Debian: 17 ans de logiciel libre, “do-ocracy” et démocratie

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Académie de Versailles, France
1. What is Debian?
   - History
   - An OS, 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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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**”
  GNU-supported for a while

trivia: named after **DEBra** Lynn and **IAN** Ashley Murdock
Since then — 14 releases

<table>
<thead>
<tr>
<th>Year</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>1993</td>
<td>development snapshots</td>
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<tr>
<td>1994</td>
<td>0.91</td>
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<td>1995</td>
<td>0.93r5, 0.93r6, 1.0</td>
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<td>1996</td>
<td>1.1 (Buzz), 1.2 (Rex)</td>
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<td>1997</td>
<td>1.3 (Bo)</td>
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<td>1998</td>
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<td>2.2 (Potato)</td>
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<td>2002</td>
<td>3.0 (Woody)</td>
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<td>2005</td>
<td>3.1 (Sarge)</td>
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<tr>
<td>2007</td>
<td>4.0 (Etch)</td>
</tr>
<tr>
<td>2009</td>
<td>5.0 (Lenny)</td>
</tr>
<tr>
<td>2010</td>
<td>(?) 6.0 (Squeeze)</td>
</tr>
</tbody>
</table>

**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
DD in 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) and 2010
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
  - alpha, amd64, arm, hppa, i386, ia64, mips), powerpc, s390, sparc
- 2 non-Linux ports upcoming
- features miscellanea...
  - ports, stability, packaging system, documentation, old hw support, smooth upgrades, i18n/l10n, the testing suite, runs anywhere, technical policy, *a lot* of packages, ...

The largest GNU/Linux distro

- **29’000 packages** (Squeeze)
Debian: the project

Common goal:

Create the best, Free operating system.

“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: \( \approx 1’000 \) volunteers, world-wide

- \( \approx 900 \) DDs + 120 DMs
- Europe > North America > Australia \( \approx \) Japan > Latin American
Debian: the project (cont.)
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)

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, 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, Korgoni, 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
- . . .

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

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 sw experts

- no 2\textsuperscript{nd} class packages, all are equal

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**Debian release mantra**

we release when it’s ready
Debian’s special #2: freedom

Firm principles: devs 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
- trust Debian not to betray sw freedom
- set a high bar for sw freedom advocates
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”
Debian’s special #4: decision making

1. do-o-cra-cy

An individual Developer may make any technical or nontechnical decision with regard to their own work;

[ Debian Constitution, §3.3.1.1 ]

2. democra-cy

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

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Social Contract (1997)

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

Stefano Zacchiroli (Debian)
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
must allow free redistribution

must include source code

must allow derived works
  although may require integrity of the author’s source code

must not discriminate against
  person or groups
  fields of endeavour

distribution of license
  i.e. licenses apply implicitly / by default

license must not be specific to Debian

license must not contaminate other 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 w/ invariant sections
structure and rules for decision making in a Free Software-compatible democracy

- volunteers
- minimal “people management”
- “do-o-cracy”
  - 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” (urgency / lack of responsible)
- **DPL delegates**
- **secretary**
- **trusted organizations**
  - manage Project assets
  - link with the real bureaucratic world
  - SPI (us), FFIS (de), Assoli (it), Debian.CH (ch), 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 or elections
2. the DPL
3. the technical committee (CTTE)
4. individual developers working on some task \(<–\text{default}\>
5. DPL delegates
6. the project secretary

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

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

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

- vote with Condorcet-based method

- single winner
  - super majority (3:1) required to change Foundation Documents and Constitution
Day to day organization: teams!

teams grow as jobs get bigger
some “core teams” are DPL delegates, most are not
examples
- packaging teams for related packages
- ftp-master
- release team
- security team
- kernel team
- debian-installer
- debian-cd
- ...
Package work-flow & release process

- UpStream
- Sources
- Security
- Patches
- Security Team
- incoming
- (Manual) package upload
- automatic processing
- special/optimal process
- BTS
- maintenance responsibility
- submission, notification
- builds
- Legend
- exchange help, discussion
- human/group
- transitional state
- semi-official repository
- power user/developer
- testing
- unstable
- testing
- proposed updates by RM
- testing
- frozen
- stable
- user/production
- backups
- unofficial archives
- volatile
- testing
- security
- stable
- security updates
- stable
- proposed updates by stable RM
- proposed updates
- unstable
- unstable
- unstable
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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
Debian derivatives

Debian: a base for \( \approx 120 \) derivatives

- 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, \ldots

Why?
- quality & licensing assurances
- solid base system
- huge package base
- reduce effort
A Debian derivative example — Ubuntu

- started in 2004 by Canonical
  *Linux for human beings*

- Debian derivative, periodic fork-merge release cycle

- initial staff: mostly “high-profile” DDs

- historical archive correlations
  - main ← corporate
  - universe ← community

- most popular Debian derivative
  - larger user base than Debian (most likely)
Debian, Ubuntu, and upstreams

Debian: a “special” upstream
- off the shelf packages, not bare bone software
- quantitatively relevant...

picture is courtesy of Lucas Nussbaum
Ubuntu: work-flow and relationship with Debian

Ubuntu

Debian

Upstream projects

Patch

18%

74%

7%

Debian → Ubuntu

- not just “pull”
- some “push” too: give back to Debian

rationale: universe is a selling point

data for Lucid Lynx
main + universe

picture is courtesy of Lucas Nussbaum
Drowning in derivatives

**Debian derivatives** ($\approx 120$)
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**
Ubuntu Studio, Mythbuntu, ArtistiX, Asturix, Goobuntu, LinuxMCE, nUbuntu, Peppermint, TurnKey Linux, Zenix, ...

Nice song and dance, but all the above:

1. should be **sustainable** ...
2. ... and **benefit Free Software** as a whole
The distribution pipeline

yesterday . . .

Upstream

software, fixes

bug reports, patches

Distro

software, fixes

bug reports, patches

software, fixes
The **new** distribution pipeline... today

- **Upstream**
  - software, fixes
  - bug reports, patches

- **Distro 1**
  - software, fixes
  - bug reports, patches

- **Distro 2**
  - software, fixes

- **Distro n**
  - software, fixes
  - bug reports, patches
The new distribution pipeline

That’s wonderful!

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

But.
Free Software is bigger and more important than Debian, Ubuntu, and any other distro or project

Free Software golden rules and the distro pipeline

1. give back, i.e. reduce patch flow viscosity
2. give credit where credit is due
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Contributing — donate to Debian

even if completely volunteer-driven, Debian uses resources

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

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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 (it)
  - http://wiki.debian.org/it/DebianWiki
  - http://wiki.debian.org/L10n/Italian
  - http://lists.debian.org/debian-l10n-italian/
- 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
- voting rights
- all kind of contributions are equally welcome!

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Zack’s tips for wannabe Debianers

- choose a team: [http://wiki.debian.org/Teams](http://wiki.debian.org/Teams)
- stay on their mailing list and IRC channel
- triage bugs, test patches, etc. (for packagers)
- ... the rest will come!
Want to know more?

- on the web
  - http://www.debian.org
  - 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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about the slides:
available at
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