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The Business Value of Open Source

Introduction

What is open source? It is a way of developing, distributing, and licensing software. In the late 1970's and early 1980's, the roots of open source as we know it today were established. The pioneers of open source were more interested in building software that helped them achieve both social and technical goals than in taking advantage of the business aspects of open source. Today, users, systems vendors, ISVs, systems integrators, and others are interested in exploiting the business value of open source.

A number of people and organizations from the mid-1970's to the present have made contributions to the concept of open source. While the pioneering open source-based technology, some of which is discussed below, was developed in many cases to fill a technical void, this technology continues to have a significant impact on the computer business.

One of the organizations that played an important role in contributing to the open source movement was the Computer Science Research Group (CSRG) of the University of California at Berkeley with its work on the Berkeley Software Distribution (BSD)¹ and TCP/IP. There is popular belief that the early releases of BSD were open source. In reality they were not. Up through release 4.3BSD-Tahoe, all recipients of BSD had to purchase an AT&T source license. The first real open source code released by CSRG was in June 1989 as Networking Release 1 containing TCP/IP code, but no AT&T code. This was released under what has become known as the open source BSD license. Several open source versions of BSD appeared in the 1990's — FreeBSD, NetBSD, and OpenBSD.

In 1984-85, Richard Stallman launched the GNU Project and the Free Software Foundation. Stallman wanted users to have "freedom" and have control of their code. As a result, he established a community of software developers to build and distribute free software. To develop this community, he needed an operating system. Stallman developed an operating system compatible with Unix and gave it the name GNU. GNU is a recursive acronym for "GNU's Not Unix." As a licensing tool, Stallman created the

¹ BSD is based on a version of Unix obtained from AT&T in the early-to-mid 1970's.

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GNU General Public License (GPL) to promote the production of free software. Stallman's goal in developing GNU was actually social in nature and not technical. He believed that even if GNU did not have a technical advantage over Unix, then it would have a social advantage --- allowing users to cooperate.

A number of open source projects, including TCP/IP (mid-to-late 1970s'), BIND (early 1980's), and sendmail (early-to-mid 1980's) helped create the Internet. The X Window System emerged in 1984 at MIT out of a joint project between MIT and Digital Equipment Corporation. It was released as free software and later adopted by a number of computer companies. These companies added X to their proprietary Unix system, in binary form only. According to Stallman, this distribution of X with Unix made it no more free software than Unix was.

One of the most important open source projects was the Linux kernel project initiated by Linux Torvalds in Finland in 1991. Subsequent to Linux, many other open source projects have created software, primarily infrastructure software, that is heavily used today — Apache, Eclipse, Evolution, Geronimo, GNOME and KDE, JBoss, Mozilla, MySQL, NetBeans, OpenOffice, Perl, PHP, SAMBA, Sun Grid Engine, etc.

Other approaches to software development and licensing have been spawned from open source, not quite the same, but nevertheless heavily influenced by open source and the advantages to be gained from it. Notable among these have been Sun's Java Technology and Community Source licensing and Microsoft's Shared Source initiative. Early on, Microsoft sought to invalidate the open source software concept, but Shared Source has adopted several important elements of open source.

Open source is a very broad topic that includes the open source development model, open source licensing, business models, and so on. In this article, we focus on the business of open source, including the business value of open source for users, systems vendors, and ISVs and systems integrators (SIs). We also examine the value of open source to developers. Along the way we take a brief look at business models.

The Business of Open Source

Some of the content in this section is heavily influenced by Frank Hecker's² visionary paper initially written in 1998. According to Hecker, understanding the business of open source is about understanding how to create a software business based on the concept of open source. An organization's commitment to open source means that the user and the projects are at the center of focus; whereas, in the proprietary model, the company that is developing the software is generally at the center of focus. Open source is about giving customers choice; it is a new way of developing, distributing, and licensing software. The open source model offers the promise to help businesses thrive in an Internet-based economy provided there is an understanding of the economic, cultural, and political factors that comprise an effective open source strategy. An open source business model is not only a tactical move to solve a customer's problem, but it can also

² Hecker, Frank. *Setting Up Shop: The Business of Open-Source Software*, June 2000 (www.hecker.org/writings/setting-up-shop.html).

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be part of an overall strategy to change the rules of competition in various market spaces.

Providing greater value to customers than competitors can is the key to building a successful business. A successful software business model requires a number of elements:

1. Community — a strong community of developers and users.
2. Standards — to promote collaboration.
3. Business model — to promote the growth of a profitable business.
4. Investment — by employees and company.
5. Licensing model — determines how software is distributed and how other software can be linked with another organization's software.

These elements are just as important for open source software as they are for proprietary software.

In traditional (proprietary) software business model, the company developing the software provides all, or almost all, of the value to customers while realizing revenues in return for traditional software license fees. In the open source business model, the values are provided to customers not only by a software company but also by the community of contributors that is attracted to working on the company's open source products.

External contributors are usually motivated by the prospect of working with software that solves important problems for them and others, by the possibility of future gain via the provision of related service and products, by the opportunity to increase their own personal knowledge, or by the satisfaction of building a good reputation among their peers. An important part of an open source company or open source project's success depends on the number and quality of open source developers who contribute their work back to project(s).

Open source promotes standards and interoperability to the degree that we have not seen in the past. The reason: it is difficult for competitors to collaborate in private on standards because they are under pressure to innovate and ensure that their products have a competitive advantage. With open source, standards are developed transparently. Apache has been successful in keeping Internet protocols open and similar across all implementations by being transparent.

The lack of transparency is prevalent inside traditional software companies as they develop products. This usually leads to competition for resources and talent with each software development group acting as a separate company. Open source re-unites development efforts because people throughout a company have access to code. This creates high efficiencies in the development of software products and reduces time-to-

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market. Sun's Danese Cooper says that this increase in efficiency through transparency is the "secret sauce" of open source. And it is the reason that Collab.Net is selling open source development methodology into traditional software companies that may never actually open source any code. Cooper says that Sun is using open source as the best way to build new core technology (on top of open standards).

Software warranties, liability, and indemnification are entering into the business of open source. For example, ISVs such as PeopleSoft and SAP and SIs such as EDS want open source in their mix when doing business. But they have to look at what the "pass through" warranties are. It is not yet quite clear how traditional liability promises made to customers by ISVs and SIs are affected.

If ISVs and SIs just pick up raw open source (unbranded) and integrate it themselves, then there is a question of liability and indemnification. ISVs and SIs have to decide if they want to take on the added burden of using raw source products, or if they want to use branded products such as Sun Java Desktop System or StarOffice. Branded is safe but more expensive. For most customers, branded open source software is a just software product that they purchase from a supplier. They expect the same types of warranty and indemnification protection that they are accustomed to with traditional software.

Business Models

Open source, when it works well, can produce high value, high quality, low cost, portable, and no vendor lock-in software that can be exploited by a number of business models. Some of the popular business models in use today include the *all open source* – *service oriented* business model of Red Hat, the *stack oriented open source plus proprietary software* business model of IBM and others.

During 1999 – 2000, a number of open source start-ups appeared, and they failed because they either had no business model or they had an inappropriate business model. Dan Frye of IBM noted that the open source business model during this time frame was "that open source was cool." The fact that many open source start-ups such as Open Sales (later renamed Zelerate), Akopia (acquired by Red Hat) and others failed, or were failing, had little to do with them being open source companies. The fate of these companies would have been the same if they had been proprietary software companies. They, along with other open source companies failed, because they lacked good business models, and they never attained a revenue stream to sustain themselves before venture capital funding began to disappear in 2001. Another reason for their quick departure is that they were unable to compete with the large proprietary ISVs.

Red Hat, on the other hand, achieved amazingly high brand recognition with its Red Hat Linux distribution and developed a successful business model around high volume and support subscriptions along with professional services and training. In the book, *Open Sources: Voices from the Open Source Revolution*, Robert Young, one of the Red Hat founders, chronicles how he and others determined that Red Hat was in the commodity product business where brand recognition is extremely important. As a result, Red Hat developed a business model to exploit the commodity business.

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Ximian, acquired by Novell in 2003, established volume with Ximian Desktop. This volume, however, did not translate into revenue because almost all of the components comprising Ximian Desktop were available for free via download. And Ximian was not able to generate sufficient brand recognition for Red Carpet, the company's primary revenue generator.

Open source companies have often gone about creating their business models incorrectly. Some confuse the concept of a business model with the open source development model. Others pick the open source licensing scheme before they determine their business model. Dan Frye says that when starting a software business the following steps should be followed:

1. Determine the customer value to be provided by the business.
2. Develop a good business model design.
3. Ask the question: "Are my best chances of success with open source?"

If the answer to the third question is yes, then think about an open source license. If you want your software to be picked up and used in proprietary products then you should choose the BSD license (or one with similar characteristics). If you want to avoid having your software picked up and used in commercial products then pick GPL. If you want a license somewhere in the middle, then pick one such as the IBM Public License.

The Business Value of Open Source

There are multiple aspects of the business value of open source. Users, system vendors, ISVs, and SIs all receive business value from open source, some of which is overlapping. Developers receive value from open source, but it differs from that of users, system vendors, etc.

Customer Business Value

The biggest value of open source to customers is choice: choice of hardware platforms and choice of software applications. Customers can buy hardware from many vendors, and they no longer have to run applications just available on proprietary operating systems from IBM, Microsoft, and etc. This business value permits customers to put together an infrastructure that has a high level of performance at a low cost. This is a dynamic that has never been available before to customers, says Kevin Thompson of Red Hat. Some customers are seeing higher levels of performance via their infrastructures than they were ever getting on much more expensive proprietary systems.

Customers are also benefiting from the high rate of innovation of open source development. This coupled with low cost infrastructure gives customers flexibility. Companies such as Red Hat and Novell/SUSE are now able to deliver low cost infrastructure in a consumable way, not the way that open source was delivered several years ago. This allows customers to continue to scale their infrastructure at a lower cost than before, and in some cases at a lower cost than they were predicting six or even

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three months ago. The combination of low cost and high rate of innovation provides customers with better levels of service for internal customers and allows them to be more competitive from a cost perspective point of view in the market segments in which they generate business. The business value provided by open source translates into savings for the customer.

Systems Vendor Business Value

The business value to customers translates logically into the business value of vendors especially when vendors, such as Red Hat and others, build business and revenue models that match the business value proposition of its customers. That is, the business value of open source to customers should help drive the business models of vendors. Because choice, persistent value, and rate of innovation are critical to customers, they should be critical to vendors.

Perhaps the biggest value that vendors receive from open source is the economics of getting development help from the open source community, says Kevin Thompson (this statement is applicable to ISVs as well). This help can come in two forms: direct development assistance and testing/debugging assistance. Eric Raymond, in talking about the management of the development of Linux under Linus Torvald's control says "given a large enough beta-tester and co-developer base, almost every problem will be characterized quickly and the fix obvious to someone." Raymond refers to this as Linus' law. MySQL gets little development help from the MySQL user community, says Marten Mickos, MySQL CEO, but its community aggressively finds and fixes bugs. This allows MySQL to quickly achieve high quality with a small Q/A staff.

With the help of the open source community, software suppliers can develop more high quality software in a shorter time period than they ever could with a traditional software development model. Novell/SUSE and Red Hat could not have developed the software that they have as fast as they have without the help of the open source community. It is difficult to build this type of high quality technology in a short time with relatively low development costs.

From an overall software stack point of view, traditional vendors such as HP, IBM, and Sun benefit from open source via open standards and the availability of flexible and portable software. For example, with the WebSphere stack, IBM replaced an IBM product with Apache and got something better at a lower cost. Another advantage of including open source software in a software stack is that a vendor can include software that customers want to use. It is not limited to just those products that run on its proprietary operating system.

Chris Stone says that one of the business values of open source for Novell is that it can help drive proprietary technology. For example, Novell's NetWare business has stopped declining since the infusion of open source software from SUSE and Ximian. In addition, he says, who wouldn't want open source developers to help them build out their technology?

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ISV Business Value

In the past, ISVs sometimes had to make modifications to their applications to make them run properly on proprietary operating systems, and they had to make compromises in the process. The biggest competitive advantage that proprietary operating systems companies have is that they control access to the source code that ISV applications must run on. The business value of open source for ISVs occurs at the operating system level and the prospect of lower development costs. ISVs along with other companies with open source-based offerings can make changes to Linux that make their applications more competitive. The challenge, however, is to get the Linux community to accept the changes.

Some ISVs such as Oracle, BEA, and CA have open sourced some of their proprietary software. This is of value because it can lower their development costs (assuming a community is created around their open sourced software). The economics of getting development help from the open source community that we discussed earlier also applies to ISVs. In addition, the open sourcing of strategic pieces of their proprietary software may accelerate adoption of their technology.

Value to Developers

Developers receive value from open source, but it is more personal value than business value. Developers, however, can provide business value for the company for which they work. Open source developers have the opportunity to influence technology that is being used by companies and do it on a global scale in a way that cannot occur with any other type of software. A developer at IBM, working on one of IBM's middleware products such as DB2, has an impact on IBM's products, but that developer, unless he is working at night on open source projects, does not have the broad impact that an open source developer does. For example, developers contributing to Apache or Linux can have an enormous effect on the product offerings of many companies.

Conclusions

Users, software suppliers, and systems vendors all benefit from the business value (and economics) of open source with users likely to be the biggest beneficiaries. It provides them with choice: choice of hardware and choice of software. IT managers have long sought to reduce cost/complexity while increasing flexibility, and open source makes attainment of this goal less difficult. We believe that companies that do not embrace open source in some manner, and use it to their advantage, will have trouble retaining a competitive advantage over the long term.

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