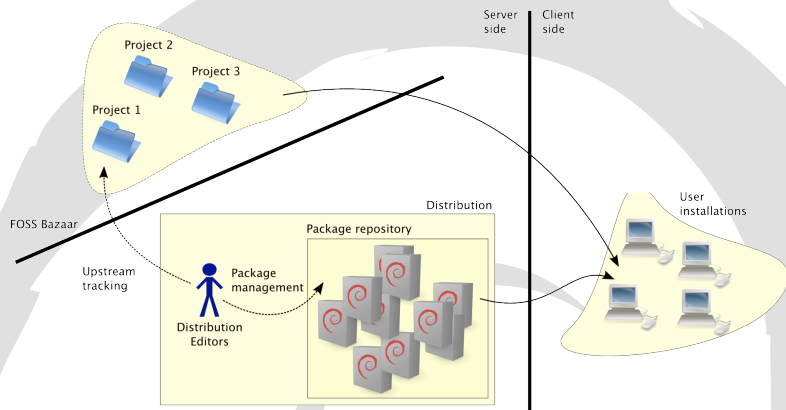
- ease software management
- key notion: the package abstraction
- offer coherent software collections
- killer apps: package managers, installers

Outline

Outline

1. **Debian and Wheezy**

2. Specialties

3. Derivatives

4. Business

Debian: once upon a time

Fellow Linuxers,
   This is just to announce the imminent completion of a brand-new Linux release, which I'm calling the Debian Linux Release. [. . .]

Ian A Murdock, 16/08/1993
`comp.os.linux.development`

- make GNU/Linux competitive with commercial OS
- easy to install
- built collaboratively by software experts
- 1st major distro developed "*openly in the spirit of GNU*" FSF-supported for a while

$\frac{1}{3}$ of Debian: the operating system

flagship product: Debian stable

- binary distribution
- completely Free (DFSG)
- released every 24 months ($\approx$)
- a dozen architectures
- archive-wide security support (3-3.5 years)

renowned for

ports, stability, packaging system, old hw support, documentation, smooth upgrades, i18n/l10n, the `testing` suite, runs anywhere, technical policy, package choice, . . .
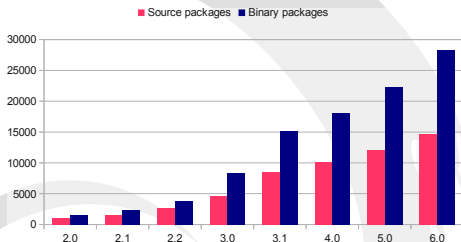
one of the largest Free Software porting platforms

Debian 7.0 "Wheezy" — highlithgs

- multiarch
  - 3rd party software, easily
  - cross-compilation
- private cloud deployment
  - OpenStack, Xen/XCP, . . .
- public cloud support
  - EC2, Azure, GCE, . . .
- multimedia codecs & frontends
  - ~~3rd party repositories~~
- new archs: armhf, s390x

- desktop: GNOME 3.x, KDE Plasma 4.x, XFCE, . . .
- upgrades throughout the archive

released: May 4th, 2013 ✓

Common goal:

Create the best, Free operating system.

Debian Social Contract (1997)

- 100% Free Software
- give back
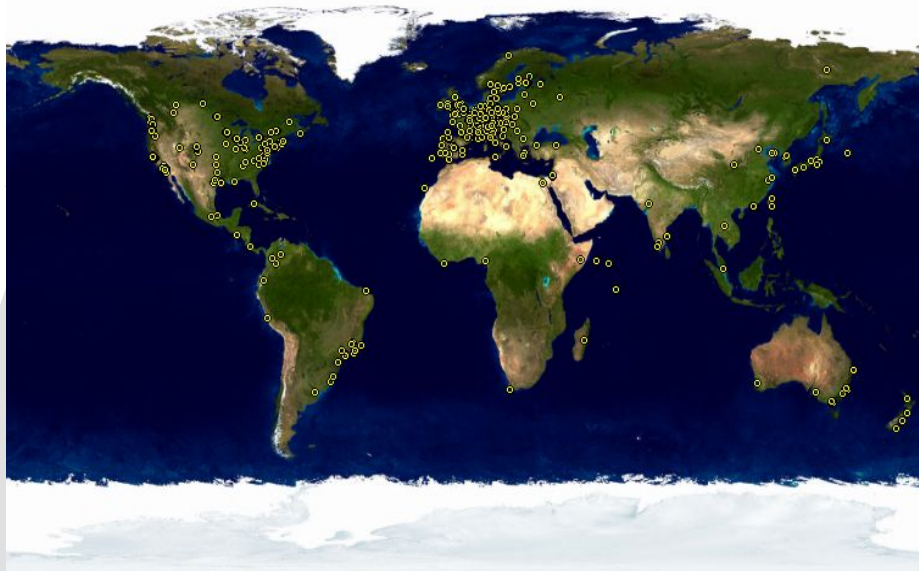- don't hide problems
- priorities: users & Free Software

Debian Constitution (1998)

Structures and rules of a Free-Software-compatible democracy

Strong motive to join: ≈ 1'000 project members, world-wide

$\frac{1}{3}$ of Debian: the Project (cont.)

Demography

Developer's per country

2012 statistics:
www.perrier.eu.org/weblog/2012/06/06#devel-countries-201206

Take a guess: Italy's position?

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Take a guess: Italy's position?

in terms of. . .

- total n. of devs: #8
  (after: us, de, fr, uk, ca, au, es)
- n. of devs *pro capite*: #19
  (after: most eu countries, except eastern europe and gr)

$\frac{1}{3}$ of Debian: the community

Open development
- we don't hide problem
- easy to have an impact (just "show me the code!")

Large amounts of communication
- mailing lists
- IRC
- (a little) social Web(, growing)
  - ▶ social: @debian on identi.ca (pump.io network)

Large number of tech-savvy users
- users help each other, contribute patches, get involved

Outline

Debian: one of a kind?

1993 — not many distros back then
20 years later — *lots* of other distros   (≈300 — DistroWatch)

openSUSE, Linux Mint, PCLinuxOS, Slackware, Gentoo Linux, CentOS, FreeBSD, Arch, Sabayon, Puppy, Lubuntu, MEPIS, Ultimate, NetBSD, Tiny Core, Zenwalk, CrunchBang, Dreamlinux, Vector, Kubuntu, Maemo, Red Hat, aptosid, Peppermint, PC-BSD, Chakra, Salix, ClearOS, KNOPPIX, Xubuntu, Super OS, BackTrack, gOS, TinyMe, Zentyal, EasyPeasy, Frugalware, Clonezilla, Pardus, Meego, OpenBSD, Quirky, PC/OS, Zorin, **Debian**, SystemRescue, Element, Unity, SliTaz, Macpup, wattOS, Scientific, Mythbuntu, Slax, DragonFLY, Elive, linux-gamers, 64 Studio, Ubuntu, mageia, Nexenta, Parisx, NuTyX, GhostBSD, Kongoni, moonOS, LFS, Lunar, Imagineos, Untangle, Fedora, Yellow Dog, aLinux, Yoper, IPFire, BlankOn, Mandriva, PureOS, FreeNAS, Moblin, Linpus, TurboLinux, blackPanther, . . .

with many differences:

- technical choices
- release management
- release schedule
- target user
- community

- support
- packaging system
- user base
- look & feel
- . . .

How is Debian different?

Debian's special #1: package quality

" Culture of technical excellence "

- package design: Policy
  i.e. "how a package should look like"
- package testing: `lintian`, `piuparts`,
  archive rebuilds (FTBFS), . . .
- package maintainers are software experts
- no 2nd class packages, all are equal

Debian release mantra
> *we release when it's ready*

Debian's special #2: freedom

Firm principles: developers and users bound by the *Social Contract*

1. promoting the "culture of Free Software" since 1993
2. Free the bottom up

   ▸ in its <u>software</u>
     firmware included !

   ▸ in its <u>infrastructure</u>
     no non-free web services   (for users)
     no non-free infrastructure   (for developers)

Community awareness

- users know
- users trust Debian not to betray Free Software principles
- high bar for software freedom advocates

Debian's special #3: independence

Debian is an independent project

- no (single) company babysitting us
- living up on:
    1. donations (money & hardware)
    2. gift-economy

... truly remarkable in today "big" distro world

people trust Debian choices not to be "profit-driven"

Debian's special #4: decision making

1. **do-ocracy**

   > *An individual Developer may make any technical or nontechnical decision with regard to their own work;*
   > — Debian Constitution, §3.3.1.1

2. **democracy**

   > *Each decision in the Project is made by one or more of the following:*
   > *1. The Developers, by way of General Resolution [...]*
   > — Debian Constitution, §2

that means:

- reputation follows work
- no benevolent dictator, no oligarchy
- no imposed decisions
  by who has money, infrastructure, people, . . .

Outline

Interlude — derivatives how to

Free Software 101

Freedom #0, to run the program, for any purpose

Freedom #1, to study how the program works, and change it

Freedom #2, to redistribute copies

Freedom #3, to improve the program, and release improvements

When applied to distros: derived distributions, AKA derivatives

How?
1. take existing packages and add your extras
2. patch & rebuild packages as needed
3. sync periodically

Debian derivatives

Debian: a base for ≈140 <u>active</u> derivatives   — DistroWatch
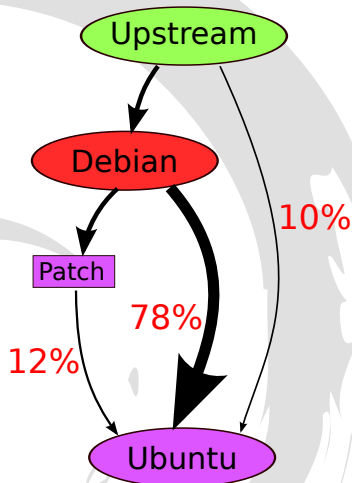
- Tucunare, LinEx, Inquisitor, Grml, UniventionCorporateServer, Vanillux, Emdebian, Crunchbang, PureOS, StormOS, Ubuntu, GNUSTEP, gNewSense, Debathena, Maemo, LMDE, SPACEflight, BCCD, Bayanihan, semplice, ArchivistaBox, Knoppix, Tails, BlankOn, AlienVault-OSSIM, DoudouLinux, Vyatta, Symbiosis, VoyageLinux, Lihuen, LinuxAdvanced, Aptosid, Canaima, siduction, ZevenOS-Neptune, BOSSlinux, Parsix, AstraLinux, ProgressLinux, Finnix, SprezzOS, CoreBiz, Epidemic-Linux, MetamorphoseLinux , . . .

  Why?
  - quality & licensing assurances
  - solid base system
  - huge package base
  - the "*universal* OS", perfect for customizations

A Debian derivative example: Ubuntu

- started in 2004 by Canonical
  target: desktop
- Debian derivative
- very popular (15–20x Debian?)
- historical/past correlations

main	↔	corporate
universe	↔	community

  - ▶ heavily customized/forked in main
  - ▶ very close to Debian elsewhere
- sprouting its own derivatives (≈80)
  - ▶ ... as Debian *transitive* derivatives

Upstream

Debian

Patch

10%

78%

12%

Ubuntu

Data for Raring Ringtail, Jan 2013,
main + universe

Do you Debian?

- Ubuntu appears to be the most customized Debian derivative
- other derivatives ⇒ much closer to *pristine* Debian

  Tucunare, LinEx, Inquisitor, Grml, UniventionCorporateServer, Vanillux, Emdebian, Crunchbang, PureOS, StormOS, Ubuntu, GNUSTEP, gNewSense, Debathena, Maemo, LMDE, SPACEflight, BCCD, Bayanihan, semplice, ArchivistaBox, Knoppix, Tails, BlankOn, AlienVault-OSSIM, DoudouLinux, Vyatta, Symbiosis, VoyageLinux, Lihuen, LinuxAdvanced, Aptosid, Canaima, siduction, ZevenOS-Neptune, BOSSlinux, Parsix, AstraLinux, ProgressLinux, Finnix, SprezzOS, CoreBiz, Epidemic-Linux, MetamorphoseLinux , Debian, Xubuntu, Linux Mint, Ubuntu Studio, Mythbuntu, ArtistX, Asturix, Peppermint OS, TurnKey Linux, Kubuntu, Caixa Mágica, Lubuntu , . . .

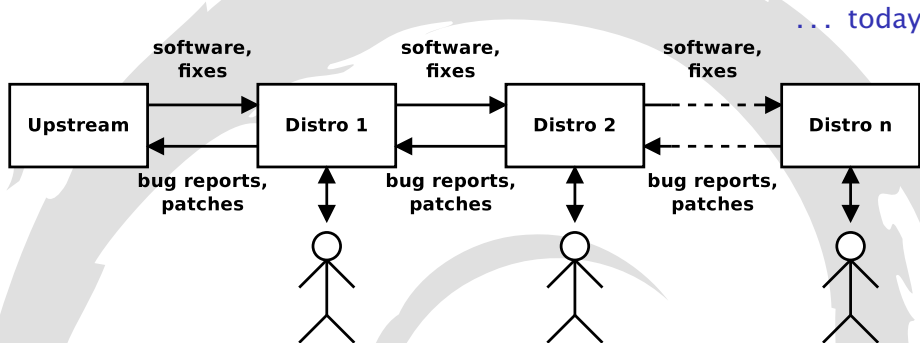if you are running a Debian (transitive) derivative, chances are you heavily depend on Debian and on its well-being

even if your distro hasn't told you
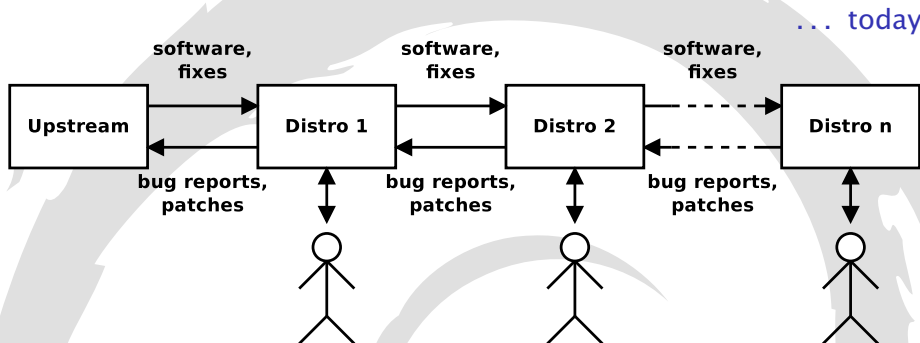
The distribution pipeline
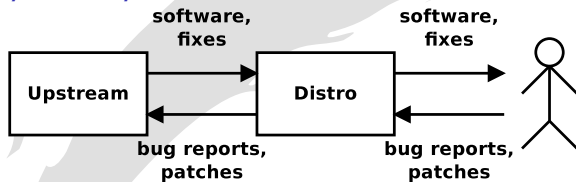
The *new* distribution pipeline

The *new* distribution pipeline

That's wonderful!

- freedom spreads
- more eyeballs swallow more bugs
- more potential contributors

But.

- should be sustainable
- to everybody's benefit

Outline

On doing business with "open source"

We now have a body of software accessible to everybody on earth so robust and so profound in its possibilities, that we are a few man months away from doing whatever it is that anybody wants to do with computers all the time.

— Eben Moglen, speech at Harvard Law School

The question is no longer whether Open Source makes sense [for business], but when and how best to use Open Source to pursue business objectives.

— Bdale Garbee, LCA 2009

- what are the typical Debian ↔ business interactions?
- what are the community expectations?

Note: general FOSS wisdom, mostly non Debian-specific & reusable

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Level 1 — *use* Debian in your business

- no doubt about viability

Debian is now the most popular GNU/Linux on web servers (32.7%) overall, 1+ Web server out of 10 (10.8%) runs Debian
— w3techs.com, March 2013

- usual advantages of FOSS: no lock-in, zero license cost, . . .
- you will need *trained* personnel, do not improvise
  - ▶ consider hiring Debian Developers and Debian Consultants see http://www.debian.org/consultants/
  - ▶ encourage your personnel to *become* Debian Developers
  - ▶ a direct link with the Debian community will give you an edge

Expectations

- none, just go ahead
  - we do this for everyone, after all

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But you *can* do more!
...and increase your company's "karma" before the community as a result

- be a good FOSS citizen
- let developers know you use their software
- sponsor community events
- have your own software packaged

Level 1 — *using* Debian in your business (cont.)

But you *can* do more!
. . . and increase your company's "karma" before the community as a result

- be a good FOSS citizen
  - ▸ report bugs
  - ▸ submit patches
  - ▸ . . .
- let developers know you use their software
- sponsor community events
- have your own software packaged

Level 1 — *using* Debian in your business (cont.)

But you *can* do more!

. . . and increase your company's "karma" before the community as a result

- be a good FOSS citizen
- let developers know you use their software
  - ▸ contribute to community motivation
  - ▸ a basin of future employees?
- sponsor community events
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Level 1 — *using* Debian in your business (cont.)

But you *can* do more!
... and increase your company's "karma" before the community as a result

- be a good FOSS citizen
- let developers know you use their software
- sponsor community events
  - ▶ promote your company to a hacker public
  - ▶ conferences,
    e.g. http://www.debconf.org
  - ▶ focused development events
    e.g. http://wiki.debian.org/Sprints
- have your own software packaged

Level 1 — *using* Debian in your business (cont.)

But you *can* do more!
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- sponsor community events
- have your own software packaged
  - ▸ pro: reputed distribution channel
  - ▸ . . . that integrates with your deployment work-flow
  - ▸ con: won't happen automagically

Level 2 — *build* a Debian-based businesses

- low investment: consulting, architect, design, . . .
  - ▸ cross over to the other side!
  - ▸ examples: too numerous :-)
  - ▸ why Debian? independence (!), customization, . . .

- higher investment: customize Debian for specific needs
  - ▸ blend / custom distro / derivative / . . .
  - ▸ examples: Canonical, EDF, country-based distros for PAs, . . .
  - ▸ start from blends, do a derivative if needed

Expectations
- give credit
  - communities thrive on motivation
  - if you depend on their work, keep them healthy!
- give back . . .

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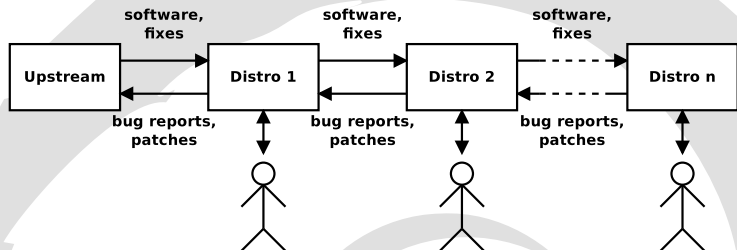# Level 2 — *build* a Debian-based businesses

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Level 2 — *build* a Debian-based businesses (cont.)

- communities motivated by Free Software ethics consider "Free Software success" more important than their own success
- they want a sustainable ecosystem, where everyone contributes
- they expect participants to push changes upstream
  - ▶ pro: offloading maintenance
  - ▶ con: requires efforts

Want to know more?

- on the web
  - http://www.debian.org
  - http://wiki.debian.org
- social media: http://identi.ca/debian
- mailing lists: http://lists.debian.org
- IRC: #debian-* channels on irc.debian.org

- ask me!

Thanks!

Questions?

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http://upsilon.cc/zack
http://identi.ca/zack