

# Indonesia OSS (Open Source Software) Movement: OSS Research and Development in Indonesia<sup>1</sup>

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## **Abstract**

Open Source Software (OSS) has become very popular in Indonesia. Indonesian people are not just being OSS users but have also become OSS contributors. Currently, although the number of OSS users in Indonesia is increasing very significantly, the number of OSS contributors and the number of OSS projects in Indonesia are still very limited. Most of Research and Development (R & D) of OSS are being done in Universities, since they have the infrastructures (e.g. Internet connections and servers) and resources (especially human resources). If we want to accelerate the growing of OSS, we could start by accelerating R & D of OSS in the Universities.

## **Introduction**

In term of OSS, people can be classified into 2 (two) different categories:

- OSS Users (System Administrators, General Users)
- OSS Contributors (Core Developers, Developers, Testers)

As OSS users, people can download, install, configure, and use the OSS to fulfill their needs. People in this category do not provide any feedback to the developers of the software. Their existence is passive but it does not mean they are useless because OSS does not mean anything without users. A System Administrator is also part of this category if they never create any contacts with the developers.

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Another category is OSS contributors. The minimal contribution that people can do is download the OSS, install it, use it, and, if they found any bugs or anomalies, they will contact or send the report to the developers of the software (bug report). People can also share their experiences in using the OSS to the community.

The better contribution can be done with submitting suggestions or bug fixes to core developers of the OSS. By doing this, they can make positive impact to the OSS.

The best contribution to the OSS is to become a part of core developers or maintainers of some OSS projects. The difference between core developers and developers is just the access right to the source code repository of OSS.

## ***OSS Users in Indonesia***

OSS has become very popular in Indonesia. OSS is being used in 3 (three) categories:

- As workstation
- As network operating system (NOS)
- As server

As workstation, the role of OSS can be varied. Amongst are operating systems (mostly Linux), office applications/tools (Open Office, K-Office, Abiword, etc), multimedia applications (e.g. xmms), and system tools (e.g. cdrecord, mozilla, evolution, konqueror, K-mail). Although the usage of OSS workstations in Indonesia is still limited, they are becoming more popular. OSS workstations still have limitations on the GUI (Graphical User Interface), familiarity, and installation difficulty. Currently, some distributions have provided a GUI installation program and a friendly desktop environment for the X Window system.

For software developers, building applications on top of OSS operating systems is still difficult because only a small number of Integrated Development Environment available (e.g. Kylix).

Most of OSSs are used as Network Operating Systems (the most popular are Linux and FreeBSD). OSSs in this category can be deployed as:

- Routers (to forward network packet from one interface to the others)
- Firewalls (to filter incoming and outgoing network packet)
- Proxies/NATs (to alternate internal IP address to external/valid IP address)
- Dial in/out gateways.

Beside Network Operating Systems, OSS can also be deployed as application server (with Linux or FreeBSD Operating System), such as:

- Mail Servers (sendmail, postfix, qmail, Courier imap)
- Web Servers (apache)
- Web Caches (squid)
- FTP Servers (wu-ftp)
- DNS Servers (bind)
- Database Servers (MySQL, PostgreSQL)
- File Servers (NIS and NFS)
- Application Servers (IMP Webmail)

The advantages of using OSSs as Network Operating Systems or Servers are:

- Stable (never hang, application failure does not impact the Operating System)
- Quick solving for bugs
- Highly configurable.

Some statistics about OSS users in ITB (ITB is one of the 5 (five) biggest Universities in Indonesia) are:

- ITB Students body  $\pm 15.000$
- Staff (academic and supporting) at ITB  $\pm 2600$
- Registered Internet Users in ITB  $\pm 6000$  (next year, all ITB students must have an Internet account in campus)
- Deployed OSS workstations (Linux) at ITB  $> 145$
- Deployed OSS Network Operating Systems at ITB  $> 20$
- Deployed OSS Servers at ITB  $> 200$  unit

## ***OSS Contributors in Indonesia***

The number of OSS contributors and the number of OSS projects in Indonesia are still limited. Most of Research and Development (R & D) of OSS are being done in Universities because they have the infrastructures (e.g. Internet connections and servers) and resources (especially human resource).

In ITB, we have a group called OSCG (Open Source Contributors Group). OSCG has a web site at <http://opensource.or.id>. The OSCG is a group of people who want to contribute in the open source software development and technology enhancement. Everyone is welcome to become its member by contributing his/her works, ideas, opinions, suggestions or fund. Up till now, all of OSCG members are Indonesian people.

OSCG was founded and now maintained by people at the Informatics Engineering Department, Institut Teknologi Bandung – Indonesia. The early projects came from the students' final projects.

Some of OSCG projects are:

- **gx-admin,**  
**gx-admin** is a generic web-based interface for UNIX system administration using any browser that supports tables and forms. **gx-admin** was designed to be generic and able to configure any kinds of UNIX text-based system files. The configuration for this application itself is on a text file that enables users to add as many configurations as possible. **gx-admin** consists of a simple web server and a number of CGI programs which directly update system files. The web server and all CGI programs are written in Perl version 5, and only use the standard perl modules.
- **Pegasus,**  
**Pegasus** is an indexing web robot that can be used to index some defined urls, a range of IP addresses, or even the whole web. **Pegasus** can be executed with a web browser (for an interactive interface) or straightly from the shell with valid arguments. It will send a request for a HTML page, parse the HTML page, save some significant information and then follow all the links in that page and repeat

the process 'recursively'. **Pegasus** will store the information on a database with PostgreSQL as its Database Management System. The database can be used for various purposes, such as search engine's database for a website, or a private database which can be used to search information offline. Pegasus was written in Perl version 5.

- **RTSimula,**

**RTSimula** is a suite of programs that simulate the behavior of railroad hardware model. The simulator is truly real-time and intended to be used for the course of Real-time Programming. **RTSimula** currently consists of three different programs: the simulator – runs on Real-time Linux – doing the simulation by calculating some parameters provided by users, a monitor – runs on X-Window – drawing crude visualization of the trains and railways, and a simple controller program. The whole suite of programs (and the documentations) were written using OSS: Linux, Real-time Linux, and GTK+. All programs were written using C language.

- **Unicorn,**

**Unicorn** is a subject guide that has a search engine for its main facility. The search engine was developed to search information on a database as a result from Pegasus' indexing process. **Unicorn** uses various techniques to search through the database, such as simple search, exact phrase search, and a wildcard search. Users can also define the options for the search process, including the search sequence and a time range of the last-modified date from a page in the database. **Unicorn** was written in Perl version 5.

- **FreeOffice,**

**FreeOffice** is open source office application software (word processor, spread sheet, presentation, and database management system). The research was funded by RUT VII government program. **FreeOffice** is two-way compatible software with Microsoft Office. This means that Microsoft Office document could be processed by **FreeOffice** and vice versa, but their document format will not necessarily be the same. There are three aspects that had been considered in

this research project: freeware, product documentation & standards, and cooperative research with other research groups.

- **OpenCP,**

**OpenCP** is a Corporate Portal, an integration of various information and applications from the internal or external of the corporate using a personalized web interface. **OpenCP** is open source and thus can be expanded by anyone by improving current application or adding new applications on top of it via its platform. Some applications provided by **OpenCP** are web mail, messaging, calendar, news service, video conference, CVS client, and mailing list.

OSS Research and Development in Indonesia have some obstacles. Amongst are:

- Internet access only exist in big cities
- Limited number of computer science department at Indonesian Universities (5 from 40 public/government universities)
- Limited number of computer science/informatics students (ITB case: students intake only 90/year)
- Not all universities in Indonesia have Internet connections
- No sponsorships from government or private sectors to open source development.

## **Conclusion**

- Indonesian people are not only being OSS users but have also become OSS contributors.
- Most of Research and Development (R & D) of OSS are being done in Universities.
- Penetration of Internet access will accelerate the number of OSS projects as well as the contribution to the OSS communities.
- Sponsorship from government and private sectors to open source development is very important.

## ***Reference and Acknowledgement***

- Perdana, Riza Satria., *Software Development Environment Using Open Source Methodology*, Master Degree Thesis at Institut Teknologi Bandung, 2001
- Liem, Inggriani., *FreeOffice Research Report*, 2000
- <http://opensource.or.id>
- <http://www.if.itb.ac.id>
- <http://freeoffice.or.id>
- <http://opencp.opensource.or.id>