

Collaborative Software Effort: Activities in Japan and Cooperation in Asia

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Abstract. In this paper, we discuss the Free Software Movement in Japan and its counterparts around eastern Asia. The situation in these areas varies considerably, making it impossible to investigate and describe every case. For this reason, we begin by writing from the common-denominator viewpoint of the “*Collaborative Software Effort*”. We then describe in detail what is happening in Japan, giving typical examples and covering several major projects. Next, we briefly discuss cooperation in east Asia, which is just beginning, and future plans and hopes.

1 Introduction

Last March, the Asia OSS Symposium 2003 was held in Thailand. This was the first Free Software forum to enable people from China, Korea, Japan, Chinese Taipei, Thailand, Malaysia, Indonesia, Myanmar, Brunei, the Philippines, Vietnam, Laos, Singapore, and Cambodia to meet together¹.

In the preparation of the symposium, I at first believed that it would be almost impossible to draw together ideas from these areas and arrive at any kind of shared or agreed view. The situation in each area is quite different and diverse, socially, politically, and industrially. The question on my mind was “Could we really find any common ground on which to base meaningful discussions?”

After thinking over my own experiences, including GNU Project and Linux development, I finally settled on the *Collaborative Software Effort* as the common denominator for the Free Software Movement. There are many angles from which the Free Software Movement can be viewed, including social angle, political angle, economic angle, and technical angle. It would be logical to call it “Open Source Software” from the economic standpoint, or to regard “Software in the Public Interest” from the social viewpoint as a citizen. Political parties would probably gravitate towards a defensive “Anti-trust” or “National Security” stance. Each viewpoint is part of the picture, but I believe that the viewpoint of the *Collaborative Software Effort* is the basis from we can launch cooperative efforts.

¹ The word “Asia” is not a correct expression, since it only includes eastern Asia.

2 The Collaborative Software Effort

The Free Software Movement is continuing to grow and spread worldwide. It is proliferating by means of working examples, that is, the software itself, such as the GNU/Linux Operating System, Apache Web server, the GNOME Desktop environment and OpenOffice.org.

Many people in different areas are coming to the movement, and this naturally spawns many viewpoints that lead to discussions. Taking all these viewpoints into consideration, which is the most effective way to drive the movement forward? What issues do we need to focus on to ensure fruitful cooperation? These are the key questions.

My answer is the *Collaborative Software Effort*, which focuses on *free*² software exchanges, equal access to technology, and collaboration to achieve better software. It is not limited to software development itself, but includes documentation, translation, and education as a whole.

There are many different areas, ethnicities, languages, and cultures in Asia. Political systems differ, so do social structures, accessibility to the Internet, and the degree of penetration of information technology. However, under the umbrella of the *Collaborative Software Effort*, we will be able to cooperate and transcend these differences.

My own past experience leads me to identify three major entities that are contributing to the development of Free Software: individuals, business entities, and governments. In my personal experiences of Free Software, these three projects correspond, respectively, to the GNU Project, Linux, and work for the Japanese government.

In this section, we will explain these three activities, and then focus on the common denominator, the *Collaborative Software Effort*.

2.1 The GNU Project – The Beginning

The GNU Project was launched in 1984 by Richard M. Stallman[1]. The goal of the GNU Project was to develop a complete operating system in complete freedom. A great deal of useful software has been developed towards that goal (e.g., GNU Emacs, GCC, GNU C library and Bash). It is now the *de facto* standard development environment for a wide range of platforms, from embedded computers to supercomputers.

Another important achievement is the concept of “copyleft” and the GNU GPL (General Public License), which is the most well-known and widely used Free Software license.

I joined the development of GNU Emacs in 1991 for Multilingual Enhancement of GNU Emacs (MULE), helped the development of GNU C library as one of testers and one of the porters from 1996. I also worked for GCC at a different time.

² *Free* as in freedom.

The key feature of this kind of development is that developments are distributed around the world, and are basically carried by individuals. Although there is an organization, the Free Software Foundation, its role nowadays is limited to the philosophical position.

People develop Free Software, then release it, maintain it, and obtain feedback from individual users and other developers. People exchange software in the form of source code, so that everyone can read it and understand it, modify it and improve it. Users and developers form a kind of autonomous community around the software.

2.2 Linux and Business

Linus Torvalds started Linux in 1991. It is a UNIX-compatible kernel written from scratch. Many hackers around the world joined the development and Linux has since evolved rapidly.

It has filled the missing piece of GNU, namely the kernel. Together with other Free Software, from the GNU Project and others, it has enabled a completely free operating system (the GNU/Linux system) in action. It has achieved the goal of the GNU Project in real life, although it was not necessarily the goal of Linus Torvalds.

Linux has evolved in many ways. It now supports a wide range of CPU architecture, various file systems, various network protocols, and has various hardware drivers.

I joined the development of Linux in 1993. I maintained the PLIP driver until 1998, while hacking the network protocol stack. I ported it to Hitachi SuperH architecture in 1999, and then, built a team of developers for this particular project. I believed that I opened access for Linux to the embedded world. I obtained funds in Japan to proceed with the development, and enhanced it in 2000-2001.

The key feature is that these developments are supported by business entities at large, including computer hardware companies, GNU/Linux “distribution” vendors, and system integrators. The major move started around 1998, when business entities began to adopt GNU/Linux system for their businesses. Sometimes this movement is referred as the “Open Source Movement” [3].

2.3 Governments and Free Software

Governments are newcomers to the field. We have been hearing numerous rumors that different governments worldwide are planning to adopt GNU/Linux or have actually begun the process. Japan is no exception.

The major reason for government interest in Free Software is probably national security in the form of independence from monopoly software interests, trade imbalances in software, and the digital divide.

I joined the National Institute of Japan in December 2000 specifically for this purpose. The role of governments in Free Software is still unclear, but it is clear that this is a major move.

2.4 The Collaborative Software Effort – The Central Circle

In the 1990s, when business entities joined the Free Software Movement, I must admit that it felt a bit inappropriate. I had done my work for its hack value, not to ease the way for corporations. There were some conflicts between the individual viewpoint and business viewpoint. Some have been resolved since then, some have not. But anyway, the community grew.

In the 2000s, now that I am working for the government, although I believe that this is the way to go, I also have a feeling of incongruity. Anyhow, I have found that we could draw a bigger picture with the three activities I described earlier. See Fig. 1.

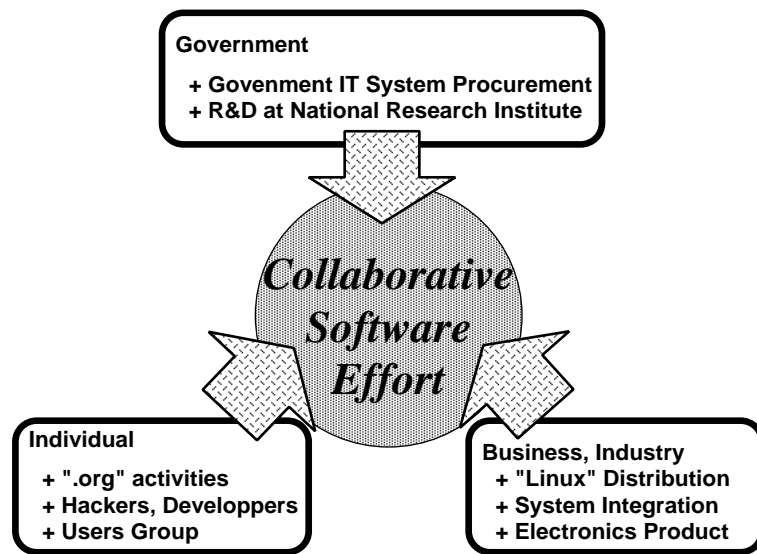


Fig. 1. The Collaborative Software Effort

The central circle is the *Collaborative Software Effort*, where each activity shares and benefits. In this big picture, we might be able to fix as yet unresolved issues between individuals and business entities.

3 Activities in Japan

In this section, we describe activities in Japan in the context of Fig. 1.

In Fig. 2, we show the technical trends seen in Free Software. It shows specifically the Japanese case, but gives good insight into overall Free Software trends. The first trend was in the development environment, such as GNU Emacs, GCC, GDB, etc. This was an important stage, but only the developers derived any benefits. The major players were individuals. Next came the network servers, such

as Apache. Many users gained direct or indirect benefits. Business entities then joined, and started to provide services to customers. Other business developments include embedded systems, especially in consumer electronics. Governments are now starting to consider the Free Desktop Environment.

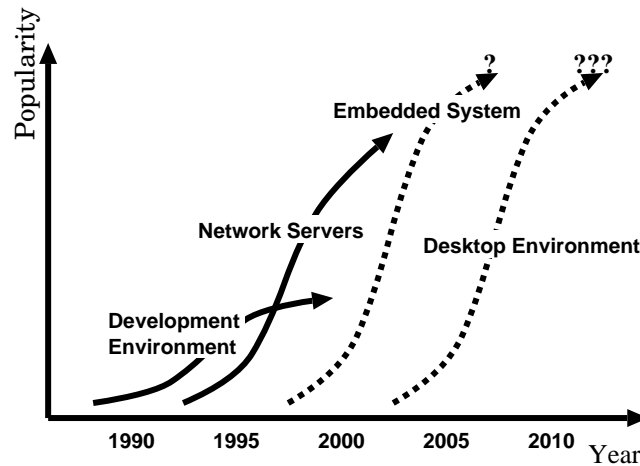


Fig. 2. Technical trends in Free Software

We summarize these activities in Japan in Table 1.

3.1 Individuals

Individually driven activities are lively in Japan. In particular, domestic activities such as translations into Japanese, and modifications to support the Japanese language are quite active. These activities are mostly done by users groups. Most are network entities and do not qualify as legal entities. There are active development communities too. Some of them have become international communities.

Compared to domestic activities, international activities seem to be weak. Due to the cultural and language barrier, Japanese developers tend not to be assertive enough. Sometimes they feel unsure about submitting their modifications to original activities. This leads to unnecessary diversification of software, or makes software non-interoperable. Worse, it causes software maintenance nightmares. This is an issue that has to be resolved.

3.2 Business Entities

Japanese business entities joined the community around 2000. There are now GNU/Linux Distributors, System Integration Services using “Open Source Software”, and GNU/Linux for Consumer Electronics.

Table 1. Activities in Japan

Users Groups	
Linux Users Groups	There are more than 30 groups
BSD Users Groups	Many
Samba Users Group	
GNOME, Python, Zope, Webmin	Wherever there are useful applications,
KDE, PHP, OpenOffice.org	there are users group...
Major Development Communities	
Debian-JP, FreeBSD Project Japan	Operating System Development
Ruby, KAME Project, Sylpheed	Language, IPv6 stack, Mail reader
Namazuru, w3m, OpenCOBOL, ...	Search engine, Web browser, Language
PostgreSQL, Mozilla-gumi, ...	DBMS, Web browser improvements
Community sites, etc.	
Sourceforge.JP, Slashdot.JP	Japanese OSDN activities
OSDL Japan	Support enterprise Linux developments
Linux Cafe	Place where people meet together
Open Source Group Japan	Maintaining Japanese translation of OSD
Events	
Linux Conference (1998-)	Hosted by the Japan Linux Association
LinuxWorld Tokyo (1999-)	More than 40,000 participants/year
Magazines	
Linux Magazine	60,000 issues per month
Linux World	60,000 issues per month
Nikkei Linux, BSD Magazine, UNIX User	
Embedded UNIX	Featured in embedded system
Associations, Consortia, and Society	
Japan Unix Society	Legacy organization still alive
Japan Linux Association (JLA)	More than 400 individual members
Japan Embedded Linux Consortium	Dedicated to Embedded Linux
LPI Japan	Certification and education
Free Software Initiative of Japan (FSIJ)	Promote the Free Software Movement
Open Source Promotion Initiative (OSPI)	Promote Open Source Industry
Distributors	
RedHat	http://www.jp.redhat.com/
Turbolinux	http://www.turbolinux.co.jp/
Vine Linux	http://vinelinux.org/
Miracle Linux	http://www.miraclelinux.com/
ARMA aka Omoikane GNU/Linux	http://www.omoikane.co.jp/
Holon Linux	http://www.holonlinux.com/
Medical System	
ORCA Project	The Japan Medical Association's Project
Government Projects	
Exploratory Software Program	Supporting Free Software hackers
Open Software Project	1000-million yen × three years

GNU/Linux is widely used for network servers, as are *BSD implementations. According to the “Linux White Paper for Japan” [4], more than 50% of System Integration Service Providers support Linux. Major vendors such as Fujitsu and NEC have also announced their support for Linux³.

Recent news is that GNU/Linux is becoming more popular in the consumer electronics market. Sharp has manufactured a Linux-based PDA series, called “Linux Zaurus” [5]. Sony has come up with a Linux-based digital video server, called “Cocoon” [6]. NEC and Matsushita are cooperating on the development of Linux-based software for mobile phones.

Although the application range is very wide (from embedded to servers), desktop usage of GNU/Linux is rare in Japan. GNU/Linux has been used in an educational context, specifically computer centers at universities. Application-specific client solutions are provided. A typical example is the ORCA project, which is a medical receipt system. However, few good solutions are provided for the everyday-use desktop environment. Proprietary software solution dominates here. This is another issue that must be resolved.

3.3 Governments

The Japanese government does not recommend or mandate the GNU/Linux system when it comes to government procurement of information systems. There is a view that the government should have an alternative technology to hand, and GNU/Linux could be one of these. Some research projects have been set up to investigate this issue.

It appears that the Free Software approach is attractive to the government, since it leads to development of both human resources and information technology. Exchanging source code is good for education, equal access to technology lowers barriers to study, and it would also make the IT industry happy. In the “Exploratory Software Program” which is supported by METI, some project managers (including me) encourage Free Software Development for these reasons.

“Open Software Project” has started this year as a research and development project. It is supported by METI and encourages software development based on open technology and open standards. Within this project, there is a project for setting up a Free Desktop Environment Test bed.

In Japan, the government comes in at the end of the process, as shown Fig. 3.

This activity has just started. It’s a kind of trial, and still at the experimental stage. No explicit plan or firm strategy has yet been established.

4 Cooperation in Asia

Cooperation in Asia on Free Software has just started. The key difference is which activity acts as the locomotive for movement (See Fig. 4).

³ This does not necessarily mean, though, that they support the Open Source or Free Software Movement.

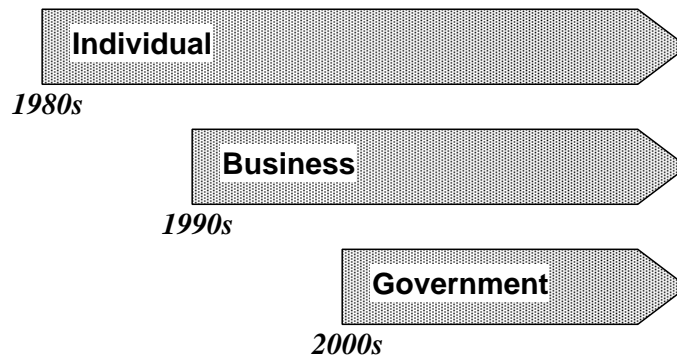


Fig. 3. Evolution of the Free Software community

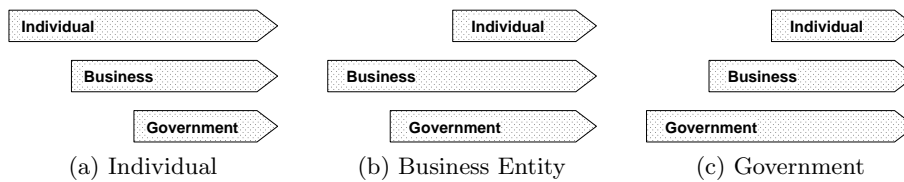


Fig. 4. The locomotive for movement

Japan is type (a), while Korea and Chinese Taipei seem to belong to type (b). Other areas might be type (c), especially China, Thailand, and Vietnam, where governments push explicit policy.

4.1 Asia OSS Symposium 2003

On March 4-6, 2003, the Asia OSS Symposium 2003 was held at Phuket, Thailand. It was hosted by the CICC (Center of International Cooperation for Computerization, Japan) and NECTEC (National Electronics and Computer Technology Center, Thailand)[7].

There were more than a hundred participants. People came from every area of eastern Asia: China, Korea, Japan, Chinese Taipei, Thailand, Malaysia, Indonesia, Myanmar, Brunei, the Philippines, Vietnam, Laos, Singapore, and Cambodia. Invited guests came from Germany and the USA. People's affiliations were national research laboratories, universities, governments, and industry.

There were keynote speeches from Japan and Thailand, and an invited speech by Georg Greve of Free Software Foundation Europe, followed by presentations on various subjects. There were two discussion sessions, covering embedded systems and interoperability. Two demonstration sessions were held on development projects and other items. Lastly, there was a Round Table discussion focusing on future collaboration.

The result was the "Phuket Statement", in which activists shared their hopes and visions, and agreed future collaboration[8].

4.2 Future directions

The symposium marked the beginning of the collaborative process. The next stage is to take concrete action. Technical targets will be desktop environments and embedded systems. The Chinese and Thai governments have already taken action on the Free Desktop Environment. Japan and Korea are now planning cooperation on embedded systems. The targets for systems should be schools and other public services.

In all these cases, I believe the *Collaborative Software Effort* viewpoint will be successful.

5 Conclusion

I have classified three activities, driven by individuals, business entities, and governments, and set out the central viewpoint of the *Collaborative Software Effort*. This is the common denominator among the three that enables cooperation.

I described Japanese activities in detail under this classification. Individuals take the initiative in the Free Software Movement in Japan, while business entities are taking a major role in fostering its widespread application. The government has just joined the movement.

I briefly discussed cooperation in Asia. There is progress of some form in each area. Cooperation will accelerate the spread of the movement, and each area will benefit.

The results so far show that the viewpoint of the *Collaborative Software Effort* is effective for cross-cultural and/or international cooperation.

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