

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

Stefano Zacchioli

Debian Project Leader

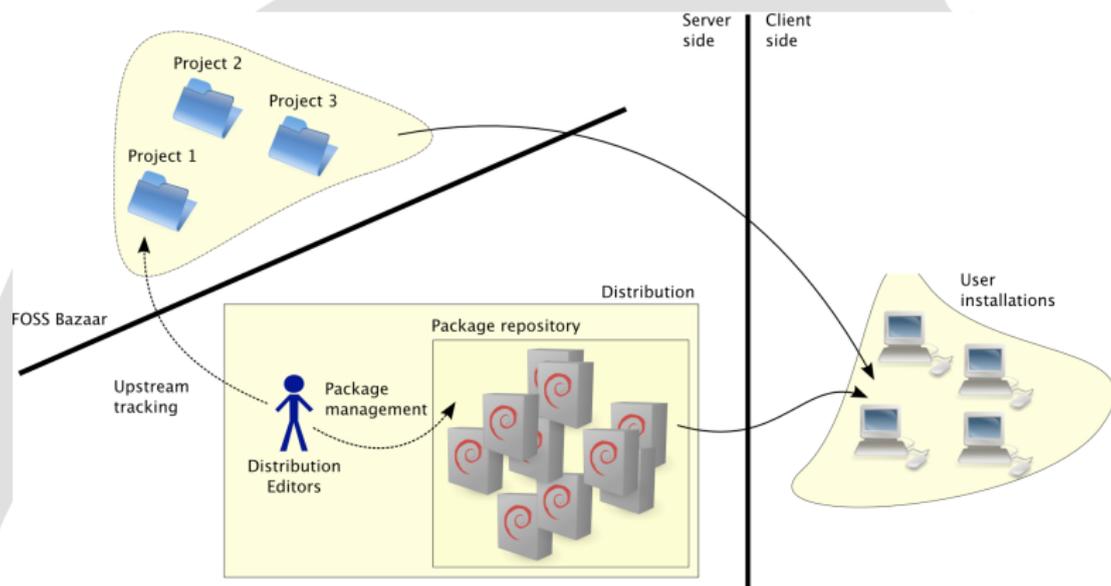
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Télécom & Management SudParis  
Évry, France

# 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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# 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

trivia: named after **DEB**ra 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) and 2010
- DPL since April 2010

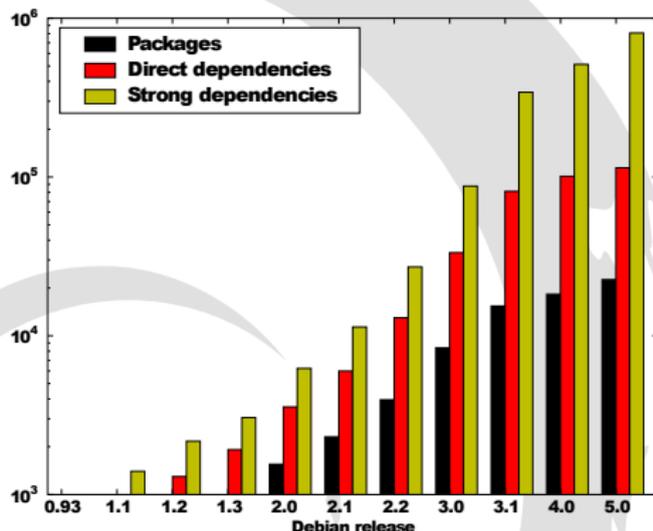
# What is Debian?

3 aspects, interlinked:

- 1 an operating system
- 2 a project
- 3 a community

# Debian: the operating system

- completely **Free Software**
  - ▶ **DFSG**
- a dozen architectures  
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:  $\approx$  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)
  - ▶ 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, 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 2<sup>nd</sup> 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

# 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-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, ...

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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](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](http://www.debian.org/social_contract#guidelines)

- 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:<sup>1</sup>

- 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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<sup>1</sup>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

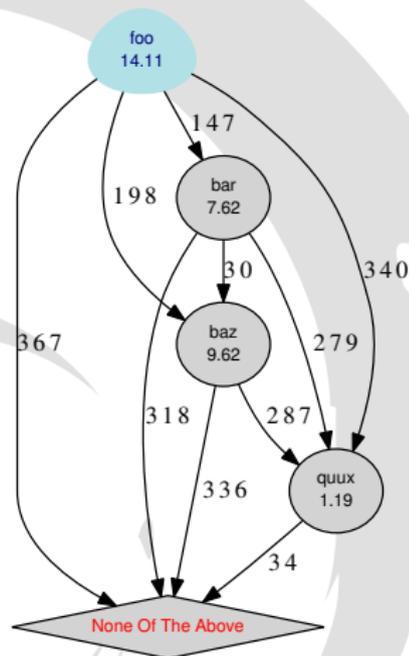


Figure: foo has won!

# 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
  - ▶ ...

# Package work-flow & release process

a fairly complex business...



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# Interlude — derivatives how to

## 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

# 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  $\approx 120$  derivatives

distrowatch.com

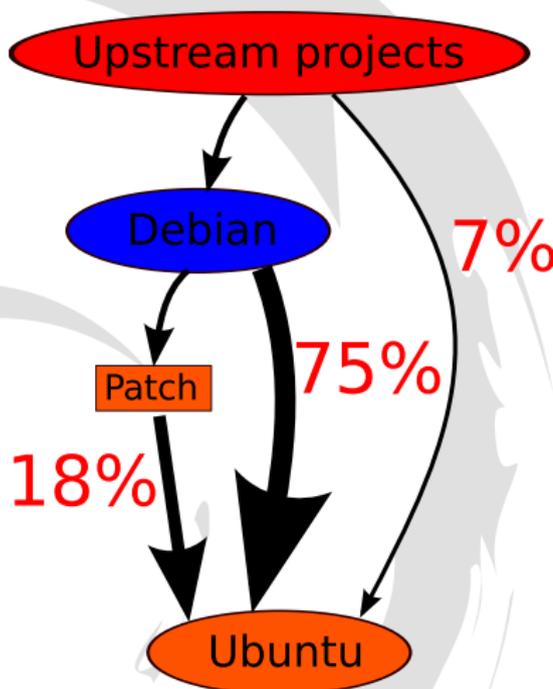
- Linspire, Skolelinux, Liurex, Mint, LiMux, Sidux, gnuLinEx, Grml, MEPIS, Xandros, Ubuntu, Univention, Damn Small Linux, Collax, Euronode, Floppix, Gibraltar, Kanotix, Knoppix, PureOS, gNewSense, 64 Studio, Elive, Freespire, Jolicloud, Kurumin, Maemo, Neopwn, OpenZaurus, Parsix, Xebian, Hackable:1,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



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 ( $\approx 120$ )

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 ( $\approx 50$ )

Ubuntu Studio, Mythbuntu, ArtistiX, Asturix, Goobuntu, LinuxMCE, nUbuntu, Peppermint, TurnKey Linux, Zenix, ...

## \$distro derivatives

...

# On the relevance of Debian

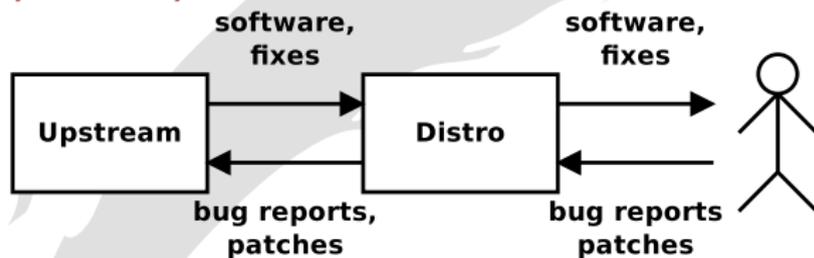
- Ubuntu is probably the most customized derivative
- other derivatives → even higher no. of *unmodified* packages

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

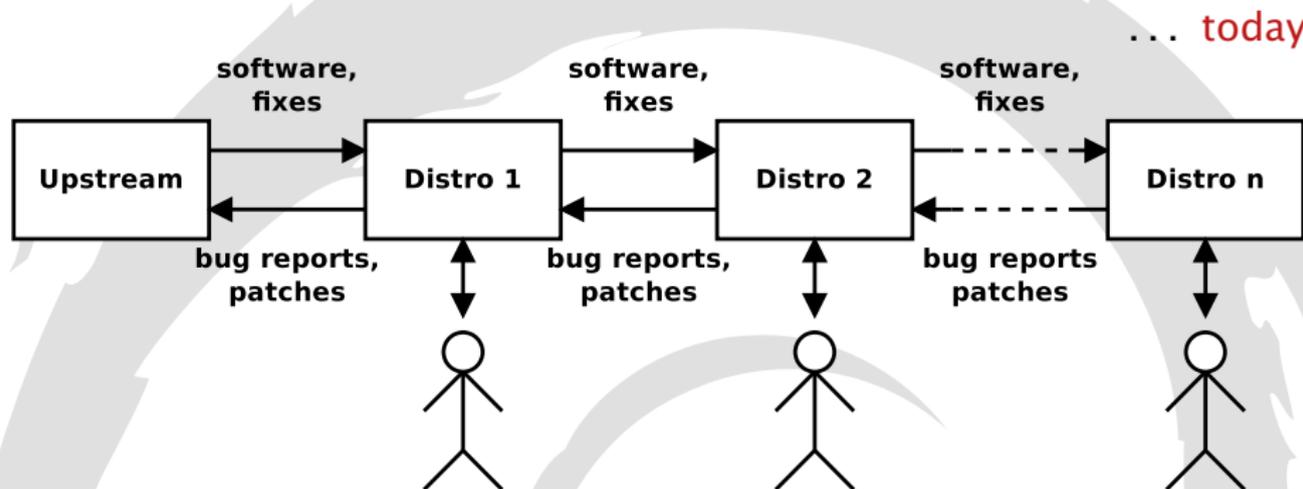
*yes, even if  
your distro hasn't told you*

# The distribution pipeline

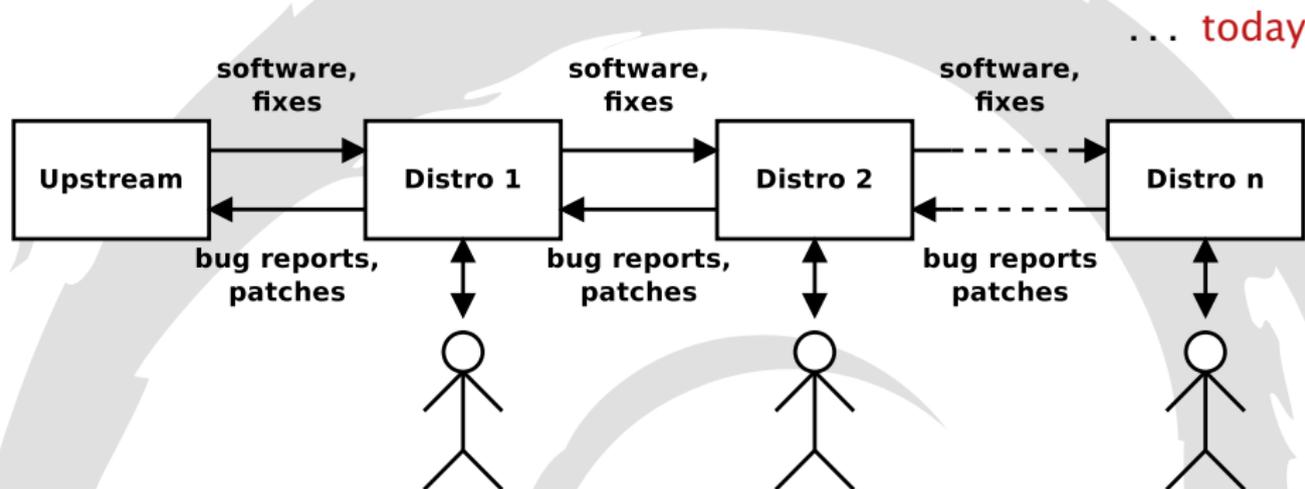
yesterday ...



# The new distribution pipeline



# The new distribution pipeline



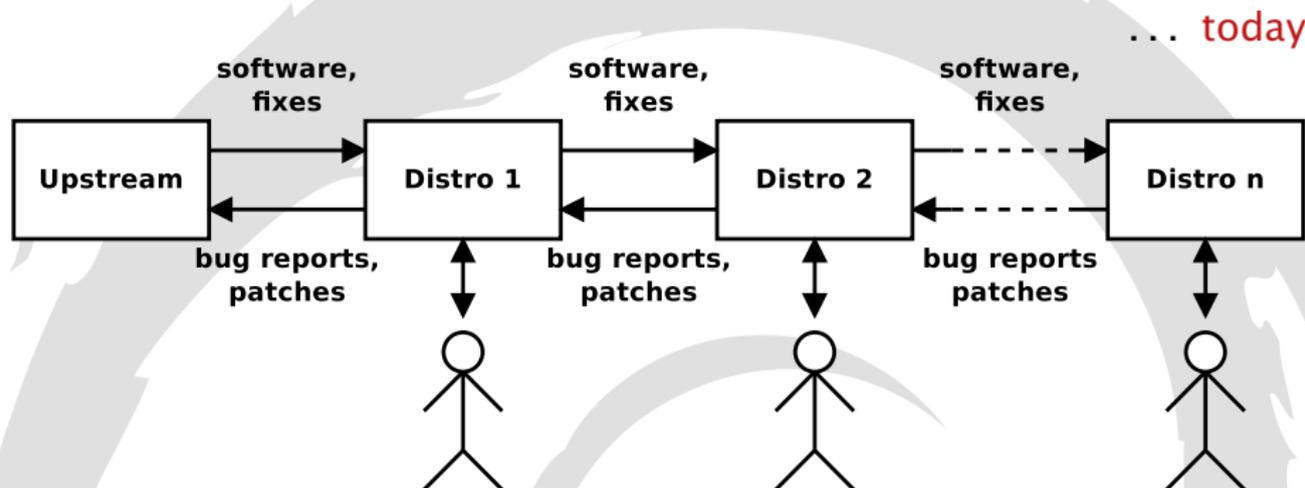
That's wonderful!

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

But.

- should be sustainable
- and benefit Free Software as a whole

# The new distribution pipeline



That's wonderful!

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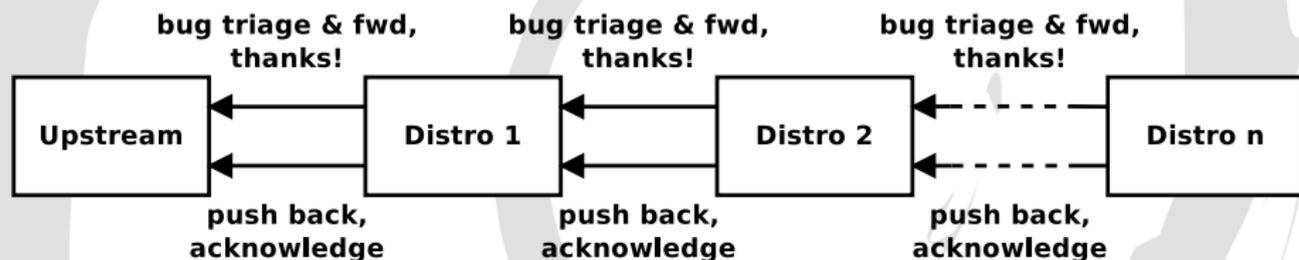
But.

- 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



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# Contributing — donate to Debian

even if completely volunteer-driven, Debian needs **resources**

- **hardware** for essential services
  - ▶ archive, build servers, 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 (fr)
  - ▶ <http://wiki.debian.org/fr/DebianWiki>
  - ▶ <http://www.debian.org/intl/french/>
  - ▶ <http://lists.debian.org/debian-l10n-french/>
- 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!)
  - ▶ <http://wiki.debian.org>
- mailing lists: <http://lists.debian.org>
- IRC (debian-\* channels on [irc.debian.org](http://irc.debian.org))
- ask me!

# Thanks!

## Questions?

Stefano Zacchioli  
Teader@debian.org  
<http://epsilon.cc/zack>

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