The Blueprint of Open Source Software Development in China

Dongbin Wang[1]
1 Center for China Study, School of Public Policy & Management,
Tsinghua University, Beijing, China
(wdb05@mails.tsinghua.edu.cn)

Abstract. Open source in China would benefit from three aspects of development environment changes. One is the amelioration of intellectual property right. It will lead to more stimuli to innovation. The second one is rapid development of software industry as well as an effective framework of promoting policy. The third one is derivative demand from other trillion-scale industries. As a result, it is predictable that OSS in China will develop faster and faster in the near future.

1 Introduction

The year 2010 is a turning point for open source software (OSS) both in China and all over the world. From this year, China has finally transformed from open source consumer to open source contributor, which means that China is deeply participated in open source now and devote to source code developing process. For the world, it is confirmed that OSS has gained plenty of advantages and achieved a turning point.[1] So it is predictable that OSS will receive faster and faster development in the near future. The purpose of this paper is to look back OSS development in China as well as its potential industry status and potential development along with some emerging strategic industries. In the former part, the author pays more attention to copyright protection in China. In the latter part, derivative demand from other industry especially those large scale investment industries related with software or ICT will be studied to portray the blueprint of China OSS.

2 Copyright and OSS Development

Intellectual property right issue is a key topic in the world trade especially in service industry including software industry. Basically, worse copyright environment will cause more loss of software companies and damage the industry. Meanwhile, OSS

[1] Laura Wurster. Open Source Software Hits a Strategic Tipping Point. Harvard Business Review. March 2011

obeys the spirit of copyleft, which means that it encourages widely use and adoption of software with a lower price. So what is the linkage between copy right and open source? Would weak copyright system hurt close source software and empower OSS at the same time? Unfortunately, the reality does not like this in general. Whatever close or open source, piracy will harm them. Sometime, open source even suffers more. Let us take China for example in the following.

In 2000 or so, piracy in software industry of China is very popular. Customers are used to using pirate software. Domestic companies also suffered a lot from pirates because of no profit to support innovation and invention. From table1, it is seen that the piracy rate of every software category is still very high until 2005. As a result, intellectual property right debate becomes a key issue in China-USA international trade negotiations.

Table 1. Piracy Rates in China 2005-2010 (%)

Type	2005	2006	2007	2008	2009	2010
Operating System	81	68	39	29	27	**25**
Office System	84	79	68	65	63	**59**
Information Security	70	60	61	64	48	**45**
PC Game	68	52	54	30	28	**26**

Source: China Software Piracy Report 2010

After more than 10-year endeavor, China finally joined in WTO in 2001 with promise to punish piracy activities and give strictest protection to intellectual property right. To line with these promise, China government started to promote the usage of legal software and fight with piracy behavior. In April of 2006, four departments of central government collaborated to issue a notice, demanding all pre-sale PC in future must install official operating system software. Meanwhile, China government also issued some new laws and take severe action to against piracy.

At the same time, large software company such as Microsoft also starts to find solution to punish and stop illegal copy of its own products. In the long time, piracy helped Microsoft to occupy local software market even though it suffered economy loss. Consumers in China are accustomed to Windows system. But from the beginning of 21 century, Microsoft began to prosecute and became more and more fierce. The famous law suit is Tomato Garden XP case in 2008. At that time, more than twenty percentage of pirate XP operating system was Tomato Garden XP version. Then it was charged huge amount of fine and some chief persons were put into prison. In September of 2008, CCTV-1 continued to broadcast the case four times. It showed the determination of government to punish piracy without hesitation. In the end of the TV program, it spent more than 10 minutes to introduce Linux

and open source software. Accounting for the status of CCTV in the public media, in some sense, it showed the official attitude towards the case.

Internet Cafeteria was another main channel which was easy to supervise. Because of heavy pressures from Microsoft, thousands of net bars began to turn to Linux system and other open source software from the consideration of operation cost.

Even under this situation, piracy rate of individual users is still very high for the reason that the price of official private software is still too far beyond consumer's capability. (See table 2)

Table 2. Piracy Rate of Company & Individual 2005-2007 (%)

Piracy Rate	2005	2006	2007
Company Users	48	39	35
Individual Users	80	78	69

Source: China Software Piracy Report 2007

Poor intellectual property right environment led extremely negative influence to OSS development. Because of high rate of piracy in the long time, Windows system attained wide spread in Chinese market. In some sense, it means that customers are totally addictive to Microsoft product. In 2006, at first, many large companies preferred Linux as pre-installation operation system. Unfortunately, consumers immediately transfer to Windows system. Due to customs' habits, PC companies such as Legend etc, visited USA and negotiated with Microsoft very soon. Finally the price of official system was cut to relatively low, but the total bill was still very high. By doing so, PC seller can provide customer computer with legal version of operating system. That is one of the main reasons why the piracy rate of operating system decreased sharply in the past five year. In 2010, it is only 25% piracy rate in operating system.

There is no doubt that consumer's addictive to Windows will impede development of open source system. Piracy helps Microsoft become popular and gain great success. From software adoption of government bodies, it is obvious that Microsoft products such as Windows and Office are still dominated in public office.

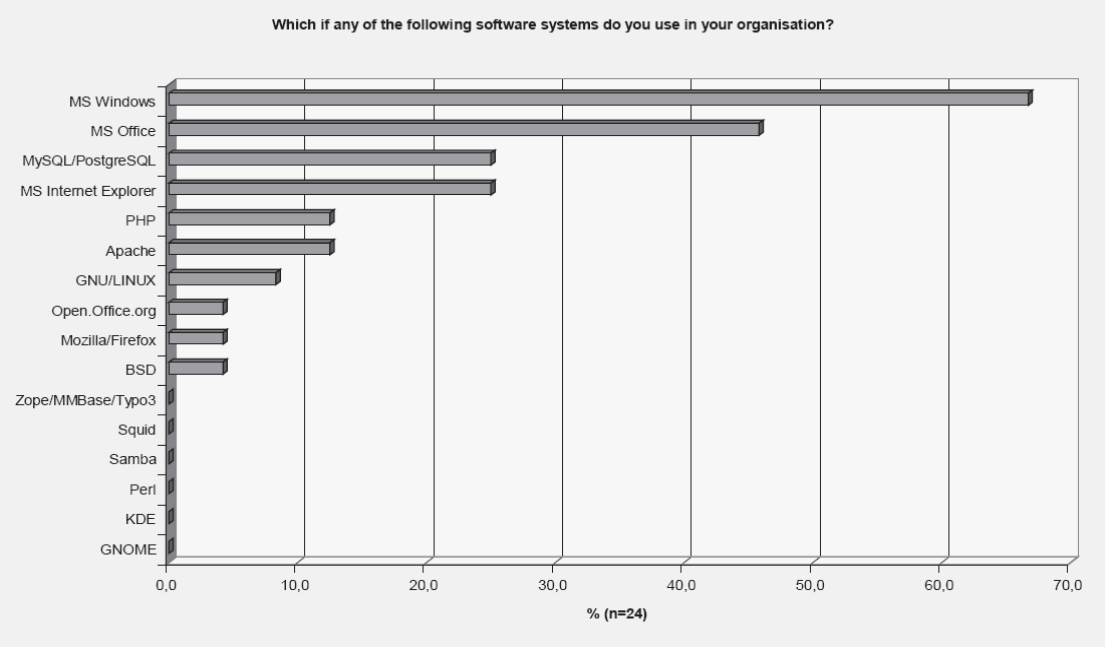

Fig. 1. Usage of selected software systems by government bodies in China
Source: Free/Libre and Open Source Software: Worldwide Impact Study-China, 2007,P.9

The software adoption of program developer may open the dawn to OSS development. In Figure 2, it is seen that the share of Windows is dropping relatively fast year by year, from 73.8% in 2007 to 58.3% in 2010. At the same time, the share of Linux increases from 20.0% in 2007 to 32.7% in 2010. It shows that OSS has attained competitive advantage after more than one decade struggle, or in Laura Wurster's word, hitting a strategic tipping point.

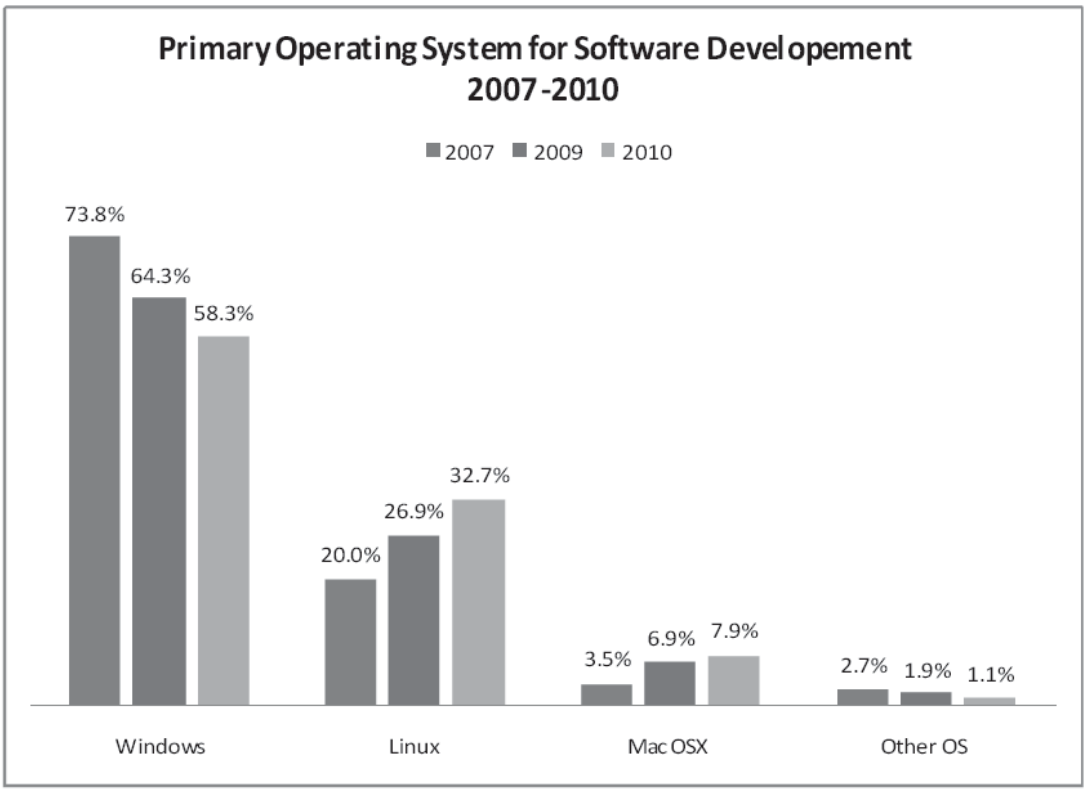

Fig. 2. Primary Operating System for Software Development 2007-2010
Source: The Eclipse Foundation, the Open Source Developer Report: 2010 Eclipse Community Survey, 2010.06

On the other hand, open source itself relies on copyright protection. Copyleft does not exist in the law paper; it is created by open source pioneers under the framework of copyright. Open source owes copyright, but opens its original codes and encourages others to copy, edit and transfer. As a result, the intellectual property of open source software is much easier to be infringed. It is easy to understand that OSS cannot achieve sati factional development under a poor intellectual property right protection environment.
It is reasonable to predict that OSS in China will get faster development along with the improvement of copyright system.

3 Blueprint of China OSS

There are hot debates on the role of government towards software industry. In 2005, China Software Industry Association published a report on the intellectual issue of open source software and business software. In this report, open source software is taken regards as independent model and could be encouraged. In the meanwhile, the report argued that government should not directly support or influence any type business model of software. “Market Rule” is basic faith for many people. At the

same time, “Market Rule” is criticized hard because it does not consider the weak power of software industry in China.

In the past ten years, anyway, both central government and local government have adopted plenty of industry policies to promote software industry. In 2000, the State Council of China promulgated Policies on Encouraging the development of Software Industry and Integrated Circuit Industry(Document 18th), promoting the development of software industry through diversity of public policies. To line with this objective, the State Council issued The Action Program for Vitalizing Software Industry, making the middle and long term objectives for software industry. In Essentials of National Medium and Long--Term Science and Technology Plan(2006－2020), supporting software system, including operation system, database system and office system, are paid much attention. For the reason that source code can be introduced from open source society, it is practical and effective for developing country like China to take open source as industry policy promoter. Some important projects in 863 Plan were approved to give technological support as well as intellectual support to promote open source. These software polices are all related with open source. Investments from public budget are put into developing public invention platform, infrastructure and other supporting systems.

Some local governments also take open source as an industry tool to stimulate economy development. In 2004, Guangdong province issued Linux promotion plan to encourage its development. Later software parks are invested to develop software as well as open source. In 2010, software revenue of Guangdong province exceeded Beijing the first time and became no.1 all over the country.

Another important promotion policy is government procurement. The scale of government purchasing is rising in recent years. Government purchasing is supposed to be part of industry policy for public interest. In August of 2003, the State Council issued an order to require government sectors should give priority to domestic software.

As a result, software industry in China has achieved significant development in the past ten years (Seen in Figure3). In 2010, output software industry is already more than 1.4 trillion. In the twelfth five-year blueprint, the policy target is to improve industry output from 1.4 trillion to 4 trillion, which is really ambitious. The question is how to sustain this target.

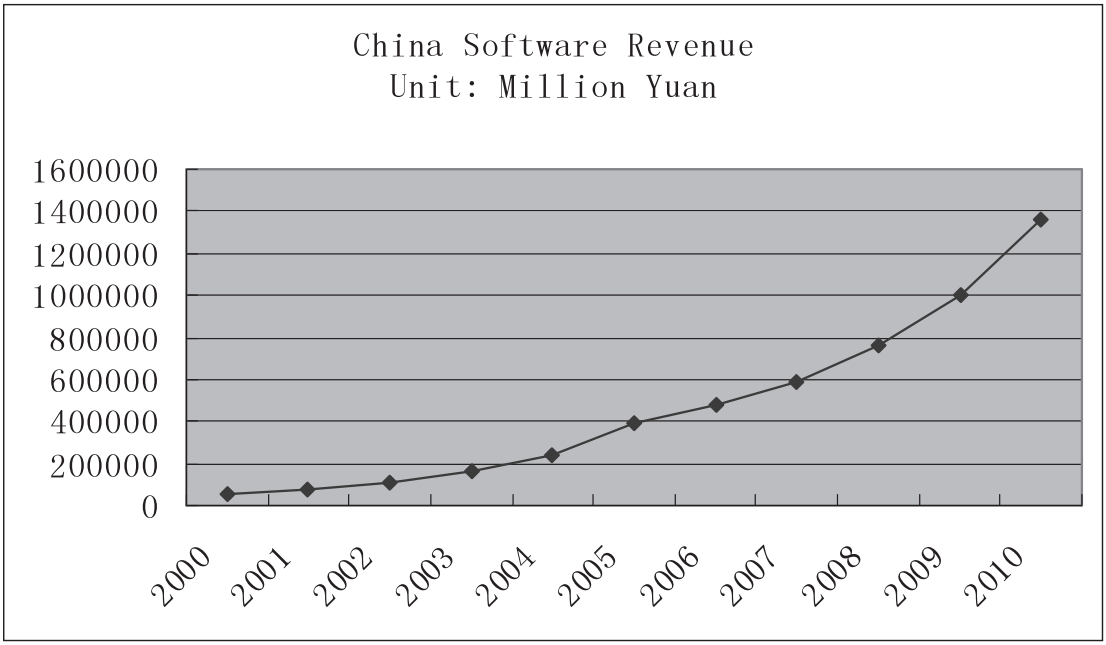

Fig. 3. Software Industry Revenue in China 2000-2010
Source: China Electronic Information Industry Statistic Yearbook 2010

In fact, there are some trillion scale industries that will provide huge derivative demand to software industry. The first one is seven emerging strategic industries that include Energy Saving and Environmental Protection, New Generation of Information Technology, Biology, High-end Equipment Manufacturing, New Energy, New Material, New Energy Vehicles. Among them, the next generation of Information technology is the kernel that will support other ones. The State Council of China published Decision on Accelerating the Nurturing and Development of Emerging Industries of Strategic Significance in 2010. Emerging Strategic industries especially information technology industry will drive software industry to achieve highly development. The second one is Internet of Things. In the beginning of 2010, Premier Wen Jiabao announced in Report on the Work of the Government, "We will make substantive progress in ……and application of the Internet of Things". It is common view that Internet of Things will become the next trillion scale industry in China in the coming future. The basic character of Internet of Things is to intelligentize the infrastructure, or in other word, to coalesce ICT with infrastructure. The third one is Cloud Computing. During the National People's Congress （NPC） & Chinese People's Political Consultative Conference（CPPCC） in 2011, Cloud Computing is one of the main policy issue. In the industry blueprint of Cloud Computing, it is also a trillion scale industry. In the framework of Cloud Computing, supercomputer will become one of the key parts. Open source captures more than 96% of operating system family share for supercomputers. All these trillion-scale industries will lead to trillion-scale derivative demand for software. In addition, openness will become more and more important in accounting of privacy in Cloud

Computing and Internet of Things. In this regard, open source is more suitable and more competitive.

4 Conclusion

It is foreseeable that open source will come into rapid development era in the short run according to the real situation in China. Firstly, from industry perspective, government has formed a series of promoting policy before and will continue to facilitate its development in future. Secondly, other related industries including seven emerging strategic industries, Internet of Things and Cloud Computing etc. will produce tremendous derivative demands of software industry. It will sustain rapid development of software industry in the long time. Thirdly, notable improvement of copyright regime and effective enforcement will form a healthier environment for software industry. Of course open source will also benefit from it. All in all, a gold age for OSS is forthcoming.

5 References

1. China Labs. Survey of Piracy Rate in Software Industry of China .2007/2010
2. Free/Libre and Open Source Software: Worldwide Impact Study-China.2007. http://flossworld.org
3. Laura Wurster. Open Source Software Hits a Strategic Tipping Point. Harvard Business Review. March 2011
4. Ministry of Industry and Information Technology of China. China Electronic Information Industry Statistic Yearbook. 2010
5. The Eclipse Foundation. The Open Source Developer Report: 2010 Eclipse Community Survey. June 2010