Debian: 17 years of Free Software, *"do-ocracy"*, and democracy
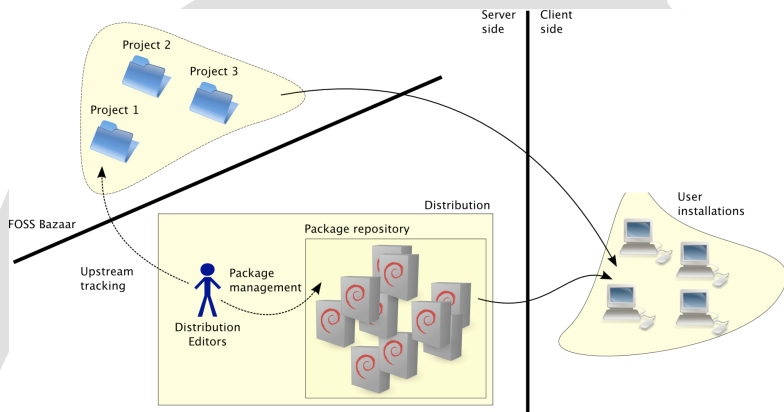
Stefano Zacchiroli

Debian Project Leader

21 March 2011
Software Liberty Association of Taiwan (SLAT)
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

Outline

Debian: once upon a time

Fellow Linuxers,
   This is just to announce the <u>imminent completion</u> 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 <u>experts</u>
- 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), 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, ...
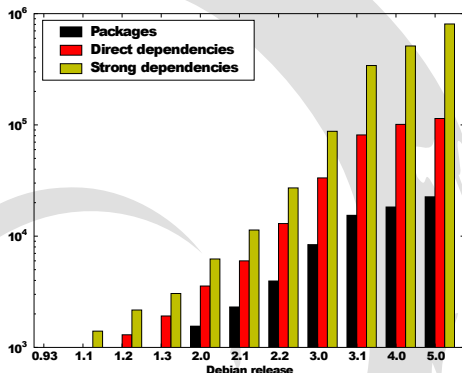
(one of) the largest GNU porting
platform(s)

- 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
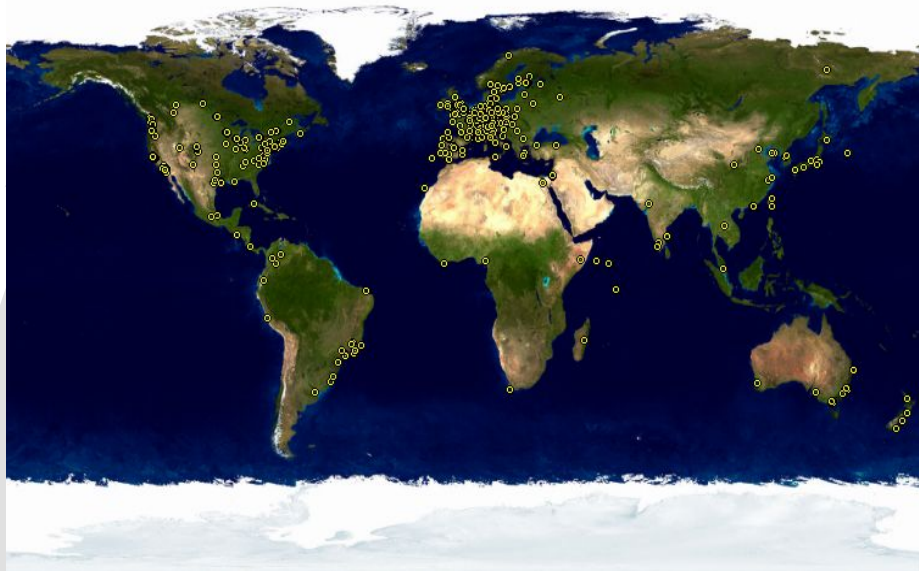community at large

Debian Constitution (1998)

Structures and rules of a Free-Software-compatible democracy

Strong motive to join: $\approx$ 1'000 volunteers, world-wide

- $\approx$ 900 DDs + 120 DMs
- Europe > North America > Australia $\approx$ 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

Outline

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 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 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 <u>trust</u> 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

Social Contract

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

Debian Free Software Guidelines (DFSG)   (cont.)

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

_____
[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
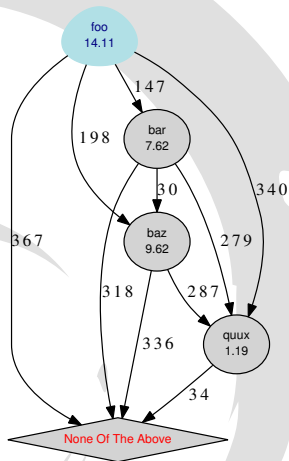   - super majority (3:1) required to change Foundation Documents and Constitution
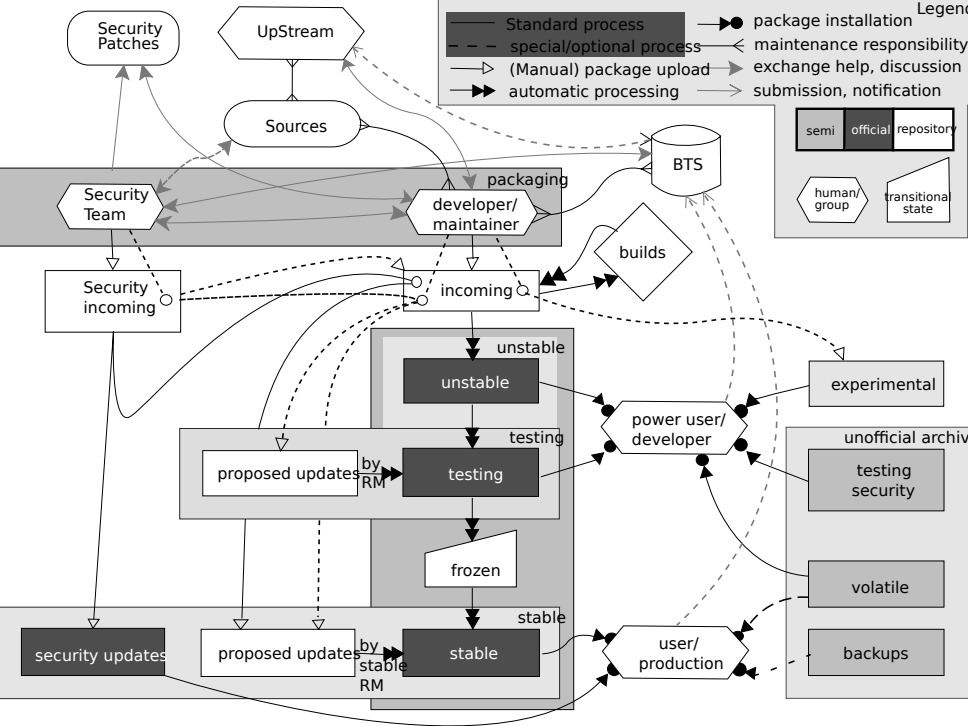

Figure: foo has won!

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
    - . . .

Package work-flow & release process

a fairly complex business...

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

Security Team

developer/maintainer

packaging

Security incoming

incoming

builds

unstable

unstable

experimental

proposed updates

testing

testing

power user/developer

unofficial archive

testing security

by RM

frozen

volatile

security updates

proposed updates

stable

stable

by stable RM

user/production

backups

Outline

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

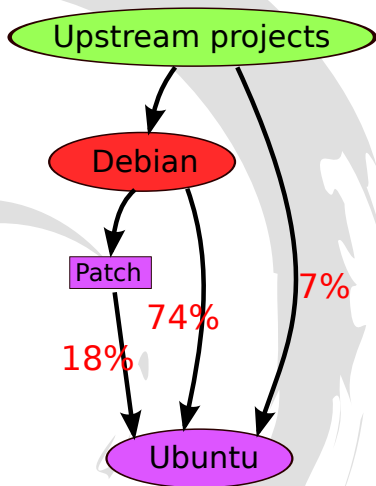Debian: a base for ≈130 <u>active</u> derivatives   distrowatch.com

- 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 (≈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

...

On the relevance of Debian

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

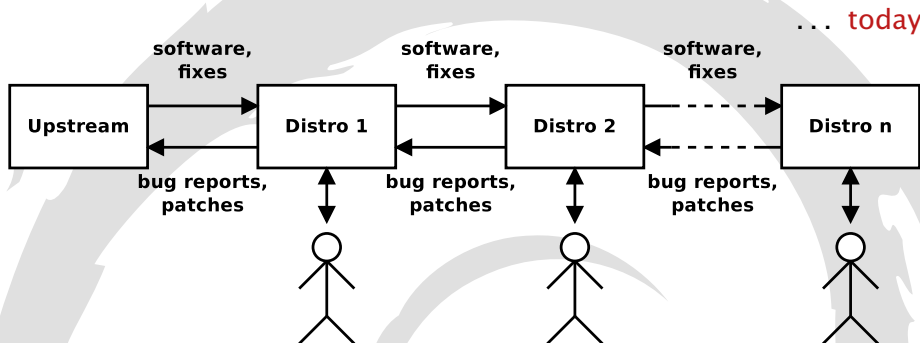if you are running a Debian derivative, chances are you heavily depend on Debian and on its well-being

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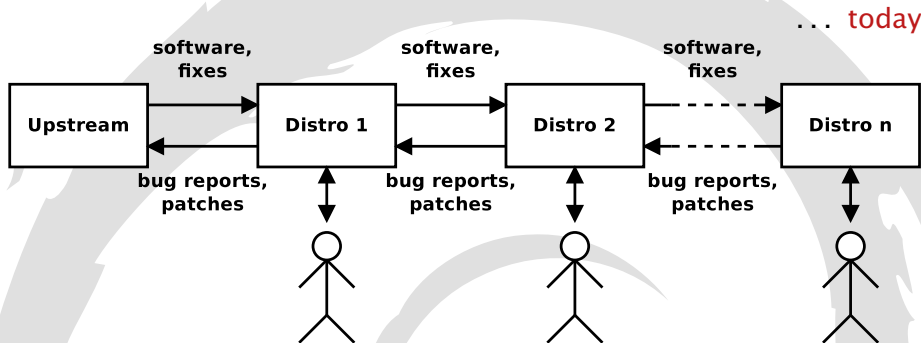
The distribution pipeline

yesterday . . .

The **new** distribution pipeline

... today

The **new** distribution pipeline
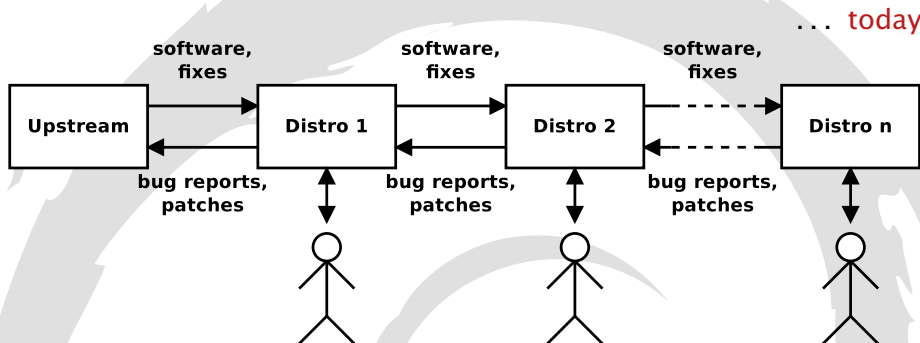

. . . today
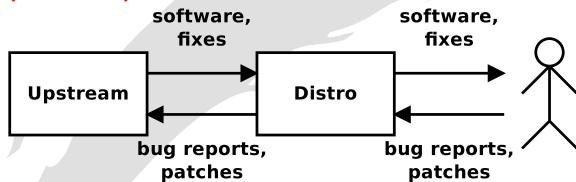
That's wonderful!

- 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

... today

That's wonderful!

But.

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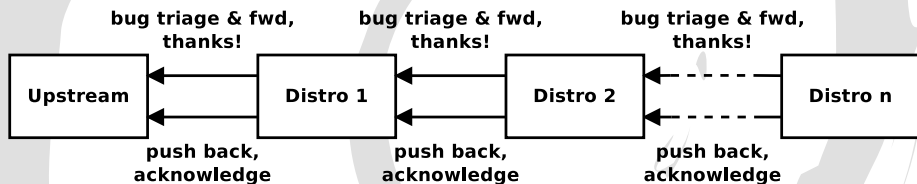- more eyeballs swallow more bugs
- more potential contributors

- 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

Outline

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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http://identi.ca/zack