

# Debian and Google Summer of Code 2008: wrap-up and insights

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**debian**

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# Talk outline

- What is the Summer of Love^WCode again?
- What we did last summer
- Summer of Code post-mortem
- Why this is important to Debian
- Suggestions for improvement
- Conclusions
- Your projects for the Summer of Code 2009!

# What is the Summer of Code again?

- A summer program
  - funded by Google
  - for students
  - to work within selected open-source organizations
  - started in 2005 with 41 orgs, 419 students
  - 176 orgs, 1125 students in 2008

# What we did last summer

- 12 projects
  - developer tools as well as released software
  - many areas: networking, packaging tools, hardware support, installation process...

# What we did last summer

- Netconf, a network configuration management system
- Ultimate Debian Database, all things Debian in a SQL database
- Security-beta, a beta testing for Debian security updates
- Debgraph, a generic infrastructure to analyze packages dependencies
- Debian NAS, improving support of Debian on NAS device
- Cran2deb, generating Debian packages from R packages
- Mergemaster, interactively merge changes in configuration files
- PAM NSS Debian Installer, improve install-time support of PAM and NSS
- Jigdo-ivory, a browser-based Javascript Jigdo client
- Aptitude-gtk, usability and GTK+ GUI for the Aptitude package manager
- Lintian, improvements for fully automated setups
- Debexpo, a generic web-based package repository



# Netconf

- “Netconf is a network configuration management system designed with modern network infrastructures and the needs of roaming users in mind.”
- Mentor: Martin Krafft
- Student: Jonathan Roes

# Netconf

- Before: design done and code fleshed out
- Skills: python, Unix-foo, networking
- Complete the 1.0 version roadmap
- Try to get into Lenny

# Netconf

- Codebase brought to a functional beta state
- Last commit: end of August
- Student: gone from Debian
- Martin Krafft open to help to bring it to a releasable state (doesn't have the time)
- Visit: <http://netconf.alioth.debian.org/>

# Ultimate Debian Database

- “The Ultimate Debian Database wants to reunite all Debian data sources in a SQL database”
- Student: Christian Von Essen
- Mentor: Lucas Nussbaum (and Stephano Zacchiroli and Marc Brockschmidt)

# Ultimate Debian Database

- Before: nothing but an idea
- Skills: relational databases, scripting
- Define the schema, write import scripts, invent example requests

# Ultimate Debian Database

- Demo time!

# Ultimate Debian Database

- UDD working well!
- Development ongoing by Lucas Nussbaum
- Student: not active anymore within the project
- Visit: `<http://udd.debian.org/>`

# Security-beta

- “Improve the quality assurance process for security updates by providing a public security update beta test program”
- Student: Nico Golde
- Mentor: Moritz Mühlenhoff
- Canceled early



# Debgraph

- “enable complex queries (e.g., dependency loops...) against the graph of packages”
- Student: Adam Jensen
- Mentor: Robert Lemmen

# Debgraph

- Before: design and C++ foundations
- Skills: graph algorithms, C++
- Write the code and example queries

# Debgraph

- (little) demo time!

# Debgraph

- Debgraph code done
- Not used yet
- Robert Lemmen and Adam Jensen expect to continue work
- Visit: `<http://code.google.com/p/debgraph/>`

# Debian NAS

- “There is a large range of inexpensive Network storage devices available on the market. Improve their support on Debian”
- Student: Per Andersson
- Mentor: Riku Voipio (and Martin Michlmayr)

# Debian NAS

- Before: support for some devices
- Skills: C, Shell, d-i, kernel drivers
- Support more devices!

# Debian NAS

- New devices supported such as Kurobox Pro and related devices
- Student: still active within Debian, maintaining some packages with a sponsor
- Visit: `<http://whatever.Martin.said>`

# Cran2deb

- “GNU R has become the preeminent platform for ‘computing with data’. The CRAN archives contain over 1300 source packages. We want them in Debian”
- Student: Charles Blundell
- Mentor: Dirk Eddelbuettel



# Cran2deb

- Before: the idea, plus some related work by the pkg-bioc team
- Skills: familiarity with R, package building, C++
- Write tools to collect meta-data, transform it and build Debian packages

# Cran2deb

- 80-90% of R packages automatically convertible to Debian packages with right deps
- Student: not very active since August but has restarted working a few weeks ago to make Cran2deb production ready
- Visit: <http://r-forge.r-project.org/projects/cran2deb/>

# Mergemaster

- “FreeBSD has a shellscript called mergemaster which interactively merges changes in configuration files, based on 3-way diffs of 'new', 'current' and 'original'. Debian doesn't have 'original', add it.”
- Student: Max Wiehle
- Mentor: Manoj Srivastava

# Mergemaster

- Before: the idea and a proof of concept from the dpkg team
- Write the mergemaster code

# Mergemaster

- Some functional code but otherwise dead
- Student: gone
- Visit: `<http://what?>`

# PAM NSS Debian installer

- “Allow to configure additional PAM and NSS modules (eg. LDAP, NIS) during the installation process inside the Debian Installer.”
- Student: Juan Luis Belmonte
- Mentor: Fabio Tranchitella

# PAM NSS Debian installer

- Before: nothing but the idea (or not...)
- Skills: experience with PAM, NSS, d-i, shell...
- Write the code

# PAM NSS Debian installer

- Code that looks functional
- Big communication failure
- PAM maintainer (Steve Langasek) was already developing this same project
- Juan's code flawed in design and unmergeable
- Student: gone to other endeavours
- Visit:



# Jigdo-ivory

- “Jigdo is a special software that makes ISOs from regular Debian archives. Creating a browser-based Javascript implementation could help new users.”
- Student: Dustin Rayner
- Mentor: Steve McIntyre

# Jigdo-ivory

- Before: Jigdo and Jigit, but nothing else
- Skills: Javascript, Jigdo, later Java
- Reimplement downloading, checksumming and file concatenation in Javascript, later try again in Java

# Jigdo-ivory

- Demo time!

# Jigdo-ivory

- Proof-of-concept implementation in Javascript
- Takes days to checksum an entire DVD size packages set
- Project restart in Java failed due to lack of Java skills and time

# Aptitude-gtk

- “A GTK+ GUI for Aptitude that will work alongside current ncurses and command-line interfaces. A more advanced alternative to Synaptic.”
- Student: Obey Arthur Liu
- Mentor: Daniel Burrows

# Aptitude-gtk

- Before: nothing but the idea
- Skills: familiarity with Aptitude, C++, GTK+
- Write a GTK+ GUI that is feature-wise on par with the ncurses version

# Aptitude-gtk

- Demo time!

# Aptitude-gtk

- End of summer: alpha version that had most functions of the ncurses version, crash-prone
- Now: Daniel released 'aptitude-gtk' (0.5.1-1) in Experimental, feature-wise on par with ncurses version, and some more.
- Student: guess
- Visit: <Aptitude-devel@lists.alioth.debian.org>  
Hg : <<http://hg.debian.org/hg/aptitude/post-lenny>>



# Lintian

- “lintian, the Debian package checker, at the moment presents possible problems in three categories: errors, warnings and informational messages. Rework it to distinguish certainty and severity.”
- Student: Jordà Polo Bardés
- Mentor: Marc Brockschmidt

# Lintian

- Before: some implementation discussions
- Skills: Perl, Debian Policy and Packaging
- Go through all Lintian errors and sort them according to certainty and severity, write corresponding code

# Lintian

- New classification implemented
- New website produced
- Student: still within Debian, pursuing his work with packaging and Catalan translation
- Visit: `<http://lintian.debian.org/>`

# Lintian

- Little demo

# Debexpo

- “Refactor `mentors.debian.net` and turn the it into a generic piece of software that can be used for other Debian source/binary package repositories, too.”
- Student: Jonny Lamb
- Mentor: Christoph Haas

# Debexpo

- Before: similar work at Ubuntu
- Skills: Python, SQL, Debian packaging
- Rewrite and generalize [mentors.debian.org](http://mentors.debian.org)

# Debexpo

- Whole proposal executed and development ongoing
- Student: has since become a DD, maintains many packages of significant complexity
- Visit: `<http://debexpo.workaround.org/trac/>`

# Summer of Code post-mortem

How did we work?



# Timeline

- March:
  - Organizations apply
  - Selected organizations announced
  - Students discuss projects with organizations
- April:
  - Organizations discuss and rank proposals
  - Google announces slots allocations
  - Winners notified
  - Community bonding period

# Timeline

- May:
  - Coding starts (500\$ stipend)
- July:
  - Mid-term evaluation (2000\$)
- August:
  - Final evaluation (2000\$)

# Debian application

- February 27th, mail to debian-devel-announce
- Wiki set up and collecting ideas
  - 16 proposals on the wiki in the end
- Flamewar^WDebate over acceptance of DDs as students: no consensus

# On the Debian side

- Admin: Steve McIntyre
- Co-admins: Rudy Godoy, Neil McGovern, Erich Schubert

# Who does what

- Google selects orgs and attributes slots
- Orgs select projects, students, rank them and mentor
- Students... code

# Selection process

- Some criterias:
  - Is the project directly Debian related ?
  - Is there an appropriate mentor ?
  - Is the student motivated and capable ?
  - Is the project important to Debian ?
- In the end:
  - 53 eligible applications, 10 ineligible, 30 garbage

# Slots allocation

- Provisional estimate: 10
- Requested (pleeease): 15
- Finally got: 12

# Development period

- Two meeting places:
  - IRC: #debian-soc on OFTC
  - Mailing-list: <soc-coordination@lists.alioth.debian.org>
- Meetups:
  - Google meetups at their engineering offices
  - Debian BBQ at Steve's in Cambridge
  - Emdebian work session in Extremadura
  - Nothing at DebConf this year



# Development

- Repositories scattered between alioth, mentor servers and student servers
  - Some repositories vanished off the net
- Communication with the Debian community
  - Some mails to debian-devel-announce
  - Debian Project News reports
  - Planet
  - Very unstructured and uncomprehensive

# Development results

- 4 projects successful and rolled out: UDD, Debian NAS, Aptitude-gtk, Lintian
- 4 projects successful but not yet rolled out: Netconf, Debgraph, Cran2deb, Debexpo
- 1 project partly done: Mergemaster
- 2 projects unsuccessful due to fatal flaws in the proposal or execution: PAM NSS Debian Installer, Jigdo-ivory
- 1 project canceled early due to unrelated reasons: Security-beta

# Why this is important to Debian

- Google Summer of Code:
  - Largest and unique(?) program of its kind
  - A special demographic
  - Probably the first significant achievement for them
- Debian:
  - High technical requirements for contribution
    - Difficult for students to get in
  - New developers (I said developers!)
    - We look for good contributors

# Suggestions for improvement

Because we can make it better this time

# Preparation process

- Provide a 'map' of Debian development areas
  - Have each of the teams try to propose projects
- Actually update the Summer of Code wiki
  - Wikis from other projects are much more efficient

# External promotion

- Have DDs promote the Summer of Code at Debian on:
  - Tech websites (/.)
  - University internship proposition boards
  - University LUGs
  - Wherever else

# Selection process

- Have a common set of criteria
  - Try to agree on DDs as students, feasibility ratings
- Make the selection of projects open to the community outside of the Google app
  - Put the shortlist of projects to discussion on debian-devel

# Community experience

- Force^WHelp setting-up blogs on Planet
- Try to organize meet-ups
  - Debconf, Debian UK BBQ, wherever else
  - Find mentors/DDs to go to the Google meetups



# Project management

- Summer of Code should be managed like a real 12 weeks software engineering project
  - GANTT charts, several milestones...
  - Mentor may have to act as a manager
- Bi-weekly report of all projects in public
  - Release early, release often
- Make sure everyone is on #debian-soc
  - Lower communication threshold
- Make CLEAR that all this is not optionnal

# Integration

- Prefer Alioth or teams servers for repositories
- Have a group of DDs and users pledge to provide feedback for the projects
- Do not require the student to be present after the Summer of Code to be able to merge
  - The project should be viable without the student

# Your project for Summer of Code 2009

- We need:
  - Ideas
  - Mentors
  - Students

# Next try

- 4 successes, 4 near-successes out of 12
  - Many were simple oversights
- Better experience for students
  - We'll keep more contributors
- Better 'ROI' for Debian
  - More useful work, more merged work

# The students

- It's a very important achievement for them
- Some will be the future of the community