Debian: 17 years of Free Software, “do-ocracy”, and democracy

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Taipei, Taiwan
Outline

1. What is Debian?
   - History
   - A system, a project, a community

2. What’s so special about Debian?

3. More in-depth
   - Commitments
   - Decision making
   - Processes

4. Derivatives

5. Contribute to Debian
Prelude — the notion of “distribution”

- distributions are meant to ease software management
- key notion: the abstraction of package
- offer coherent collections of software
- killer application: package managers
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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

trivia: named after DEBra Lynn and IAN Ashley Murdock
Since then — 15 releases

1993  development snapshots
1994  0.91
1995  0.93r5, 0.93r6, 1.0
1996  1.1 “Buzz”, 1.2 “Rex”
1997  1.3 “Bo”
1998  2.0 “Hamm”
1999  2.1 “Slink”
2000  2.2 “Potato”
2002  3.0 “Woody”
2005  3.1 “Sarge”
2007  4.0 “Etch”
2009  5.0 “Lenny”
2011  6.0 “Squeeze”
?  7.0 “Wheezy”

trivia:
why does Buzz have a (Debian) swirl on his chin?
Since then — 12 Debian Project Leaders (DPL)

1993–1996  Ian Murdock
1996–1997  Bruce Perens
1997–1998  Ian Jackson
1999–2001  Wichert Akkerman
2001–2002  Ben Collins
2002–2003  Bdale Garbee
2003–2005  Martin Michlmayr
2005–2006  Branden Robinson
2006–2007  Anthony Towns
2007–2008  Sam Hocevar
2008–2010  Steve McIntyre
2010–  yours truly
Where do I fit in?

- user since 1998
- Debian Developer since March 2001
- package maintainer
  - OCaml (team leader), XML, maths, Python, VIM, ...
- Quality Assurance team
  - Package Tracking System http://packages.qa.debian.org
- DPL candidate in 2009 (FAIL), 2010, and 2011
- DPL since April 2010
What is Debian?

3 aspects, interlinked:
1. an operating system
2. a project
3. a community
Debian: the operating system

- completely Free Software
  - DFSG

- a dozen architectures
  - i386, amd64, armel, powerpc, sparc, ia64, mipsel, s390, mips
  - of which: 2 non-Linux ports
    - kfreebsd-i386,
    - kfreebsd-amd64

- features miscellanea...
  - ports, stability, packaging system, documentation, old hardware support, smooth upgrades, i18n/l10n, the testing suite, runs anywhere, technical policy, a lot of packages, ...

( one of) the largest GNU porting platform(s)
- 29’000 packages (Squeeze)
Debian: the project

Common goal:

**Create the best, Free operating system.**

**Debian Social Contract (1997)**

“Contract” between Project members and the Free Software community at large

**Debian Constitution (1998)**

Structures and rules of a Free-Software-compatible democracy

Strong motive to join: ≈ 1’000 volunteers, world-wide

- ≈ 900 DDs + 120 DMs
- Europe > North America > Australia ≈ Japan > Latin American
Debian: the community

Open development
- we don’t hide problem
- fairly easy to impact the work (“show me the code!”)

Large amounts of communication
- mailing lists
- IRC channels
- (a few) Web services (growing)
  - social: @debian, !debian on identi.ca

Large number of (tech-savvy) users
- users help each other, contribute patches, get involved
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Debian: one of a kind?

1993 — not many distros back then
17 years later, *lots* of other distros

openSUSE, Linux Mint, PCLinuxOS, Slackware, Gentoo Linux, CentOS, FreeBSD, Arch, Sabayon, Puppy, Lubuntu, MEPIS, Ultimate, NetBSD, Tiny Core, Zenwalk, CrunchBang, Dreamlinux, Vector, Kubuntun, 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 **software**
  firmware included!
- in its **infrastructure**
  no non-free web services (for users)
  no non-free services (for developers)

**Community awareness**

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

Stefano Zacchiroli (Debian)
Debian’s special #3: independence

Debian is an **independent** entity

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

... quite remarkable in today “big” distro world

people **trust** Debian choices not to be “profit-driven”
do-ocracy

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

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, ...
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one of Debian Foundation Documents
tacit agreement between Debian and the community

we declare that:

1. Debian will remain 100% Free Software
2. we will give back to the Free Software community
3. we will not hide problems
4. our priorities are our users and Free Software
5. works that do not meet our Free Software standards
   ▶ not Debian, but hosted there
   ▶ main, contrib, non-free

http://www.debian.org/social_contract
Debian Free Software Guidelines (DFSG)

the Social Contract relies on a “definition” of Free Software (the other Debian Foundation Document)

- guidelines only, not hard rules
- used to help decide what is part of Debian
- apply to the “license” of a given software

trivia: basis for Open Source Definition / Initiative

http://www.debian.org/social_contract#guidelines
**Debian Free Software Guidelines (DFSG) (cont.)**

1. *must allow* free redistribution
2. *must include* source code
3. *must allow* derived works
   - although *may require* integrity of the author’s source code
4. *must not* discriminate against
   - person or groups
   - fields of endeavour
5. distribution of license
   - i.e. licenses *apply implicitly / by default*
6. license *must not be* specific to Debian
7. license *must not* contaminate other co-distributed software
   - e.g. on the same medium
some **DFSG-free** licenses:
- BSD, GPL, LGPL, MIT/X11, AGPL, CC-BY 3.0, …

some **non**-DFSG-free licenses:
- all the “bad” ones
- GFDL with invariant sections
structure and rules for decision making in a Free Software-compatible democracy

- volunteers
- minimal “people management”
- “do-ocracy”
  - anybody can decide how to do their job
  - nobody can impose to others what to do

http://www.debian.org/devel/constitution
Constitution — bodies

- individual **developers** (= project members)
- **DPL** elected each year
  - represents Debian
  - coordinate project activities
  - decide upon Project assets
  - decision “garbage collector”
    - e.g. urgency / lack of responsible
- **DPL delegates**
- **secretary**
- **trusted organizations**
  - manage Project assets
  - bridge to the bureaucratic real world
  - SPI (us), FFIS (de), debian.ch (ch), Assoli (it), ASL (br), ...
Constitution — decision making

golden rule
do-ocracy, no formal process

formally, decisions are taken by:\(^1\)

1. developers as a whole
   - with *general resolutions / elections*
2. the DPL
3. the technical committee (CTTE)
4. individual developers working on some task  ← default
5. DPL delegates
6. the project secretary

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\(^1\) overruling from top to bottom
General resolutions

1. **initial proposal**
   - post to a specific mailing list
   - requires **seconds**, depend on n. of developer

2. **discussion period**
   - might lead to alternative proposals
   - can put “on hold” decisions of any body

3. vote with Condorcet-based method

4. single winner
   - super majority (3:1) required to change Foundation Documents and Constitution

**Figure:** foo has won!
Day to day organization: teams!

http://wiki.debian.org/Teams/

- teams grow as jobs get bigger
- some “core teams” are DPL delegates, most are not
- examples:
  - packaging teams, loads of
  - ftp-master team
  - release team
  - security team
  - (Linux) kernel team
  - publicity team
  - debian-installer team
  - webmasters
  - debian-cd team
  - …
a fairly complex business...
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Debian: do-ocracy and democracy

Taipei, Taiwan
Free Software 101

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 extras
2. patch & rebuild packages as needed
3. sync periodically

Stefano Zacchirolı (Debian)
Derivatives are game changers

Derivatives have changed the way in which distros are made
- derivatives’ focus is on **customization**
- people power is needed “only” for that

**everybody wins** (if done properly)
- derivative: massive reuse of packaging work
- “mother” distro: reach out to new public
  - users *and* contributors
Debian derivatives

Debian: a base for ≈130 active derivatives
distrowatch.com

- Linspire, Skolelinux, Liurex, Mint, LiMux, Sidux, gnuLinEx, Grml, MEPIS, Xandros, Ubuntu, Univention, Damn Small Linux, Collax, Euronode, Floppix, Gibraltar, Kanotix, Knoppix, PureOS, gNewSense, 64 Studio, Elive, Freespire, Jolicloud, Kurumin, Maemo, Neopwn, OpenZaurus, Parsix, Xebian, Hackable:1, aptosid, ...

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 (20x Debian?)
- historical/past correlations
  - main ↔ corporate
  - universe ↔ community
    ▶ heavily customized/forked in main
    ▶ very close to Debian elsewhere

Debian: do-ocracy and democracy

Data for Lucid Lynx, main + universe picture is courtesy of Lucas Nussbaum
Drowning in (Debian) derivatives

Not only Ubuntu . . .
rather, a whole tree /of derivatives (of derivatives)* .../

Debian derivatives (≈130)
Linspire, Skolelinux, Liurex, Mint, LiMux, Sidux, gnuLinEx, Grml, MEPIS, Xandros, Ubuntu, Univention, Damn Small Linux, Collax, Euronode, Floppix, Gibraltar, Kanotix, Knoppix, PureOS, gNewSense, 64 Studio, Elive, Freespire, Jolicloud, Kurumin, Maemo, Neopwn, OpenZaurus, Parsix, Xebian, Hackable:1, aptosid, . . .

Ubuntu derivatives (≈70)
Ubuntu Studio, Mythbuntu, ArtistiX, Asturix, Goobuntu, LinuxMCE, nUbuntu, Peppermint, TurnKey Linux, Zenix, . . .

$distro derivatives
...

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On the relevance of Debian

- Ubuntu is probably the most customized derivative
- other derivatives → even higher no. of *unmodified* packages

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

*yes, even if your distro hasn’t told you*
The distribution pipeline

yesterday . . .

Upstream

software, fixes

bug reports, patches

Distro

software, fixes

bug reports, patches
The **new** distribution pipeline... today

**Upstream** → **Distro 1** → **Distro 2** → **Distro n**

- software, fixes
- bug reports, patches
- software, fixes
- bug reports, patches
- software, fixes
- bug reports, patches
That’s wonderful!

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

But.

- should be sustainable
- and benefit Free Software as a whole
The new distribution pipeline

That’s wonderful!

- freedom spreads
- more eyeballs swallow more bugs
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But.

- should be sustainable
- and benefit Free Software as a whole
Free Software is bigger and more important than Debian, Ubuntu, and any other distro or project.

If we care about Free Software, then we should all:
1. Give back, i.e. reduce patch flow viscosity
2. Give credit where credit is due

Diagram:
- Upstream
  - Bug triage & fwd, thanks!
  - Push back, acknowledge
- Distro 1
  - Bug triage & fwd, thanks!
  - Push back, acknowledge
- Distro 2
  - Bug triage & fwd, thanks!
  - Push back, acknowledge
- Distro n
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Contributing — donate to Debian

even if completely volunteer-driven, Debian needs resources

- **hardware** for essential services
  - archive, buildds, development machines, ...
- **money** for hardware-related services
  - guarantees, shipments, hosting, ...
- **money to sponsor developer meetings**
  - strengthen the community
  - get work done

---

**Donations**

- donations: http://www.debian.org/donations
- partners program: http://www.debian.org/partners
Contributing — work with Debian

- test, report, triage, fix bugs
  - reportbug on your Debian
  - http://bugs.debian.org
- translation
  - http://www.debian.org/intl/
  - http://wiki.debian.org/L10n
  - http://lists.debian.org/debian-l10n-*/
- documentation
- help with packaging

http://wiki.debian.org/HelpDebian
Contributing — join Debian

choose your commitment:

package maintainer  maintain packages, via sponsoring

Debian Maintainer (DM)  upload your own
  ●  advocacies required

Debian Developer (DD)  become a project member
  ●  upload access to all the archive (for packagers)
  ●  voting rights

Zack’s tips for wannabe Debian-ers

●  choose a team: http://wiki.debian.org/Teams

●  stay on their mailing list and IRC channel

●  triage bugs, test patches, etc. (for packagers)

●  . . .  the rest will come naturally!
Want to know more?

- on the web
  - http://www.debian.org (new website since Squeeze!)
  - http://wiki.debian.org
- mailing lists: http://lists.debian.org
- IRC (debian-* channels on irc.debian.org)
- ask me!
Thanks!

Questions?

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