Antimoney or antifreedom?

Is the community really against corporations making money from Linux? Or is it simply against companies that try to restrict users' freedom? Rob Buckley investigates

When Linus Torvalds posted the original Linux code on an Internet newsgroup back in 1991, his terms of use were strict. No one could make any money from it, he mandated. But after some persuasion, he changed his mind. Thirteen years on, Linux is on 22% of all new Web servers and will have a similar percentage of the database server market by 2007, according to analyst group IDC. Governments and companies around the world are paying plenty of money to have servers and desktops given the Linux makeover.

Love of money may be the ultimate corrupter and for some people, all this penguin-coloured cash is proving very tempting indeed. Vendors such as IBM, Sun and HP (once proud owners of their own operating systems) are now directing most of their energy into Linux-based activities. IBM, which invested $1 billion in a Linux-based strategy in 2001, recouped that money within a year. And companies such as Red Hat, that once occupied a prelapsarian state of innocence, where they provided both software and support free of charge, are now charging for both.

Fall from grace

There are some who regard this mixing of Linux and money as a fall from grace that should be avoided. Many developers invest many days and months of their free time developing Linux and never ask for anything in return... and no one else should be able to either, they believe. Others argue that when there were no real proponents of Linux-based operating systems among the big vendors, there were no real enemies as a result; these new riches will come at a cost - new, dangerous enemies - that could potentially lead to the demise of Linux itself. Perhaps it is best to avoid the exposure popularity brings, they argue. What are the effects of these disagreements going to be for enterprise Linux users?

Red Hat has received the most amount of flack from the Linux community as it has become widely perceived as 'the Microsoft of the Linux world'. Over the years, Red Hat has often been criticised for making money from the work others did for free, trying to make Linux synonymous with its own distribution, and introducing its own desktop system that supplanted the look and feel of the existing Linux KDE and Gnome desktops. Its latest *faux pas* has been to discontinue and end support for its free distribution and concentrate instead on its enterprise server and workstation products, offering support only to enterprise customers who buy as many licences as they have servers and desktops and agree not to tinker with any of the code. Critics argue that this makes a nonsense of the concept of Open Source software.

Red Hat's free distribution will still be available as a community project called Fedora, to which Red Hat will continue to contribute, as will the community, the company hopes. But Brian Stevens, Vice President of Operating System Development at Red Hat, says that initial feedback from the community was highly negative.

"It was perceived that we were just going to let everyone do the hard work and not do anything in return," he says. "When everyone realised that they were perhaps going to get more input into the distribution than they had when it was Red Hat Linux, and that we'd still be contributing, the reaction died down."

Alan Cox, who was the maintainer of version 2.2 of Linux until August 2003, but is now on a year's sabbatical, says there are two clear camps of Linux users - the enterprise users and the technical users. Vendors like Red Hat can receive negative feedback from the latter camp when their needs are forgotten.

"Vendors often focus on developing for the mainstream, not the technical guys," he says. "Thus they sometimes feel they are forgotten and people are taking their work in directions they don't care about, dumping them in the process."

Proprietary interests

But Cox says there is no animosity in the community towards Linux corporatisation *per se*, only against people who do proprietary, or near proprietary, things with Linux. Given it is the lack of vendor lock-in and cheapness that is most attractive to enterprise users, the community's policing of vendor behaviour is a good thing for them in many ways.

SUSE, for instance, has faced criticism for not releasing all its software under GPL and keeping some source code secret.

"It's not generally frowned upon, but it's not generally accepted," acknowledges Juergen Geck, SUSE's CTO. "That's something we're going to try to remedy."

It is likely that Novell, previously dead in the water following its struggle with Microsoft in the 90s, will have something to do with this remedy. It is once again being regarded favourably by enterprise IT departments after converting to the cause of the Linux kernel and buying SUSE and Open Source desktop software developer Ximian. By attempting to be a good community member, it hopes once again to be on the enterprise shopping list, knowing that the Linux evangelists who helped give Linux a leg up into the enterprise during the 90s will be loathe to help anyone acting against Linux's best interests.

And if SUSE opens up all its software to the community, anyone will be able to improve it and make it available to the enterprise user as a result, potentially at a lower cost.

Good will

Red Hat, too, is keen to keep good will with the community as a whole, says Stevens. In part, it is because Open Source development processes rely on the community as a whole reviewing code and testing it. Even the mighty IBM, which Cox says many in the community see as 'good guys' thanks to vocal backing of Linux-based computing, is finding
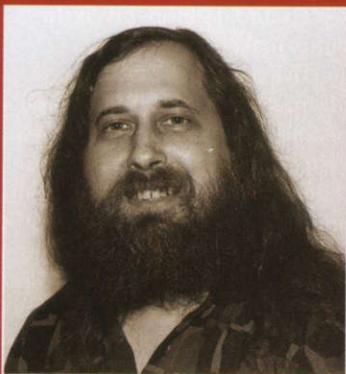
Stallman speaks

Richard Stallman is the founder of the GNU Project, launched in 1984 to develop the free operating system, GNU. He is the principal author of the GNU C Compiler, the GNU symbolic debugger, GNU Emacs, and various other GNU programs. Stallman currently serves as President of the Free Software Foundation.

Regarding corporatisation, his line is one that will surprise the uneducated: "In general, I think it's good when companies foster the development of Free Software," he says. "I judge businesses by their conduct. Free Software treats the user ethically - it's good when companies produce Free Software. Proprietary software tramples the user's freedom and is unethical. Software should be free.

"I'm sad to say that as far as I know, all the companies that distribute GNU/Linux software also distribute non-free software, which is non-ethical. Some also develop non-free software, which is worse. But we should look at these activities separately, which is the best way to encourage them to do more of what's good and less of what's bad."

On Red Hat, he says: "Providing services is fine - that's not denying someone else's freedom, that's just saying you'll do some work if you're paid. That was part of the idea from the beginning 20 years ago."

On why people develop Free Software, he states: "As far as I can tell, volunteerism is increasing. People are worried that these big companies will dominate projects. It can happen. The danger when people in a Free Software project place too much importance on contributions from big corporations is they can be bought off and silenced. There are people who work on Free Software to avoid the dominance by big corporations. But others are just excited by working on technology, sharing and not having a boss."

Perens speaks

Bruce Perens is co-founder of the Open Source Initiative, The Linux Standard Base, Software in the Public Interest and No-Code International. He spent two years with HP as Senior Global Strategist for Linux and Open Source, and was President of Linux Capital Group, a venture fund specialising in Linux.

On corporatisation, he comments: "Open Source developers are quite happy to have businesses using our software and as our partners. But there is a backlash against the way the Linux system is being marketed to them, and advent of very restrictive licences related to the services and the trademarks rather than with our software."

On Red Hat, he states: "I've found that for a number of years and increasing in fervour, there has been criticism of how Red Hat has been carrying out the marketing of Linux. It's come to a head now with developers and Red Hat's customers. They're resentful of the lock-in, as far as Red Hat Advanced Server is concerned."

On Red Hat's licensing, he says: "I've checked with some attorneys and we agree that if you look at Red Hat Advanced Server licence, it is within the letter of the Open Source licences, but not within the spirit. Most people won't notice so the whole community isn't going to be up in arms about this until I start informing them."

On an HP backlash, he says: "HP did a lot of the IA-64 development and now it's having to buy it back from Red Hat in order to have Red Hat Advanced Server. Even if it doesn't sell Advanced Server and just puts plain old Red Hat on its systems, Red Hat will not mark HP as an endorsed system and will then sell against HP. HP aren't happy about that."

On Red Hat's pricing, he says: "$2,000 a seat for Advanced Server, several hundred dollars for a workstation. Isn't that bullshit? I've been making Open Source software since 1987; I did not contribute all that time for it to be marketed that way."

On fighting back, he adds: "I could just complain about Red Hat but then I'd be a bellyacher. My alternative is called UserLinux - I've got to figure out how to get a GNU in the name - it will be a distribution from the community. It's hard to make money from a distribution, which is what has forced Red Hat to take the path it has. So I think the proper role of Red Hat and SUSE is to be service vendors around a common distribution from the community. Red Hat is attempting to create something similar with Fedora, but why should I as a developer help them with Fedora when the partnership is so one-sided?"

developing Linux on its Power processor heavy going - despite dedicating more than 300 programmers to the task, it is hoping to get more community involvement. According to Dan Frye, director of the Linux Technology Centre: "One thing we will be doing is working to increase that so it's more of a community effort and there are more things going on."

If the community fails to support a project and there are insufficient numbers of people working on it, the project tends to die off. As well as weeding out the cool from the dull, this acts as a self-checking mechanism on those who represent only minority views within the community. It also stops vendors from trying to seize control of projects.

Eric Raymond, President of the Open Source Initiative, says that while some people have tried to 'fork' code in the past, splits in major projects have been rare and always accompanied by re-labelling and a large volume of public self-justification.

"The splitters felt they were going against a fairly powerful community norm," he says.

A further check is provided by the developers who are based within corporations and who are unlikely to support a project run by other companies unless there is material benefit in doing so for their own company.

"In the early 90s, you had Linus Torvalds and friends providing a system," argues SUSE's Geck. "In the mid 90s, you had companies like Red Hat, SUSE, Mandrake and others hiring as much developer capital as possible to get an impact on the project. At the end of the 90s, when the IT industry kicked in and Oracle, IBM, Informix and everybody else were making very audible announcements, it was the IT industry that was hiring all these people. It still is. You have more developers on Linux at Intel than at SUSE. The same goes for HP, IBM, Oracle and SAP. The majority of the active Linux community has never been a bunch of altruistic nerds - it's a misconception."

This opinion is supported by author and security analyst Hal Flynn.

"When it comes to security patches, I've always heard the same argument from the Open Source and Free Software crowd," he claims. "The argument is that when a security

hole is announced, the volunteer community is supposed to come to the rescue like the fire brigade. But in most cases, it seems the Open Source community is the last group to come to the rescue. Instead, the fire brigade consists primarily of the maintainers of the software, the vendors and others."

Potentially, the reason for the lack of a real backlash by the community against companies trying to make money from Linux is that the community is already made up of companies making money from Linux.

Linux society

So just like any society, the Linux community has social codes and taboos to keep its citizens in check. Stick to those rules (or don't do anything too bad) and the community will support you. Red Hat's slow transformation from 'just another Linux distributor' to a company that can force even the likes of Hewlett Packard to license its distribution (some of which HP wrote) in order to receive certification shows how even some proprietary activity and moulding of the community mind is possible. But it still requires a sufficiently long period of time and the loss of a considerable amount of good faith in the process.

While any one company can try to exert an influence on the direction Linux takes, the size of the Open Source community as a whole means that even the largest companies have a small say overall. They can influence the marketing of Linux-based technologies, but the underlying technology is still under the control of Linus Torvalds and the community as a whole. This means that it is only by
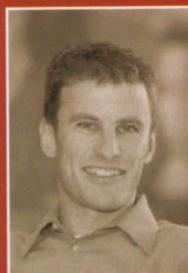
"It was perceived that we were just going to let everyone do the hard work and not do anything in return"

Brian Stevens, Vice President Operating System Development, Red Hat

What goes into a distribution?

Unlike Windows, Linux (or GNU/Linux as some prefer to call it) is not a monolithic operating system created by one company. It's a series of components, each with its own developers and development processes.

At the core of most modern operating systems is a kernel, a piece of software that knows how to operate the computer hardware. The Linux kernel, from which Linux distributions get their name, is the result of the efforts of its creator, Linus Torvalds, and thousands of software developers around the world. It started as a personal project for Torvalds to learn more about his computer, but after he released the code on the Internet and incorporated changes suggested by those who studied the code, Torvalds' kernel grew so it could work on many other kinds of computer and perform many more functions than originally intended.

These days, the kernel development process is highly formalised. The Linux kernel developers are self-organised into subsystems based on their interests and technical expertise (for example, networking or storage). Each of these subsystems has an expert developer, called the subsystem maintainer, who oversees the work of the others. Subsystem maintainers review the code submitted to them and organise broader reviews of the code to ensure its quality.

Only when a subsystem maintainer accepts software code is it passed along to one of the two developers at the top of the Linux hierarchy: Linus Torvalds or Andrew Morton. Morton, one of Torvalds' most trusted associates, maintains the 'production kernel', which is the version most Linux distributors use (currently version 2.6), while Torvalds maintains the 'development kernel' (the planned up-and-coming verion is 2.7; development versions carrying an odd second digit until they are ready for release), where new features and bug fixes are tested. Torvalds remains the final arbiter of what is included in the Linux kernel.

Without other software, the Linux kernel would do very little, and it's the choice of programs that accompany the kernel that differentiates the different distributions of Linux. At the bare minimum, a library of code is needed that implements the commands used by the programming language - typically C - in which other parts of the operating system have been written. This combination of kernel and library alone is sufficient to be a Linux distribution and used, for instance, in systems embedded in devices with no real user interaction.

But for PC and server-based computing, a far greater range of tools, libraries and applications is needed, so virtually all distributions of Linux include the GNU tools from the Free Software Foundation so users can manage their computers. Popular Open Source packages such as X11, Apache, Mozilla and Gnome or KDE are also included so users can run programs with a graphical interface and mouse rather than using text commands, or run a web server, browse the web, and have a way to manipulate their files graphically.

All these different components are developed by different groups, using varied systems and approaches to development, often according to contrasting philosophies. The FSF, for instance, believes that all software should be free (see box *Stallman speaks*), while many Open Source developers argue only that the source code of software should be published as a means of spotting flaws and improving it. But the terms of how developers do this should be left to them, so if they want to sell their software, they should be free to do so. The latter approach has won support from companies, such as Sun and Apple, which have published source code to some of their software using their own licences.

causing a drastic change to the community that any big effect is produced in the direction of Linux. Unfortunately for Linux, this means that the most change can be created by its enemies.

There is one big threat to Linux. It's not Microsoft but is, in fact, intellectual property law. Patents on software processes now exist in the US and other countries. Companies such as IBM, SCO and Microsoft own a considerable number of patents, IBM in particular owns many thousands. According to Bruce Perens (see box *Perens says*), IBM has so many patents that it is possible, if it wanted to, for the company to severely cripple Linux. As Microsoft continues to increase and take advantage of the body of patents it has, it seems likely to be only a small matter of time before it starts 'defensively patenting' items to block Linux development, assuming it does not find something in its portfolio that it believes Linux infringes upon.

And if it proves impossible to earn money by working with the community, intellectual property could prove to be another way in. SCO, current owner of Unix, claims that IBM copied code illegally from its AIX Unix operating system into Linux and so IBM or Linus Torvalds should pay recompense. SCO's decision to attack first IBM, then Linus Torvalds and finally, the GPL, has brought down upon it the kind of wrath normally reserved for Microsoft. Open Source proponents have lambasted it, described CEO Darl McBride as 'a rapist', and caused sales of its software in enterprises to drop, at least according to SCO's SEC filing. A few over-zealous individuals have even mounted denial of service attacks against its website, making SCO one of the few companies to have suffered a real backlash from the community rather than open scorn and a failure by the community to get involved with or buy its products.

Open letters

Most of the ire has stemmed from McBride's poorly considered open letters to the community that do little more than accuse Linux developers of Communism. Considerable time is being spent by SCO trying to douse the flames the letters have caused, since even it is not willing to suffer the all-out wrath of the Linux community.

"It was started purely as a reaction to one of our licencees [IBM] violating their agreement and incorporating some of our intellectual property into Linux without our permission," says Gregory Blepp, Vice President of SCOSource for the SCO Group. "When I have a chance to sit down for an hour with Open Source people and explain that to them, they understand where we're coming from."

Blepp says the company's last recourse is the courts; it would naturally prefer to agree a licensing fee for the intellectual property it claims has been appropriated.

While few analysts or lawyers see it gaining much headway, there is the potential for SCO to cause a major headache for Linux. The GPL will receive its first real scrutiny in the courts if the case goes to trial. Even if SCO fails, it is possible that the GPL might be shown as invalid. Then anything released under the GPL would be open for appropriation by firms all eager to grab the technology and any advantages it might offer. If SCO succeeds then Red Hat will not be the only company requiring every single computer running Linux to be licensed for a fee.

Most of those working on Free or Open Source Linux-based projects are not anti-business. But they do firmly believe in freedom from vendor lock-in. As long as vendors play by the community's rules, they're safe. Transgress, and they'll find themselves ostracised.