

Debian Past, Present and Future



Steve McIntyre <93sam@debian.org>
Debian Project Leader

6th November 2008, Valencia



Agenda

- What is Debian?
- Where do I fit in?
- Project structure
- Process
- Derivatives – collaborating using Debian as a base
- The future?
- Getting involved



What is Debian?

- 3 aspects, interlinked:
 - A Project
 - An Operating System
 - A Community

Debian – the Project



- Over 1,000 volunteer developers spread all over the world
 - Large numbers in North America & Europe
 - Smaller numbers in Australia & Japan
 - Growing Latin American development community
- Thousands more contributors
 - Documentation, translation etc.

Debian – the Project (2)



<http://www.debian.org/devel/developers.loc>

Debian – the OS



- **Completely** Free Software
 - Debian Free Software Guidelines
- Support for 12 different architectures
 - alpha, amd64, arm, armel, hppa, i386, ia64, mips, mipsel, powerpc, s390, sparc
- Largest GNU/Linux distribution
 - Over 18,000 binary packages in last release
 - Over 23,000 binary packages expected in the next release

Debian – the Community



- Open development
 - We don't hide problems
- Large amounts of communication
 - Mailing lists, web sites and IRC channels
- Large number of active users
 - Users help each other, contribute packages, become developers

How is Debian different?



- Volunteer-driven
 - No company in charge
- Free Software
 - Social Contract
 - Debian Free Software Guidelines
- Size
- Packaging system
- Stability & Support



Social Contract

- We declare that:
 - Debian will remain 100% free
 - We will give back to the free software community
 - We will not hide problems
 - Our priorities are our users and free software
 - Works that do not meet our free software standards



DFSG

- **Guidelines** only – not hard rules
- Used to help decide what we will distribute in the Debian system
- main, contrib & non-free



DFSG (2)

- Free Redistribution
- Source Code
- Derived Works
- Integrity of The Author's Source Code
- No Discrimination Against Persons or Groups



DFSG (3)

- No Discrimination against Fields of Endeavour
- Distribution of License
- License Must Not Be Specific To Debian
- License Must Not Contaminate Other Software
- Example Licenses
 - BSD, GPL



History

- Founded in 1993 by Ian Murdock
- Named after DEBra and IAN Murdock
- The first major distribution developed “openly in the spirit of Linux and GNU”
- Early work sponsored by the GNU project



Leaders

- Ian Murdock (1993 – 1996)
- Bruce Perens (1996 – 1997)
- Ian Jackson (1997 – 1998)
- Wichert Akkerman (1999 – 2001)
- Ben Collins (2001 – 2002)
- Bdale Garbee (2002 – 2003)



Leaders (2)

- Martin Michlmayr (2003 - 2005)
- Branden Robinson (2005 - 2006)
- Anthony Towns (2006 – 2007)
- Sam Hocevar (2007-2008)
- Steve McIntyre (2008-present)



Releases

- 1993: early development snapshots
- 1994: v0.91
- March 1995: v0.93R5
- November 1995: v0.93R6
- ~~December 1995: v1.0~~
- June 1996: v1.1 (Buzz)
- December 1996: v1.2 (Rex)



Releases (2)

- June 1997: v1.3 (Bo)
- July 1998: v2.0 (Hamm)
- March 1999: v2.1 (Slink)
- August 2000: v2.2 (Potato)
- July 2002: v3.0 (Woody)
- June 2005: v3.1 (Sarge)
- April 2007: v4.0 (Etch)
- ??: v5.0 (Lenny)



Where do I fit in?

- Joined the project in 1996
- Package maintainer
 - cvs, nas, etc.
- CD team leader
 - Make Debian CDs and DVDs
- Project leader
 - “management” - ugh!



Project structure

- Started with limited structure
- Volunteers
- Minimal “people management”
- Package maintainers control their own work



Various teams

- Teams grow as jobs get bigger
- Examples:
 - ftpmaster
 - debian-installer
 - debian-cd
 - release team



Project decisions

- DPL elected each year
 - Delegates key project positions
- General resolutions (GRs)
 - Votes on important issues
- Technical committee
- Software in the Public Interest (SPI)



Process: from Chaos...

- Over a thousand Debian developers
- Thousands of packages
- Many thousand bugs
- Millions of users



... to Stability

- Debian policy
- Quality checking of packages
- Testing (^2)
- Release team coordination



Policy

- Comprehensive list of requirements for packages:
 - What goes in a package, and where
 - How to start & stop daemons
 - Interactions with other packages
 - Configuration files
 - Upgrades
 - etc.



Quality checking

- Lintian
 - Run by maintainer to check for packaging mistakes after packages are built
 - Simple framework; new tests are added easily
 - Automation work ongoing
- piuparts
 - Tests how well packages will upgrade from one version/release to the next



Testing – in Packages

- Developers run their own tests before upload
- Build-time test harnesses
- Other developers and users report bugs
- Bugs (hopefully!) are fixed, new uploads made

Testing – as a Distribution



- Uploads go to “unstable” distribution
- After a period of time with no major bugs reported, packages become valid to migrate into “testing”
- Archive maintenance scripts check for dependencies
- Testing should be (almost) ready to release as “stable” at any point



Release team

- Constantly monitor the state of the testing distribution
- Co-ordinate uploads with package maintainers to make transitions smooth
- Track large groups of packages as they work through the system (e.g. KDE, Gnome)
- Responsible for deciding release goals and release dates



Security team

- Work with maintainers where possible
- Security updates for “oldstable”
- Security updates for stable
- Security updates for testing
- Coordination with other distributions
- security.debian.org, DSAs



Stable point releases

- Organised by the stable release team
- Made every few months
- Collect together:
 - Current security updates
 - Highly-tested package updates to fix other **serious** bugs
- Update the archive
 - rebuild CDs, DVDs etc.



Collaboration

- Many different source code control systems in use; choice of which is made by the developers
 - cvs, subversion, git, bzd, darcs, others...
- Discussions via mailing lists
- IRC for realtime discussion
- Real-life meetings becoming more common
 - Debconf, Extremadura, FOSDEM



Alioth

- Sourceforge-like system
 - Source code, mailing lists, web space, ...
- Used for collaborating on Debian work
 - Projects like debian-installer, debian-cd
 - Packaging work
- Also hosts a number of non-Debian projects



Packaging

- Work with upstream developers
 - Many packaging teams include upstream
- Make software packages work together well in a consistent system
- Coordination of bug reports and fixes
- Support for users



Packaging system

- Modular design
- Simple low-level tool
 - dpkg installs and removes packages
- More intelligent higher level management
 - apt, aptitude, synaptic, debtags, etc.
- Packages.gz, Sources.gz, Release
 - Easy to create and mirror



Trust

- Developers sign packages before upload
 - Checked against keyring
- Checksums stored in Packages.gz and Sources.gz
- Release file signed
 - Links together individual files, signed by the master archive key



Derivatives

- Not just a distro, can be a base
- LOTS of derived distributions:
 - Ubuntu
 - Linspire/Xandros
 - Skolelinux
 - Lliurex
 - LiMux
 - *many* more



Derivatives (2)

- Why?
 - Licensing
 - Solid, stable base system
 - Reduce effort
- How?
 - Take existing packages and add extras
 - Rebuild packages where desired
- No problem – everybody wins!

The future – coming soon



- Lenny due Real Soon Now
 - System is frozen already
 - Release team working hard
 - RC bugs being fixed



Next year

- Debconf 9 in Extremadura, July 2009
 - Major conference
 - Lots of work
 - Lots of FUN! :-)



Further on...

- Squeeze after another 18 months?
- Improved quality
- Even more developers
- Even more packages, better tools
- Even more derived distributions
- Even more collaboration



Getting involved

- Test, report (and ideally fix!) bugs
- Translation
- Documentation
- Help with packages
- Sponsoring
- New Maintainer Process



Want to know more?

- www.debian.org
- mailing lists
- IRC
- ask me!

Slides © 2008 Steve McIntyre <93sam@debian.org>

Released under GPL v2 at <http://www.einval.com/~steve/talks/Valencia-2008/>