

Free as in Freedom, or Free as in Beer?



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Agenda

- What is Debian?
- What do we do?
- How do we do it?
- Why do we do it?
- Inside the sausage factory
- Getting involved



What is Debian?

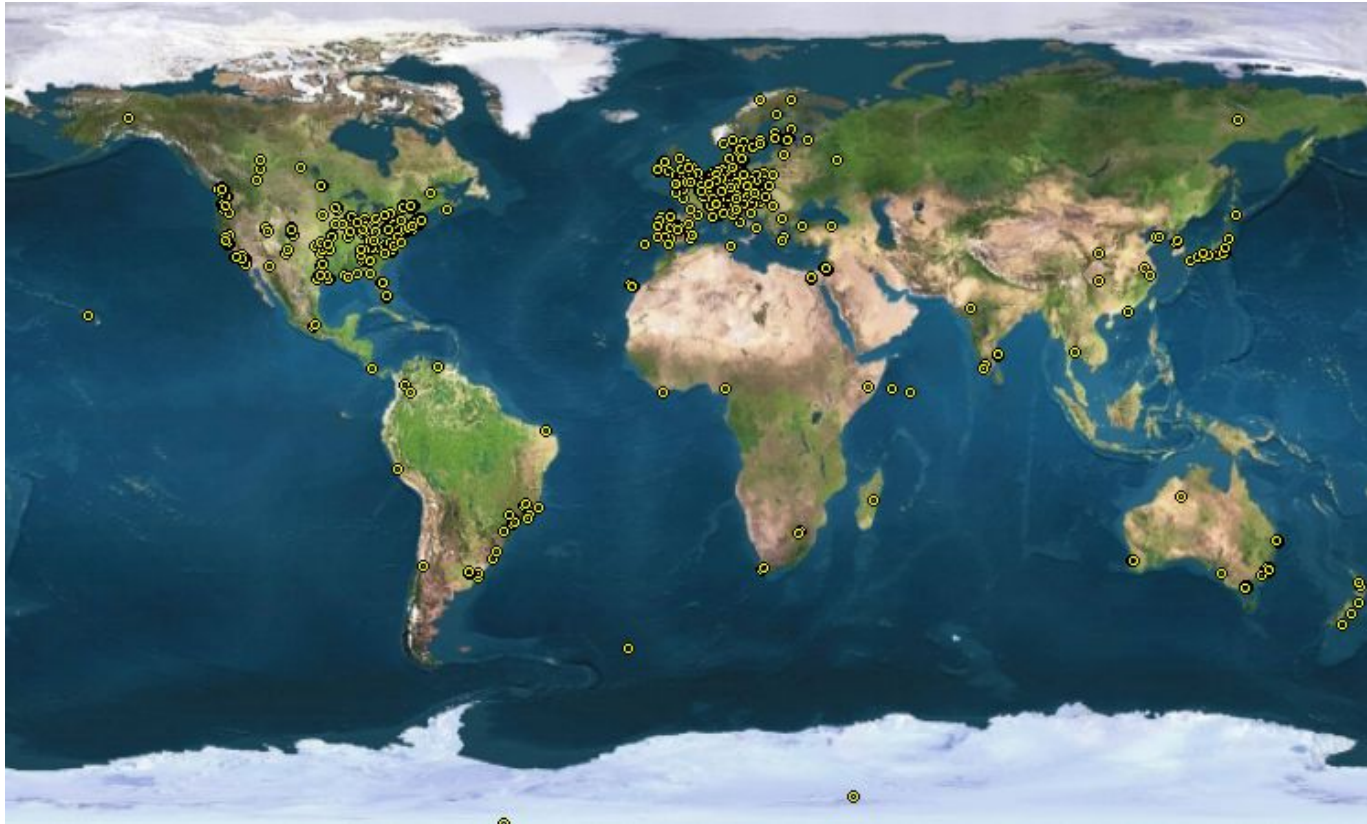
- 3 aspects, interlinked:
 - A Project
 - An Operating System
 - A Community

Debian – the Project



- One of the longest-lived Free Software projects
 - Founded 1993 by Ian Murdock
- Over 1,000 volunteer developers spread all over the world
- 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 22,000 binary packages in last release
 - Over 26,000 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

Where does Steve fit in?



- Joined the project in 1996 while at college
- Package maintainer
 - cvs, nas, etc.
- CD team leader
 - Make Debian CDs and DVDs
- 11th Project leader
 - “management” - ugh!



What do we do?

- Create the best operating system in the world!
- Develop bespoke software
 - Packaging system
 - Debian-specific infrastructure
- Package software written by others
 - Linux kernel, applications, games, etc.



What do we do? (2)

- Make it all work together
 - Integrate it into a single system
 - Test, fix bugs
- Ship it!
 - Multiple releases
 - Download, CDs and DVDs



How do we do it?

- We work together:
 - With other Debian developers
 - With other Free Software developers
 - With our *users*
- Everything we do is Free



Free?

- No cost to download and install
- Free to share with others– no licensing fees or limitations
- Encourage people to share the software
 - Code
 - Ideas
- Debian Free Software Guidelines (DFSG)



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



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



Why do we do it?

- MANY reasons...
- We can
- We care about it
- Recognition
- It's fun!

Inside the sausage factory



- One of the world's largest software development organisations
- Geographically and socially diverse
- Volunteers
- Major challenges



Project structure

- Started with limited structure
- Minimal “people management”
- Volunteers
- 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
 - 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, bazaar, darcs, others...
- Discussions via mailing lists
- IRC, IM for realtime discussion
- Real-life meetings becoming more common
 - Debconf, Extremadura, FOSDEM



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



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



- Squeeze due Real Soon Now
 - Freeze in March
 - Release team working hard
 - RC bugs being fixed
- DebConf 10 in New York, July 2010
 - Major conference
 - Lots of work
 - Lots of FUN! :-)



Further on...

- Squeeze +1 after another 18-24 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!