

Google Developer Day 2009



Google and Open Source

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2 June 2009

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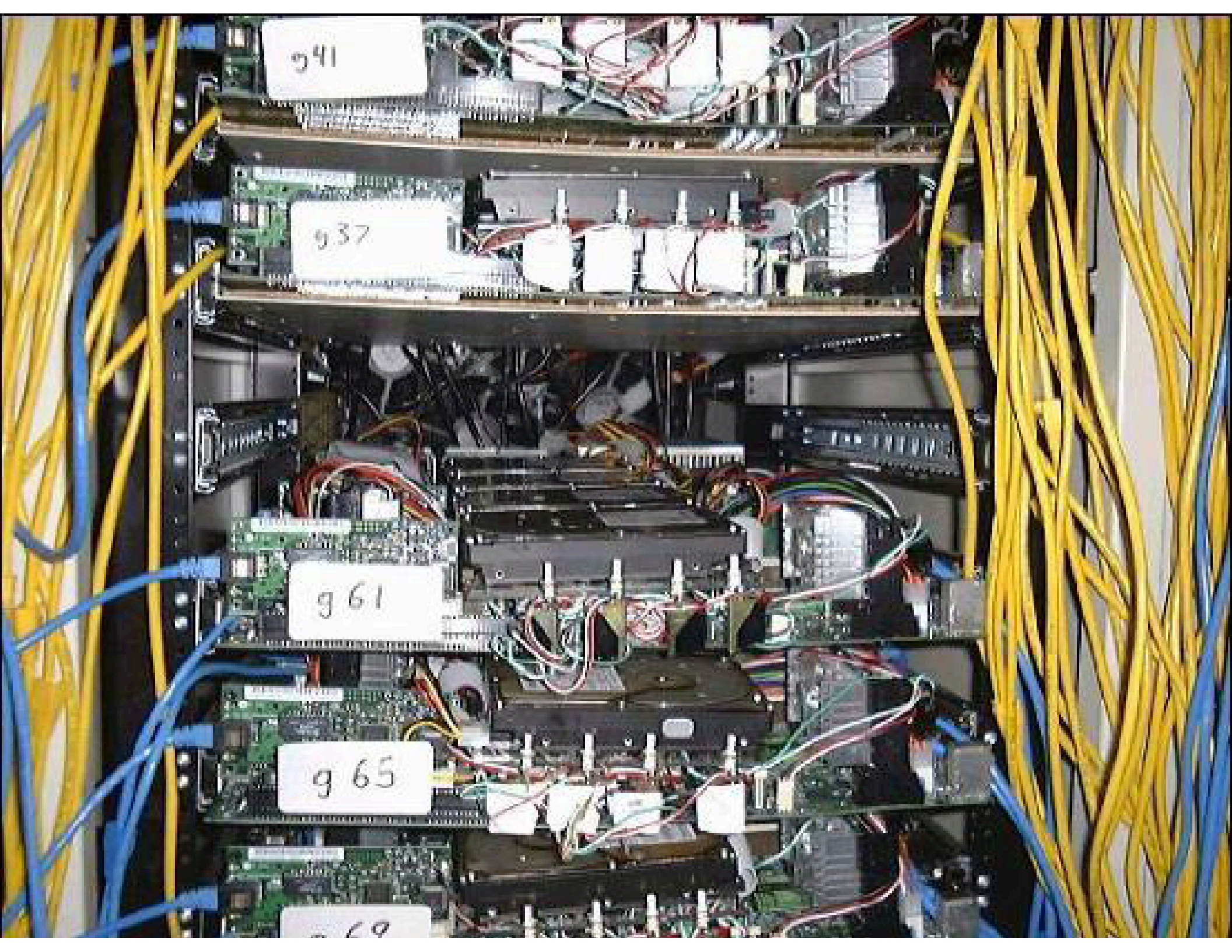
Who Am I?

- Open Source Programs Manager, Google Inc.
- License Compliance
- Code Release
- The Summer of Code
- Protocol and API Licensing
- Formerly:
- Slashdot
- Co-Editor Open Sources & Open Source 2.0
- Floss Weekly Podcast

Agenda

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g41

g37

g61

g65

g69

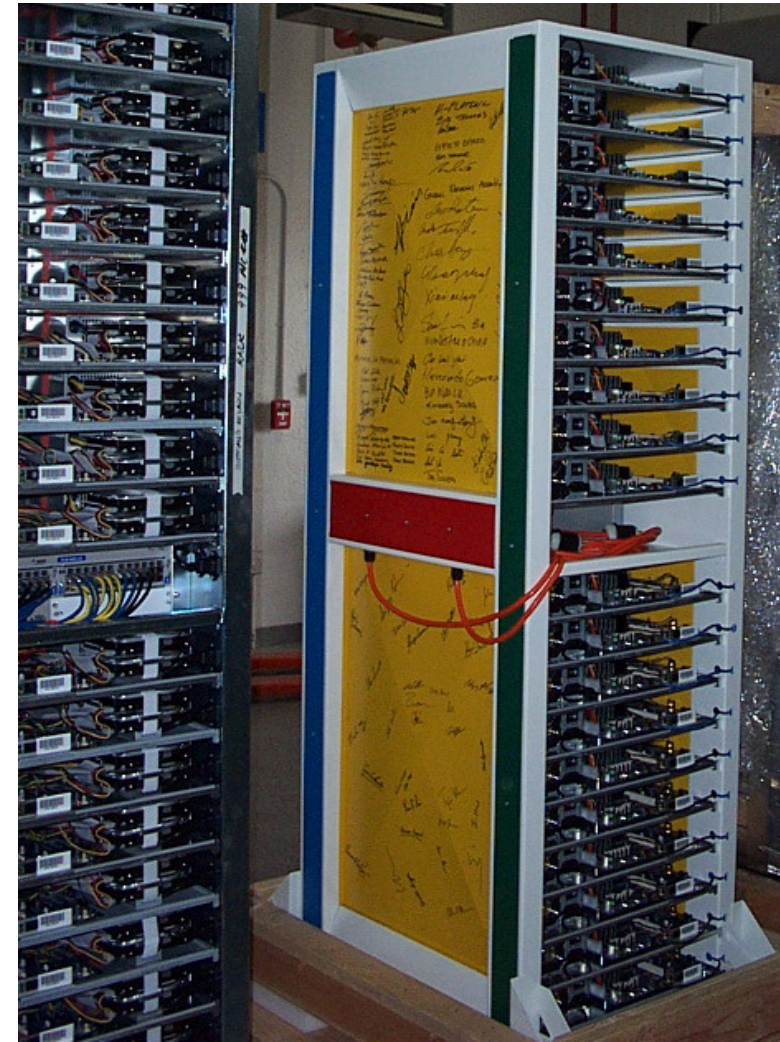






Current(ish) Design

- In-house rack design
- PC-class motherboards
- Low-end storage and networking hardware
- Linux
- + in-house software



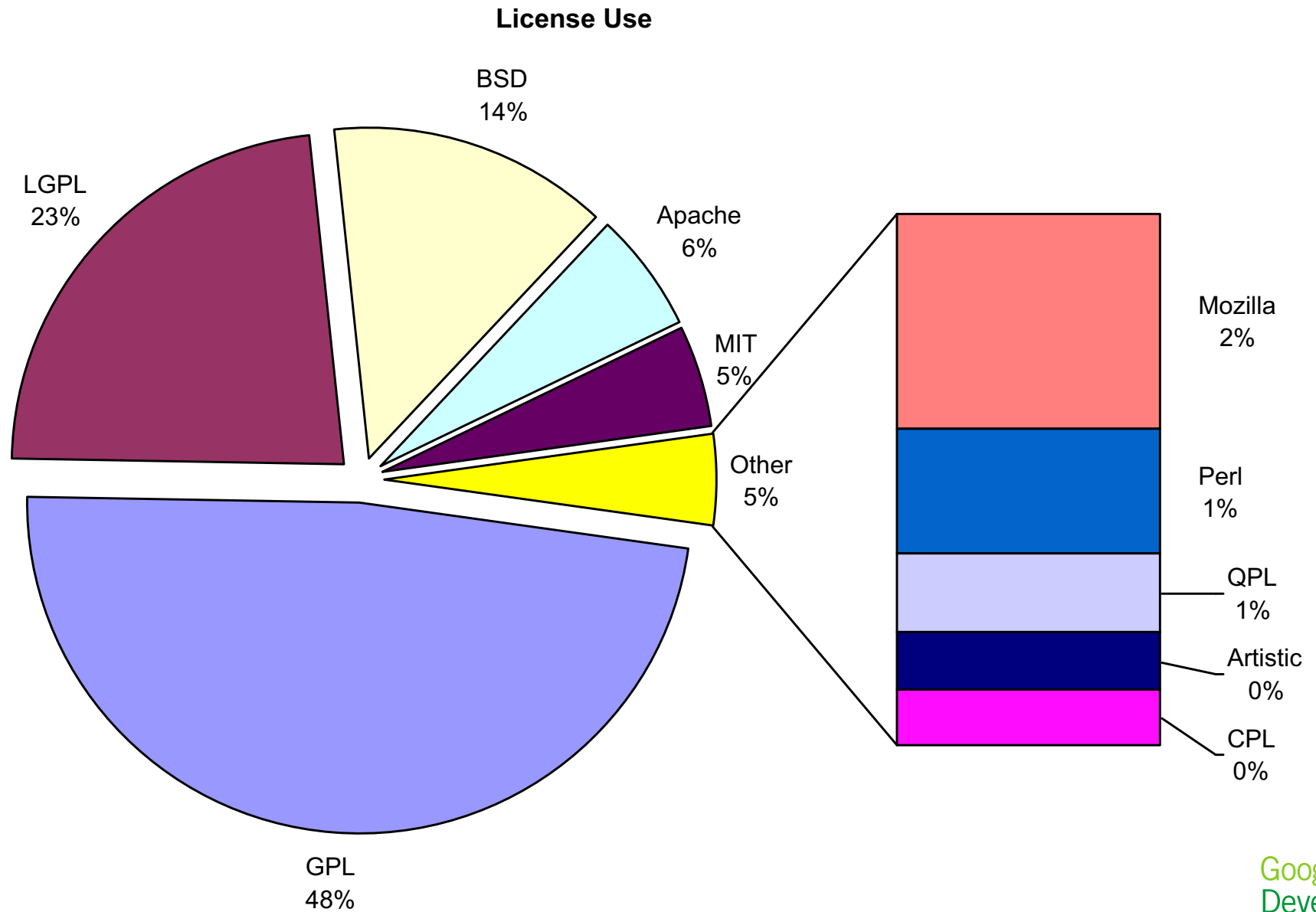
A Bit About Open Source

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License Use Across 31m Crawled Files

FLOSS License	De Duped Files	Percentage
GPL	14,851,615	47.06%
LGPL	7,145,795	22.64%
BSD	4,245,335	13.45%
Apache	1,778,692	5.64%
MIT	1,565,673	4.96%
Mozilla	567,604	1.80%
Perl	333,829	1.06%
QPL	206,085	0.65%
Artistic	150,555	0.48%
CPL	144,128	0.46%

Amounting to **>2 billion** lines of code.....



Why do people **release** code at all?

A BCG/OSDN Study found that open source developers are motivated by:

- Intellectual Curiosity/Stimulation (44.9%)
- Skills Improvement (41.3%)
- Work needs (33.8 %)
- Open Source Idealism (33.1%)
- Non-Work Functionality (29.7%)
- Professional Status (17.5%)
- Reputation building within Open Source (11%)
- Dislike/distrust of proprietary software (11.1%)

What does this mean?

- OSS Developers understand OSS licenses.
- They know they are “giving away” their software.
- They know people will use it.
- The majority expect no more \$\$\$ for the work.
- If they did, they’d just do it as a commercial offering, if they can.
- Which is pretty remarkable....

Open Source Software Use at Google

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How does Google use Open Source?

As Infrastructure

- Linux kernel
- Apache Tomcat and many other Apache tools
- SSH, and other system management tools
- The Languages and compilers that we use.
- Engineers and others running Linux (Goobuntu)

As building blocks

- Our repositories have hundreds of libraries used in Google software

But Why does Google use Open Source

Control and Ownership

- Maintain our independence from external software companies

Adaptability and Flexibility

- We can drill down to repair and enhance our services
- If we want to do something out of the ordinary, we can do so without showing our hand
- No one is incentivized to hurt us

Roots

- Appeals to the Google ethic

How does Google take part?

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Google's Open Source Programs

Patching and Code Release

Internal License Discipline

API/Protocol License Discipline

Open Source Infrastructure &
Leadership

Summer of Code

Donations/Funding

Industry Trade Group Participation

We release open source code

- We Patch into hundreds of projects each month
 - Strategically important
 - Helps the internet grow fairly.
- ~300 projects to date.*
 - API Examples
 - Dev Tools
 - Linker
 - Build/test
 - Memory and thread management
 - Plugins for eclipse
 - DVCS patches.
 - Infrastructure

*See Label:Google on <http://code.google.com>

Major Projects: GWT

- What is it: An Ajax ui toolkit
- What License: BSD
- What does it do?
 - Fast
 - Safe
 - Cross-browser
 - Codeable in Eclipse
 - Extensible
 - Doesn't require special serving infrastructure



Major Projects: Chromium

- What is it: A browser
- What license: Mostly BSD (some lgpl)
- What does it do?
 - Incredibly Fast
 - Safe, smart, sandboxing
 - Multiple processes/tab.
 - Implements HTML5
 - Offline, Worker pools, Geo-location, File uploading
- Desktop like experiences inside the browser



Major Projects: Android

- What is it: Full cell phone OS.
- What license: Apache + Linux Kernel
- What does it do?
 - Raises the minimum bar for smart phone os'
 - Allows for a solid web experience
 - Allow for multiple applications to co-exist.
 - Provides a smart app marketplace.
 - Makes cell phone development a snap.



Google Wave (incoming!)

- What it is: A communications product.
- What License: Protocols: cc, Code, likely apache.
- Protocols Released
- What does it do
 - Email redesigned for the modern day
 - Merging IM, Blogs, Wikis, Social Networks and Mail.
 - Taking on developer users and expanding to others soon
 - Tests the heck out of your browser

We Release Patches...

The Linux Kernel	ICU
Apache Tomcat and Axis	Wine
The Gnu Compiler Collection	Derby
Subversion	Aspell
Python	DSpace
Perl	Glib
MySQL	Autoconf/automake
SSH/OpenSSL	Make
Eclipse	Glibc
Emacs	Binutils
Vim	Java
Gaim	Samba
Adium	Various Emulators

**And Many
More...**

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Open Source **Infrastructure**

Hosting on Google Code which provides:

- Reliable, scalable, clean project Hosting
- Version Control
- Issue/Bug Tracking
- Wikis

Over 85k projects of projects, now the 2nd
Largest Repository Online

The Summer Of Code, 2009

100 students

150 Organizations

Over **1500** Mentors

6123 applications

79 Countries

80% pass rate!

We anticipate ~**3** million lines of code

How it Works

- 1) Student **applies** to work on a project for, say, the ASF
- 2) ASF mentors **review** the application and accept the student
- 3) Google pays student \$**500** for being **accepted**
- 4) Student **works** with an ASF mentor to create project
- 5) Mid-Term, **good** students are paid \$**2000** by Google
- 6) Student continues **work** with mentor to create project
- 7) Final: If the student has **completed** the goals set forth in the application and student is paid \$**2000** by Google
- 8) Successful student gets **t-shirt**, certificate and valuable experience along with the money.

The End

Questions?



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<http://code.google.com/opensource>