# Debian: 19 anni di software libero, "*do-ocracy*," e democrazia

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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 17'000 sources releasing 3'000 new
versions/month

# Free Software, à point: distributions
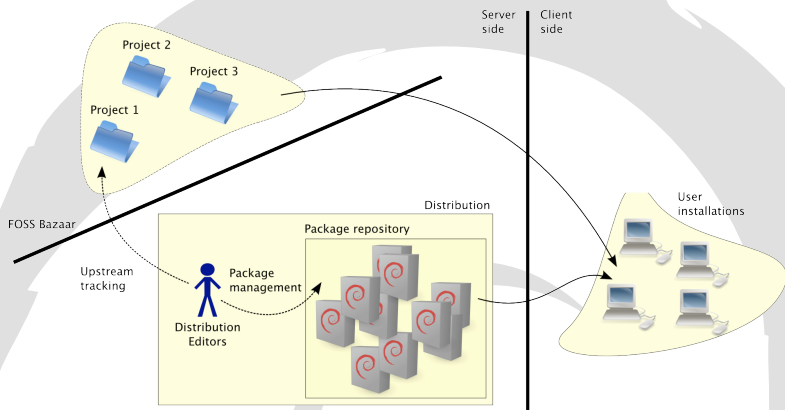


- ease software management
- key notion: the package abstraction
- offer coherent software collections
- killer application: package managers (& installers)

# Outline

# 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
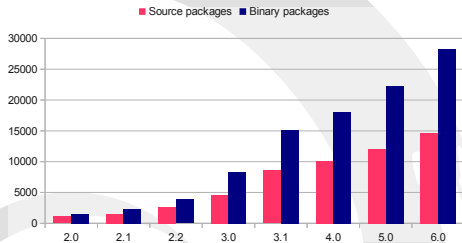- 1$^{st}$ major distro developed "*openly in the spirit of GNU*" FSF-supported for a while

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

flagship product: Debian stable

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



one of the largest Free Software porting platforms

## renowned for

ports, stability, packaging system, old hw support, documentation, smooth upgrades, i18n/l10n, the testing suite, runs anywhere, technical policy, package choice, . . .

# Debian 6.0 "Squeeze" — looking back

- release: February 2011
- dependency-based boot system (faster, more robust)
  - completely Free Linux kernel, firmware included
- GNU/kFreeBSD
- improved debian-installer
  - ext4, btrfs
  - ZFS (on kFreeBSD)
  - ease complex setups e.g. LVM + RAID + encryption
- Debian Pure Blends
  - Debian Edu, Debian Med, Debian GIS, DebiChem, ...
  - blends.alioth.debian.org
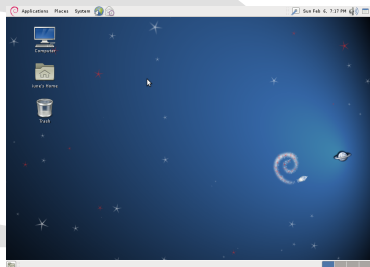


new services:
- snapshot.debian.org
- backports.debian.org
- stable-updates
- screenshots.d.net
- ask.debian.net

# Debian 7.0 "Wheezy" — looking forward

- **multiarch**
  proper technical way of sharing
  packages across archs
  - ▸ 3rd party software, easily
  - ▸ cross-compilation
- **private cloud** deployment
  - ▸ OpenStack, Xen/XCP, . . .
- new archs: **armhf, s390x**
- **desktop**: GNOME 3.4, KDE
  Plasma 4.8, XFCE, . . .
- upgrades throughout the archive
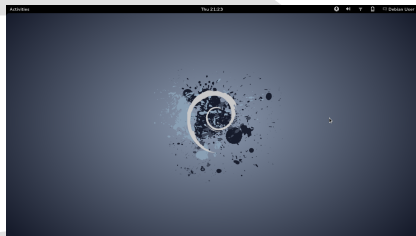


## Timeline

- freeze: June 30th, 2012
- release: *when it's ready*™
  ETA: Q4 2012 – Jan 2013

## Contribute, today

- install or upgrade to Wheezy
- report bugs (+ patches)

# $\frac{1}{3}$ of Debian: the Project

Common goal:

## Create the best, Free operating system.

### Debian Social Contract (1997)
- 100% Free Software
- give back
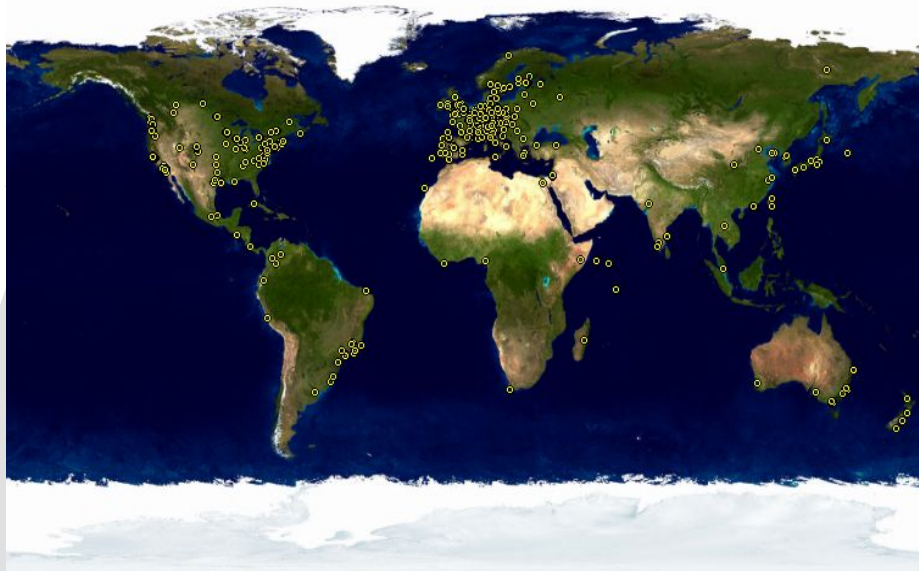- don't hide problems
- priorities: users & Free Software

### Debian Constitution (1998)
Structures and rules of a Free-Software-compatible democracy

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

# Demography

## Developer's per country

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

Take a guess: Italy's position?

# Demography

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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 east europe and gr)

# $\frac{1}{3}$ of Debian: the community
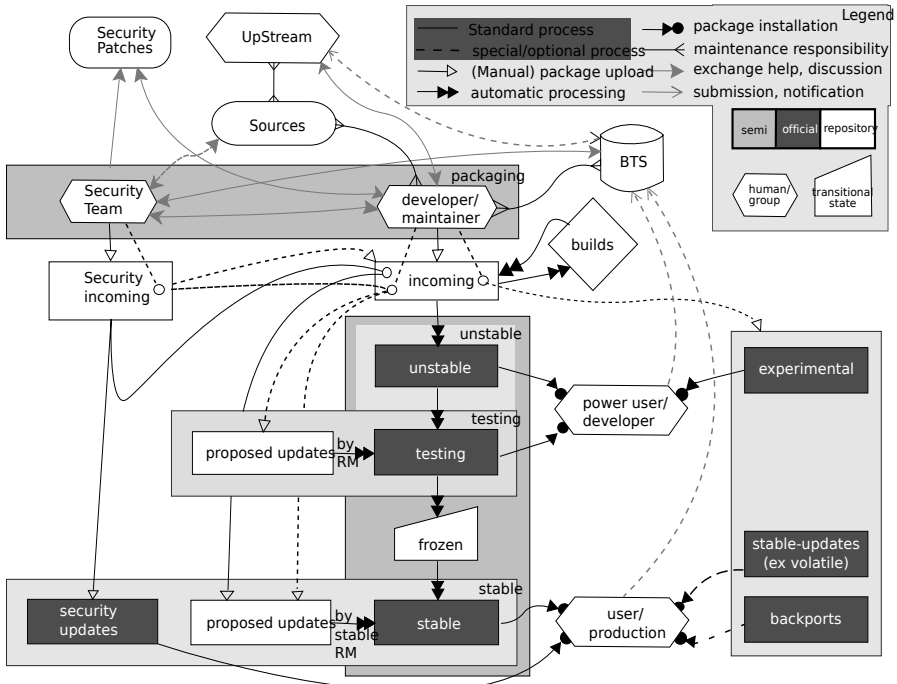
Open development
- we don't hide problem
- easy to have an impact (just "show me the code!")

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

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

Legend

| | |
|---|---|
| ━━━ Standard process | ▶● package installation |
| - - - special/optional process | ◁ maintenance responsibility |
| ⟶ (Manual) package upload | ≪ exchange help, discussion |
| ▶▶ automatic processing | → submission, notification |

semi / official / repository

human/group

transitional state

Security Patches

UpStream

Sources

BTS

packaging

Security Team

developer/maintainer

builds

Security incoming

incoming

unstable

unstable

power user/developer

experimental

proposed updates — by RM

testing

testing

frozen

security updates

proposed updates — by stable RM

stable

stable

stable-updates (ex volatile)

backports

user/production

# Outline

# Debian: one of a kind?

1993 — not many distros back then
19 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 $2^{nd}$ 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 services       (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

1. Debian and Wheezy

2. Specialties

3. **Derivatives**

4. Business

5. Contribute

# *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

# 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

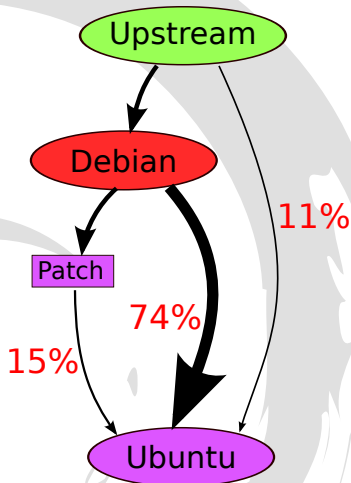Debian: a base for ≈140 <u>active</u> derivatives       — distrowatch.com

- 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



Data for Oneiric Ocelot, main + universe

# Do you Debian?

- Ubuntu appears to be the most customized Debian derivative
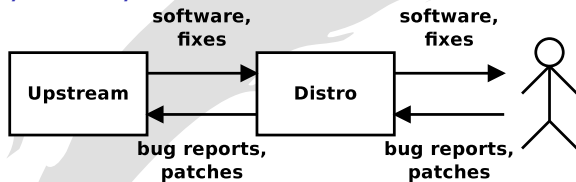- other derivs. ⇒ much larger amount of *pristine* Debian packages

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
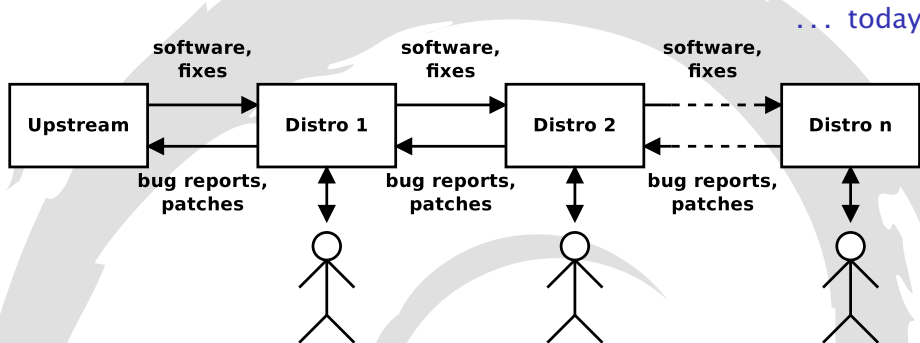heavily depend on Debian and on its well-being

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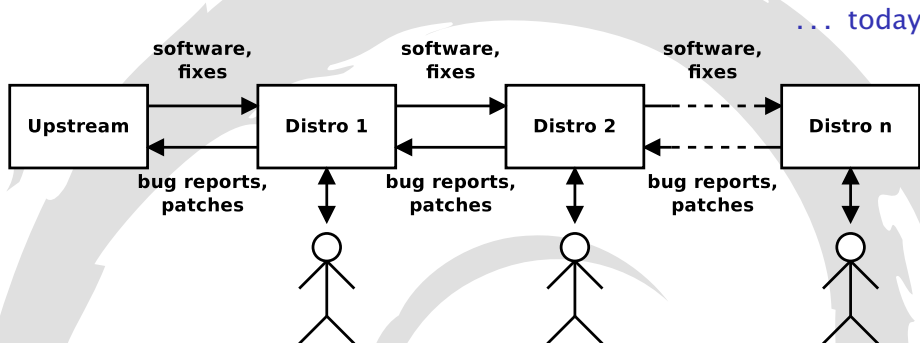
# The distribution pipeline

software,
fixes

software,
fixes

**Upstream**

**Distro**

bug reports,
patches

bug reports,
patches

# The *new* distribution pipeline



... today

Stefano Zacchiroli  (Debian)          Debian: do-ocracy e democrazia          Settimo Torinese, Italy     26 / 37

# The *new* distribution pipeline



. . . today

That's wonderful!

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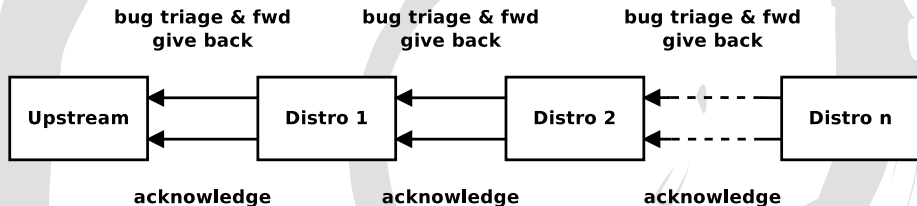- more eyeballs swallow more bugs
- more potential contributors

But.

- should be sustainable
- to everybody's benefit

# Free Software 101 — redux

**Free Software is bigger** and more important
than Debian and any other distro or project

1. **give back**, i.e. reduce patch flow viscosity
2. **give credit** where credit is due

# 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

- it takes two to tango
- understanding each other is key
  - ▸ this talk: understanding Debian

# Using Debian in existing business

- no doubt about viability

> *Debian is now the most popular Linux distribution on web*
> *servers* [29.4% of FOSS, 9.6% of total]
>
> — *W3Techs, Jan 2012*

- usual advantages of FOSS: no lock-in, no license cost, . . .

- but 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

# Debian-specific businesses

- low investment: consulting, architect, design, . . .
  - ▸ cross over to the other side!
  - ▸ e.g. too numerous :-)
  - ▸ why Debian? independence(!), customization, . . .
- higher investment: customize Debian for specific needs
  - ▸ blend / custom distro / derivative / . . .
  - ▸ huge-scale example: Canonical
  - ▸ idea: country-based distro for the PA
  - ▸ start from blends, do a derivative if needed
  - ▸ but remember: give credit (build open Debian reputation) and give back (reduce the long-term cost of maintaining patches)!

- apply for debian-companies
  https://lists.debian.org/debian-companies/
- what else? your fantasy, the limit

# Outline

# Contributing — donate to Debian

even if completely volunteer-driven, Debian needs resources

- hardware for essential services
  - ▶ archive, buildds, devel. 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://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 packages
- advocacies required

    Debian Project Member (DD): become a Debian "citizen"
- `http://nm.debian.org`
- voting right
- upload access to the whole archive         *for packagers*
- all kinds of contributions equally welcome!

## Zack's tips for wannabe Debianers

1. pick a team: `http://wiki.debian.org/Teams`
2. stay on their mailing list and IRC channel
3. triage bugs, test patches, etc.         *for packagers*
4. ... the rest will come!

# 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