Feeling The Force Of Open Source (Why Free Software Suddenly Matters)

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Twenty, ten, or even five years ago, no one in the software business would have seriously considered the possibility that in 1999, a huge percentage of the computing world would have free software at the heart of its information infrastructure. It would have been a flight of fantasy to suggest that some of the biggest success stories in the computer business would involve companies that gave away software, and the source code for that software, for free. But when you look around today, that's exactly what you see.

The explanation of this phenomenon can be found in the open-source software movement, a philosophy of software development that is starting to push the business model for the software industry away from owning and selling programs and towards supporting and servicing users of those programs.

What Is Open-Source Software?

At its simplest, open-source software is software that is freely available to anyone in source-code form. Users can download the source code and build the software themselves, or the software's developers can make executable versions available alongside the source, but the availability of source code at no charge is what makes software open-source.

In the minds of many people brought up within the commercial software mindset of the past 30 or more years, the idea of relying on open-source software seems wrong somehow. Why on earth would any responsible company run its business using software that's given away for free? How can something that's given away over the Internet be stable or reliable or sufficiently supported to place at the core of a company's day-to-day operations?

The answer may be counterintuitive. While the first thing that most people notice about open-source software is that it doesn't cost anything, a more important part of the story is the surprising fact that free, open-source software is often *more* reliable than commercial software. In fact, much of it is so solid that it leads its market category, and some of it is so superior technically that no viable competition has ever arisen for it. But how is this kind of robustness even possible?

Why Open-Source Software Works...And Works Well

First, by opening up a program's source code to the community at large, you give people an opportunity to fix any problems they discover inside. This is especially important in programs

that can affect a system's security. When a security-related bug is discovered in an open-source package such as sendmail, a fix is often available within hours of the problem's discovery. This kind of response time is simply not possible with closed-source commercial software.

This leads to the next reason for the solidity of open-source software: just as many hands make light work, many eyes make it harder for bugs to sneak past. With the source code for a program accessible to thousands of people, the chances of a bug being discovered before it does any damage are infinitely greater than with closed-source software. This peer-review process leads to more robust code. (To highlight a particularly timely example, you could probably count the number of popular open-source software packages with a Year 2000 problem on one hand and still have fingers left over.)

Finally, it's important to figure in the benefits of passionate developers. Those who work on open-source software are often doing so in order to solve a problem that is of particular importance to them. The open-source Linux operating system supports an amazing variety of hardware devices and interfaces, simply because the open-source model allows anyone with a piece of hardware to write the code that makes that hardware work with Linux. And once that code is written, anyone using the operating system can take advantage of it.

The glue that holds this entire process together is the Internet. Open-source software development is a collaborative process, and collaboration over the Internet is much faster and easier than collaboration over any other medium that predates it. Open-source developers around the world can keep in close touch with each other via e-mail and download and submit new software via FTP and the Web. Radical change can happen in days or hours rather than weeks or months.

Examples Of Open-Source Software

You may not realize it, but chances are very good that you use open-source software every day. Open-source software is at the heart of many of the Internet's most popular services, including e-mail and the Web.

- GNU: One of the first large-scale, open-source projects to get the software world's attention was the Free Software Foundation's GNU project. Having started with founder Richard Stallman's goal of developing a free version of the proprietary UNIX operating system, the GNU project has developed many of the compilers, editors and other development tools that are making the open-source revolution possible.

- Linux, FreeBSD: These two UNIX-style operating systems are at the heart of current excitement over open-source software development, having proven that it's possible to develop a free, production-quality operating system through volunteer global collaboration. Linux and FreeBSD are used in hundreds of different applications; the computer graphics in the most successful movie ever made, Titanic, were created on a network of DEC Alphas running Linux, while the popular Yahoo Web index runs Web servers on FreeBSD. The rise of Linux in particular is putting pressure on traditional desktop UNIX vendors such as SCO, who are in the unenviable position of having to compete with a product that can do very nearly everything their products can do and which anyone can download from the Internet for free.

- Apache: Apache is, simply put, the most popular Web server in the world, and it's open-source. Over half the sites on the Web use Apache to deliver up pages to their visitors, proving that open-source software can be the best solution even in environments that demand 100% reliability.

- Sendmail: sendmail is the program that delivers e-mail for most systems on the Internet. It's a rare e-mail message indeed that is never touched by sendmail somewhere in its delivery process.

- Perl: Perl is a programming language that's especially well suited to rapid script development, system administration and web/database integration; scratch the surface of the Internet and you'll find Perl peeking out from underneath. Perl's open-source model encompasses more than the language itself; there are hundreds of high-quality Perl source-code modules available that let you do almost anything, from connecting to an Oracle database to generating product bar codes.

Support

The biggest stumbling block to the acceptance of open-source software at the corporate level is the question of support. Traditional software packages have a clearly defined support path; if you buy a Microsoft product, it comes with a Microsoft Tech Support number. Where do you go when an open-source package doesn't work the way you expect it to?

It's simple. You go to the Internet. Because the open-source community lives and breathes through the Internet, it makes sense that the Internet is the best place to go for help working with open-source software. Internet discussion areas for popular packages such as sendmail and Apache are full of people who use the same software you're using. Maybe some of them even helped to develop it. Users of open-source packages such as sendmail and Apache often find that they have the correct answers to their technical questions within an hour or two simply by asking for help on the appropriate Internet forum.

On the other hand, those who feel uncomfortable about relying on the kindness of strangers for their support will be happy to learn that commercial technical support for many open-source projects is readily available, even thriving. Companies like Red Hat (Linux), C2Net (Apache), and Sendmail, Inc. (sendmail, of course) offer high-quality, for-pay technical assistance to users of popular open-source products, made possible by the fact that they too have access to the source code that makes those products run.

Catching The Wave

By all indications, open-source software is more than this year's flash-in-the-pan. Big industry players such as Intel and IBM are investing in or partnering with companies that exist solely on a foundation of open-source software, in the belief that popular and reliable open-source solutions will help add value to their own offerings. It's a belief that warrants closer inspection by everyone in the software business as we wheel towards the next century and, quite possibly, an entirely new way of doing business.

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