US – Australia Free Trade Agreement and Open Source

Summary

Open Source software (aka Free Software) is one of the most important recent developments in the software industry. All over the world more and more software developers and users are discovering the benefits of Open Source software. The Australian software industry is no exception, and some Australians have become very prominent contributors to the most widely known Open Source projects. Australian developers, companies and users are benefiting directly from Open Source software. However, these stakeholders were not considered in the FTA process, nor in the creation of some existing laws. For example, currently it is illegal to distribute Open Source DVD players, and the FTA will make it illegal to even use them. As a result, DVDs cannot be played on computers that run the Linux operating system (the third most popular operating system after Microsoft Windows and Apple Macintosh).

We will show that the proposed FTA will limit the ability of Australian software developers, companies, and users to benefit from and contribute to the Open Source software industry. Moreover, we will also show that the proposed changes will in fact limit free trade between Australia and the USA; the Intellectual Property provisions do not reduce barriers, but expand US barriers to cover Australia. The proposed agreement implies laws which strengthen large software companies at the expense of smaller players. Open Source encourages everyone to become a software producer and distributor: hence the expense is more widely spread than in other forms of software. Taking on the American system of software patents will stifle Open Source software initiatives and force Australian users and businesses into using costly and potentially inferior software, without the ability to alter it to suit their needs. Finally, the FTA also limits any legislative damage control we might attempt later, at a time when more people are becoming aware of the dangers of these laws.

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1. Open Source Software: Why Should We Care?

Open Source Software (as defined by the Open Source Definition[OSDEF]) encourages a collaborative method of developing and distributing software: rather than restricting the flow of software development to be simply developer-to-user, the original developer encourages improvement and development by giving all users complete and equal access to the program internals. Users can become developers and developers become users. For proprietary (closed) software, only the author of the software has access to the program internals, or 'source code'. Open Source levels the playing field and allows many people to contribute their skills and interest to the creation of better software products.

This lowers barriers on two sides: users have don't have to pay for the software (although they may choose to), or track licenses, and developers don't need permission to modify and customise the software. The result of such development can be seen clearly in the growth of the Internet, powered by open standards and technologies which originally spread as Open Source software. Examples of technologies which are Open Source include the Apache webserver (powering over two thirds of all websites on the Internet today[NETCRAFT]), the Linux operating system (using tools from the GNU project, and well on its way to becoming the dominant server operating system) and the long-lived BIND program which still serves the vast majority of domain names on the Internet.

The barriers are so low that anyone is a potential software developer and distributor, which means that political issues which primarily effect software developers and distributors can affect a much larger number of people than in the closed software world.

There are tens of thousands of other Open Source projects in development by individuals and companies around the world: developers can use hosting sites such as savannah.org (two thousand projects) and sourceforge.net (seventy nine thousand projects), and many developers host their own, frequently listed on the oddly named freshmeat.net (thirty two thousand projects). Many of these projects are small and specialized, like the recent Electronic Voting and Counting System (EVACS)[EVACS] created for the ACT Electoral Commission for the 2002 election.

Traditionally Free Software/Open Source advocates have been happy to ignore political issues, and compete against other software, closed or Open Source, on technical merits. Unfortunately, several disturbing events in the last few years have shaken the non-political nature of most developers.

1.2 Why is Open Source Software Spreading?

Open Source (sometimes called Free Software) is more than just programs available for little or no cost - it is a "disruptive technology" which is changing the way software is developed. As a result of the rise of Open Sourece many companies, developers and users relish the control and flexibility which has given them the ability to:

- audit the code at any time,

- customise the software to local needs,
- distribute to their customers without needing permission, and
- hire or contract someone else of their own choice to do any (or all) of the above.

Once accustomed to this kind of freedom and increased information, most companies and developers are reluctant to return to closed software, and hand control of their software back over to someone else. As one famously remarked "would you buy a car with the hood welded shut?"[NOQUOTE]

Although not directly making money on the software copyright itself, companies have been enjoying healthy returns from services, associated products, support and hardware. Individuals have been making a good living improving and customising Open Source. According to IDC, sales of servers running the Open Source Linux operating system rose 53% in 2003 to 250,000 units[CNET]. For the year 2003 IBM claimed $US 1 billion, and HP $US 2 billion in Linux revenue.

There are also many smaller companies successfully selling Open Source software and solutions, including those who combine closed and Open Source licensing. An example is Trolltech AS, who explain their dual licensing system:

> The guiding principle behind dual licensing is "quid pro quo," or a fair exchange. Under this model, vendors offer their products under both an open source license and a commercial license. This allows open source projects to use the software at no cost, which contributes to widespread use and testing of the software and the fast growth of a large installed user base. Companies redistributing the software as part of commercial products can also get the benefits of the open source software by purchasing a commercial license, which releases them from requirements to publish their source code.

As a result, the companies Sleepycat Software, Trolltech AS and MySQL AB jointly announced that their 2003 software license revenues increased an average of 65% over the previous year. In other words, 10 times the overall growth of U.S. IT industry spending[QTPROFIT].

1.2.1 Dispelling Open Source Myths

"Open Source is anti-copyright!"

On the contrary, most Open Source projects *rely* on copyright. Just as closed-source software is distributed under a license, so too is Open Source software. The difference is simply that Open Source software is licensed under different (more permissive) terms. The most well known example is the GNU General Public License (GPL), which requires that the source code required to create the software be handed on to anyone the software is distributed to, thus using copyright law to ensure that the software stays open.

"Open Source is destroying the software industry!"

90% of the world's software is produced for use, not for resale. In other words, custom or "in-house" projects developed by or for a particular organisation. Hence for the vast majority of the software industry, licensing is irrelevant. In this light, Open Source software, in which copyright is used in an innovative way, is a consolidation of these independent software efforts

into common consortia.And by allowing developers to change and reuse Open Source code, Open Source software is in fact contributing a vast array or tools, protocols, languages and programs to 90% of the software industry. Balanced against the interests of the 10% of the industry whose business is distributing closed products, it might be more fairly stated that closed software is not contributing to the industry in the way that Open Source can, and that to legislate in favour of the closed industry might in fact be far more damaging to the software industry.

1.3 Why is Open Source Software Important to Australia?

Open Source effectively deregulates the software market, and a free software market produces more benefits for everyone than a highly regulated one. This is especially in Australia's interests as none of the large software companies are Australian: as a nation we are an IT consumer. Thanks to Open Source licensing the very best software development tools are freely available to any Australian developers without the need to pay for exorbitant licensing fees or make heavy investments in research & development.

Australian developers are active participants in Open Source development. A world-class Linux and Open Source developer conference has been held in Australia since 1999. linux.conf.au is convened in a different Australian city each year, and attracts prominent speakers and attendees both locally and globally.

Australia has a significant number of high-profile and successful Open Source developers, in great disproportion to our population. According to the Boston Consulting Group's 2002 survey of (English-speaking) Open Source projects, around 8% of all developers are Australian. This is partially due to our excellent tertiary education system, and widespread access to computers, but two other elements emerge strongly from anecdotal evidence:

1. In many professions, Australians have had to move overseas to reach the top of their field, and prior to the rise of Open Source software, this held true for the IT industry. Top developers are naturally attracted to technically exciting projects that have open access. Open Source offers a plethora of such projects, without our brightest talent having to leave our shores.
2. Australians seem to have a temperament which flourishes in these teams, which are distributed around the world. This could be attributed to a strong 'call a spade a bloody shovel' attitude which gains a great deal of respect and success in technical groups.

Numerous high-profile developers and small businesses are based in Australia, although most or all of their customers are overseas. This ability to cater to a global market from home is a great benefit to our country. IBM has even established a growing Open Source development lab (IBM OzLabs) in Canberra.

For these reasons a number of high profile leaders in the Open Source community come from Australia. Here are a handful:

> Dr. Andrew Tridgell is the Canberra-based founder of the award-winning SAMBA software,[SMBAWRD] which allows millions of users to access Linux servers from their

Microsoft Windows computers. He was listed in the Bulletin Magazine's 100 Smartest People in 2004, lauded as the smartest Australian in IT.

Andrew Morton is an Australian living in California, who has been chosen to lead the development of the latest iteration of the Linux operating system. The Linux 2.6 release will be used by tens of millions of people around the world.

Anthony Towns is the Brisbane-based Release Manager of the Debian GNU/Linux project, a major global Linux distribution driven entirely by volunteers.

Jeff Waugh is the Sydney-based Release Manager of the GNOME project, the widely-backed Open Source project creating a complete user desktop system.

2 Anti-Circumvention and Copyright Laws

2.1 What Anti-Circumvention Laws Do We Have?

Following the lead of the United States, Australia introduced the Copyright Amendment (Digital Agenda) Act 2000 (Cth), which makes distribution, marketing etc. of "copyright circumvention devices" illegal. From the Digital Agenda Fact Sheet:[DAFACT]

> Specifically, it is illegal to make or deal commercially in devices or services that have only a limited commercial purpose other than the circumvention of technological copyright protection measures.

These laws were made in response to allegations by content producers that they needed "stronger copyright" in the face of huge losses caused by rampant piracy. There are significant doubts that these losses were ever real,[CANNANE] but the legislation was created nonetheless.

Traditional copyright, such as for a book, grants the author a monopoly on copying; only they can choose how much to sell it for. But once you have bought a copy, you can use a magnifying glass to read it, burn it in protest, use it as a doorstop, sell it to a friend, take it overseas, or have it read to you by machine if you are blind. In other words there are no restrictions on how you use your copy of the work.

The Copyright Amendment (Digital Agenda) Act 2000 was passed to "encourage copyright owners to 'help themselves'"[DAFACT], but of course, a company sometimes decides that it could make more sales and increase control by adding further restrictions. For example, DVDs are region-encoded, so normal DVD players in Australia can only play Region 4 DVDs. If a particular DVD is only available in France (Region 2), it cannot be played on an Australian DVD player, depite being a legitimate copy. These restrictions are increasingly unpopular, and hence although potentially illegal it is fairly easy to buy modified "region-free" players in Australia. The Australian Competition and Consumer Commission (ACCC) has been vocally opposed to region-encoding and to the Digital Agenda Act in general.[ACCC]

Unfortunately, the onus is on the defendant to show that the device can't be used to circumvent copyright, not the company bringing the action to prove that the device has no other purpose. This law has been used very seldom: we could only locate one case. Sony invoked it against a Sydney installer of "mod chips" in 2002. The mod chips are the only way to play games bought overseas in local Sony Playstations, or make usable backups of games, yet they also allow pirated games to be played. The ACCC supported the defence, and applauded the original ruling that "mod chips" were legal, but Sony won on appeal.[SONY]

As a result, your cousin cannot fix your Sony Playstation to play an educational title you bought from Sony in Japan: it is illegal, because such a modification might also allow you to play copied games, or copy games. Sony can incorporate any other restrictions they want and tie them to their "copyright protection" mechanism, and they don't lose Digital Agenda protection unless the defendant can prove more than "limited commercial purpose". This has a "beachhead" effect, where companies are encouraged to deliberately cripple their products and use "copyright protection" to cover all manner of sins. If the law were written otherwise, that the copyright

holder had to show that there was no purpose of a device other than the circumvention of copyright, companies like Sony would ensure that they separated anti-copying technologies from other controls, such as region coding, lest they lose Digital Agenda protection altogether.

In particular, it is illegal to distribute or write Open Source DVD players for Linux, as we will see in the next section.

2.2 What Anti-Circumvention Laws Does the US Have?

We look to the United States as a pioneer in these laws.With their bigger market and aggressive litigation to protect their copyrights, theAmerican market can be used as an indicator when trying to predict the effect of similar changes in Australia. The Digital Millennium Copyright Act (DMCA) is a bill passed in the United States in 1998 which made developing, distributing or using a “copyright circumvention device” illegal.[DMCA] Note that this goes further than our Digital Agenda act, which does not criminalise the actual use of such a device, just the distribution or production of it.

Several uses of this law in the United States lead Open Source advocates and others to question the wording, justification and purpose of this Act, and have non-US residents worried about the possibility that a similar law could be enacted in their own countries.

The first disturbing event which shook the Open Source world was the indictment of 16 year old Jon Johannsen (and his father) in Norway, at the behest of US authorities. Jon had published a program for decoding DVDs, as a first step towards writing an Open Source DVD player for the Open Source Linux operating system. Here are excerpts from an interview which CNN covered from LinuxWorld:

> LinuxWorld: So, can DeCSS in fact in any way be used for pirating? I mean, I realize that isn't the purpose for which it was written.
>
> Jon Johansen: Well, yes, it can be used for pirating. Because you can decrypt a DVD disk and put it on your hard drive and then you can convert it, say, to VCD and then post it on the Internet. But tools to do that had already been available on the Internet, long before DeCSS, which was also a complete digital solution which gave you the same quality. So DeCSS didn't introduce anything new for pirating and had already been available.

Jon goes on to point out that piracy doesn't require any decryption anyway:

> Jon Johansen: [In] the charge, they say that the encryption is copy protection. But that's not correct at all. Anyone with a little computer experience knows that anything can be copied bit-by-bit with the right equipment.

Jon has the good fortune to live in Norway, where reading a legally purchased DVD is not a criminal offence, as firmly established by his acquittal. In the United States, distributing or using the program Jon wrote is illegal, and being actively enforced. In Australia, it is illegal to distribute the code, but not illegal to use it, and it is not yet being actively enforced.

There is accelerating awareness in the United States that these laws are unbalanced, and that the

interests of large producers have outweighed the interests of consumers (and smaller producers) in the crafting of these laws, and that they are doing real damage. Sites like chillingeffects.org document the effect of DMCA on the openness of speech and rights. The site catalogues the cease and desist notices and presents analyses of their claims to help recipients resist the prosecution of legitimate activities.

The arrest of Russian programmer Dmitry Sklyarov in 2001 while visiting the United States to speak at a conference was a particular wakeup call.

From http://freesklyarov.org/:

> Dmitry helped create the Advanced eBook Processor (AEBPR) software for his Russian employer Elcomsoft. According to the company's website, the software permits eBook owners to translate from Adobe's secure eBook format into the more common Portable Document Format (PDF). The software only works on legitimately purchased eBooks. It has been used by blind people to read otherwise-inaccessible PDF user's manuals, and by people who want to move an eBook from one computer to another (just like anyone can move a music CD from the home player to a portable or car).

In this case, Dmitry was arrested at the behest of Adobe Inc, and forced to remain in the United States for six months, away from his wife and young children. He had not infringed copyright in anyway: he had simply created a tool which was useful and popular (the FBI were among the purchasers of this software). The fact that the encryption used in the "secure" eBook product was laughably weak and that he spoke publicly at a conference about the problems with the software no doubt upset Adobe, who were trying to convince authors of the security of their new format.

This (along with less dramatic uses of the law to suppress security research and disclosure) is particularly worrying to the security industry, which relies on such independent analysis to give confidence in security systems.

One other side-effect of this arrest was the boycott of US conferences by various European software luminaries, including Alan Cox[USBCT]. As Australia hosts a world-class Open Source conference (linux.conf.au), Linux Australia is particularly concerned that similar laws may cause a similar boycott of our annual event, which has been growing since its inauguration in 1999 and fosters Australia's Open Source expertise.

2.3 Is This A Copyright Issue?

There is a subtext to these laws which was not clearly understood by lawmakers or the general public. Most people would agree that piracy, where illegitimate copies of software or movies are distributed or sold, is wrong, and there are already harsh laws in place for people who commit these acts. However, professional pirates are not affected by these laws. They will circumvent

the mechanisms if need be, or in the case of DVDs simply duplicate them wholesale without needing to decrypt them. In fact these laws are aimed at two things, not one:

1. Preventing small-scale, amateur “pirates” from making copies by making it harder for them to obtain information, and
2. Controlling access so that additional restrictions, beyond that granted by copyright law, can be forced upon consumers.

Indeed the laws in the United States and Australia give a particular benefit to the producer. If they can describe something as a “copy protection device”, it is illegal to circumvent it, even if the real purpose is in fact to restrict access to the content.

The most obvious access control is Region Encoding. DVDs around the world are produced to be played in specific “regions”, so that a Region 1 DVD (USA) will not play in a Region 4 DVD player (Australia). In practice consumers regard this as odious, and DVD players in Australia are often sold as “region free” to allow owners to circumvent the restriction (Linux Australia has been advised that this is uncertain legal territory as the laws stand). Once “unauthorised” decoding of the DVD is illegal, it's simply a matter of ensuring that all the players authorised by the DVD producers enforce region coding. In this way producers can control the marketing and distribution of DVD’s from region-to-region, at the expense of consumer choice.

There are more subtle access controls. DVDs are now incorporating “no-fly zones” where you cannot fast-forward through a section of the DVD, such as the copyright notice. It is not too hard to see that this can be extended to ‘compulsory’ advertisements.

Some CDs have been sold in Australia which violate the compact disc standard in a way that means they cannot be played in most computer CD drives. A program which “circumvents” that copy protection so owners can play their CD at work, or on their home computer is illegal to distribute in Australia.

More electronic content, such as online music sales and electronic books, are including similar restrictions and some novel ones, such as “read-once” books and movies which can only be played for three days, or only on a certain computer or operating system. “Windows-only” music, which would be illegal to play on Linux, is a distinct possibility. The possibility was best put by Brendan Scott, Australian intellectual property lawyer:

> The prognosis for the future is even more bleak. We are already in a position where it is possible to embed microprocessors onto most manufactured items. Manufacturers in the US have already embedded such processors into garage doors and printers allowing them to control after markets for these products. For example, a printer interrogates the consumable cartridges to determine their origin and if they are from a competitor refuse to operate or, worse, will operate to a lower standard without alerting the consumer. The anti-circumvention provisions will prevent competitors from making functional accessories. You don't need to be too bright to realize that this will become an increasingly common practice for manufactured items - if you can do it for garage doors, why not tractors?
>
> Over time we will see the emergence of the kinds of serial monopolies (and the attendant

price gouging) for product areas that we have seen in the software world. In an attempt to protect the US music industry from market competition what will emerge is a reduction in competition across broad swathes of the economy - whether it's the farmer who wants a combine harvester to work with their tractor, or the IT manager who wants their PDA to interface with their GPS devices.

Economics tells us we will get increased prices and lower quality in these circumstances.

2.4 What Does the FTA Change?

1. The FTA binds us to laws which are recent and relatively untested. When the Digital Agenda bill was introduced in Australia, the Attorney-General proposed a review within 3 years of commencement:

   > The amendments provided by this Bill are at the cutting edge of online copyright reform, and clearly place Australia among the leaders in international developments in this area. As a result, in certain areas of the Bill we are entering uncharted waters. New technologies are changing rapidly and we wish to ensure that an appropriate balance is maintained between the rights of copyright owners and the rights of copyright users under the Copyright Act. I therefore propose that the operation of the legislation, particularly the extended statutory licence scheme for educational institutions and the new enforcement measure provisions, should be reviewed within 3 years of the commencement of the legislation.

   The results of this review have yet to be published.

2. Most likely, Australians will not stand for not being allowed to play our own DVDs for very long, if enforcement were attempted. Australians would also be vocal in opposing the arrest of programmers who gave us useful programs and contributed openly to "the single greatest technical reference library on Planet Earth".[MOGLEN] Both of these (Johannsen, Skylarov) have occurred in the United States and unfortunately, it's difficult to see why the US experience would not be repeated here as the same companies operate in Australia. Once the Free Trade Agreement binds us it is fairly clear that the gloves will come off, and we will no longer be able to revise our laws. Note that the US has constitutional protections which limit these laws when they conflict with “freedom of speech”. Here in Australia we have no such protection.

3. Article 17.7(a) indicates that we must establish a statutory entitlement to damages for copyright (regardless of actual loss caused by infringement), or somehow ensure that additional damages in cases of deliberate infringement are high enough to deter infringement. Given that illegal online music sharing seems to be increasing in the US despite extremely tough penalties,[REGCOPY] it is unclear that statutory damages or some other damage-inflation system can be avoided here in Australia. Fortunately one of the side letters (confusingly outside the treaty text) allows exceptions for unwitting copyright violations (this is a concern for any system – like an Open Source project – that accepts external submissions). Nonetheless, few Australians would consider copying a CD worse than

stealing a CD from a store, but now the law will see it so.

4. The FTA expands anti-circumvention prohibitions markedly. In particular, currently it is legal to use a circumvention device, but illegal to market or distribute one. This means that currently it is illegal to sell or write an Open Source DVD player for Linux, but legal to download or use one yourself. Article 17.4.7(a)(i) makes a criminal of anyone who:

   > ...knowingly, or having reasonable grounds to know, circumvents without authority any effective technological measure that controls access to a protected work

5. No statement is made about copyright violation for people who "circumvent" access controls. Unlike the DMCA in the US and the Digital Agenda Act here, the intent of content distributors is clear. It is illegal to access any work they have decided to protect, in any way they haven't explicitly allowed. This reaches far beyond Open Source software, such as clearly banning individuals from "region-freeing" their DVD players to play normally purchased overseas DVDs. Indeed, it actually prevents Australian consumers from buying DVDs from the US, and has *exactly* the opposite effect from freeing up Australia-US trade.

6. The current Copyright Act (s 116A(c)) says that distributing a "circumvention device" is prohibited if the defendant knew or ought reasonably to have known that the device would be used to circumvent the technological protection measure. This requirement is absent in the FTA.

7. Article 17.4.7(a)(ii) makes it illegal to distribute something if *any,* not ***all*** of the following are true:
   - promoted as a circumvention device, or
   - limited commercial purpose other than circumvention, or
   - primarily designed for circumvention.

   So, if a program was originally designed for circumvention, even though there are other uses, it will still be illegal to sell or market. It is also harder to use the "commercial purpose" condition for small Open Source projects, as the software developed by these projects is distributed free of charge to anyone who wants it.

8. The exceptions are very restrictive and unclear. Article 17.4.7(e)(i) excepts "reverse engineering activities with regard to a lawfully obtained copy of a computer program ... for the sole purpose of achieving interoperability of an independently created computer program with other programs". It is not clear that this would permit reverse engineering of data formats produced by one program so you can write a program to read them.

9. The general concentration on "access control" rather than "copyright protection" means that the law is overbroad; arguably a door lock would be covered. But it also means that you might have the right to the data, and yet these provisions could still block you from accessing it if it is covered by an "effective technology measure". For Open Source authors and users, this is extremely worrying. Documents produced by a future Microsoft Word which incorporates such a feature might be illegal to read in an Open Source word processor.

10. Article 17.6.7(e)(viii) permits exceptions to be made when “an actual or likely adverse impact on those non-infringing uses is credibly demonstrated in a legislative or administrative review or proceeding”. In other words, the fact that you are not infringing copyright is not of itself a defence and it can only become a defence after a specific (and probably expensive) procedure has been complied with and, even then, only in certain limited circumstances. And then the exception has to be reviewed at least every four years. If your business relies on an exception to sell Linux DVD software, that's a great deal of uncertainty for your customers.

11. The problems above make it obvious that the stakeholders were not consulted during the negotiation process. This is possibly not surprising given that Open Source developers are fairly apolitical and small, and Open Source users, which include most businesses, are busy getting on with their core business.

12. These laws have resulted in software developers boycotting US conferences, particularly among Open Source developers: no major Open Source development conference is still running inside the United States. Enacting similar laws threatens the popularity of the wildly successful “linux.conf.au” which is the premier Open Source conference in Australasia (over five hundred attendees), and attracts international speakers.

3 Software Patents

A patent is a monopoly on an original idea. The nature of patents is a trade-off; the monopoly is supposed to be the reward for publishing a discovery which otherwise would not have been disclosed in the first place. Some industries, such as private drug development, are driven entirely by this reward mechanism. Naturally, this absolute monopoly is a very dangerous market distortion, hence it is strictly limited by time to 20 years, after which competition can resume.

In callous terms, some people will suffer or die because a drug will be too expensive, and the law will prevent other sources of supply, in the hope that the end justifies the means; in the long term more drug research will occur and after the patents expire the drugs will be widely available through normal competition mechanisms. In many cases it is the "second innovator" who comes up with an improvement based on the original idea that makes it actually useful, but we accept that process might be being delayed 20 years as part of the trade-off.

It was traditionally held that software, like mathematics or music, cannot be patented, but incremental changes brought on by legal challenges through the 1980s and 1990s have allowed software patents in both the United States and (thanks to IBM's legal challenge[IBMAU]) in Australia, as the patentability of software was never explicitly banned in these countries.

The only major region which actually voted on whether software could be patented decided clearly against it. The European Union specifically forbids patenting of software, a decision which has been vigorously defended despite ongoing pressure from United States-based multinationals.[FFII]

3.1 The Cases Against Software Patents

There are two arguments against software patents. The first argument is procedural. It refers to the low quality of patents which are granted, the lack of experience among patent examiners, the drive to turn the patent office into a profit centre,[FORBES] and the high expense of defending against a flawed patent. This is well documented in the United States, and less likely to happen in Australia given the generally high quality of the Australian Patent Office.

The second argument is that patents are damaging the software industry by their very nature. This is far more troubling, but there is mounting empirical evidence that it is true.[BESSEN]

With the trade-off illustrated in the introduction, between encouraging innovation and eliminating competition, we can consider software patents. Firstly, unlike drugs it is already illegal to copy software due to another government mandated monopoly known as copyright. In fact up until now, this has been the main profit source for shrink wrapped software companies. It is no coincidence that the world's richest man, William Gates, became so through use of the copyright monopoly applied to software.

In practice copyright applied to software is much more powerful than copyright applied to books or music. This is because with books or music, only the copyright law separates the author or publisher from everyone else. As long as the reader can read or hear, they can appreciate and

understand the copyrighted content in exactly the same way as the author or publisher. However with shrink-wrapped (closed) software, the author never publishes the program they actually wrote. Instead they publish the *compiled* or machine-translated version which actually contains computer-readable instructions called “binary code”. The software is written in a more human-readable form, called “source code”. In practice, closed software authors keep the source code secret so they have a practical monopoly on fixes, extensions and support, and at the same time take advantage of the copyright monopoly on the published binary code!

It is extremely difficult to argue that these software companies require patent protection in addition to the two monopoly powers that they already have. If they are not innovating sufficiently, it is surely due to too much monopoly power, rather than too little To return to the example of Microsoft, the world's largest software company, which has been convicted of abuse of its monopoly position by both the United States and European Union, it is obvious that these monopolies are doing real and sustained damage to software users, which these days means just about every individual and company.

As a result it is easy to see why people would turn to Open Source, which gives the software user the same rights as the software supplier. As software becomes an increasingly important part of the commercial infrastructure, the ability to collaborate on your own projects as a haven of last resort against powerful software vendors is vital, and must be protected to maintain any semblance of competitive balance.

As software patents are a relatively recent development, it is possible to see how the IT industry fared before their introduction. The normal examples here are the Internet and email, which are open standards and hence have flourished. However, there are many other examples, so we turn to the only two profitable products that Microsoft produces, Microsoft Windows and Microsoft Office. Windows is what is called a WIMP GUI (Windows, Icons, Mouse, Pointer, Graphical User Interface). This idea was pioneered in the 1970s by Xerox Palo Alto Research Center, and inspired Apple Computer's popular Macintosh desktop computer (there's a point to be made here about the second innovator – Xerox made it, Apple made it available). When Microsoft first produced Windows, Apple brought a “Look and Feel” lawsuit against Microsoft for copying their ideas, but Microsoft won the case, and went on to dominate the Personal Computer Desktop market.

How different would it be if Xerox had patented the Graphical User Interface? Or Apple had patented the “Trash Can”, the concept of folders, overlapping windows, or any other ideas we now take for granted. The patent would have simply disallowed Microsoft from using those ideas in its competing product, hindering Windows development and leaving the consumer with the choice of expensive Apple computers, or difficult-to-use Windows computers. But software patents weren't available at this time, so Microsoft was free to implement whatever it thought best.

For the second example, we will concentrate on Microsoft Excel, a part of Microsoft Office called a “spreadsheet”. The first spreadsheet was invented by Dan Bricklan, who founded a company called VisiCalc.[BRICKLAN] The idea was a genuine innovation. Where the word processor was just a computer playing typewriter, the dynamic calculation of totals as values in a balance sheet changed was a leap forward for the accountancy profession. Aware of this, Bricklan approached a patent lawyer, who informed him that software was not patentable, which was true

enough in 1979. Bricklan founded VisiCalc, and did quite well until a better spreadsheet was produced by Lotus, called Lotus 1-2-3, which then became the market leader. After several attempts and much development effort, Microsoft produced a version of its own spreadsheet called Excel, which is the market leader today. Looking back at VisiCalc, it is clear that it is missing some important features. If the program was under a software patent, VisiCalc would be resting in its monopoly position with no incentive to innovate. Competition would be beginning only now, and millions and millions of hours of productivity would have been wasted by people forced to use substandard software for the past two decades.

There has been a marked climb in software patent filings in the US in the past decade, despite vigorous debate amongst software producers themselves. Oracle Corporation, the second largest software company in the world, opposes software patents. In written testimony presented at the Patent Office hearings in San Jose on the issue of software patents:[ORACLE]

> The U.S. software industry has evolved to a multi-billion dollar industry that leads the world in productivity, and accounts for substantial portion of U.S. GNP. The software industry has advanced the efficiency of other industries through the proliferation of computing and computer-controlled processes. All of these gains have come prior to the application of the patent process to software, and consequently without patent protection for software. There is no justification for a policy that would not only drain capital resources (which are better spent on software development) into patent applications and other legal fees, and also actually serve to reduce innovation by limiting the availability of previously-developed techniques.

Andy Grove, Intel Corporation founder and CEO, goes further and questions the entire patent system as applied today:[INTEL]

> [The US] needs to revamp not just the patent system, but the entire system of intellectual property law. It needs to redefine it for an era that is the information age as compared to the industrial age."

Although certainly no proponent of Open Source software, we will end this section with the word of Microsoft Chairman, Mr. William Gates III:

> If people had understood how patents would be granted when most of today's ideas were invented and had taken out patents, the industry would be at a complete standstill today.[MS]

3.2 Patents vs Open Source

Software patents raise numerous problems for Open Source software.

Monopolies in general do not mix with free markets. Open Source software has flourished because it eliminated barriers to entry and allows genuine competition in software development. Even the concept of introducing tollways in this area is anathema to those who have grown

within with the Open Source industry. As put by Eben Moglen, ex computer-programmer and Professor of Law and Legal History at Columbia University in the United States:

> Free software, of which the operating system kernel called Linux is one very important example among thousands, free software is the single greatest technical reference library on Planet Earth, as of now.
>
> The reason I say that is that free software is the only corpus of information fixed in a tangible form, through which anyone, anywhere, can go from naivete to the state of the art in a great technical subject -- what computers can be made to do -- solely by consulting material that is freely available for adaptation and reuse, in any way that she or he may want.
>
> We enable learning all over the world by permitting people to experiment, not with toys, but with the actual real stuff on which all the good work is done.
>
> For that purpose, we are engaged in making an educational system and a human capital improvement system which brings about the promise of encouraging the diffusion of our science and useful art in a way which contributes to the perfectibility of human beings.

Aside from the abhorrence of allowing the private destruction of a vital public resource, from a practical point of view patents cannot be used to raise money from Open Source software. Distribution is not centralised, so there is no-one collecting money to pay royalties. Since royalties cannot be collected from Open Source projects, the only practical use of software patents is to foreclose competition from Open Source. Indeed Microsoft in particular has not ruled out using patents against Open Source projects.[MSOS] Any incumbent software producer might grasp at this, as market forces choose Open Source over their obsolete software models. It is a powerful method of eliminating competition.

A single patent can ruin an Open Source project. Software patents remove the right of programmers to determine the basis on which they charge for their work, by effectively requiring per unit royalties, i.e. they are required to charge a per unit fee rather than on the basis of services provided. Even the threat of being sued over patent violation can be sufficient to disband many projects. The high cost of mounting a legal defence, when considering that the authors' revenue stream is often only indirectly tied to software distribution, means that threats of patent litigation have the potential to devastate whole areas of the industry.

Finally, the sheer number of patents granted makes producing software much like walking through a minefield. With the USPTO granting an estimated 45,000 software patents in 2003[USPTO] and rising, it is not possible to audit software against the hundreds of thousands of patents. Smaller players, and this explicitly includes the vast majority of Open Source projects, are vulnerable to predatory lawsuits by competitors whose customers are abandoning them.

3.3 What Does the FTA Change?

1. The FTA binds us to a blanket statement that anything is patentable, despite widespread disagreement on the utility and wisdom of granting software and business method

patents:

> Each Party shall make patents available for any invention, whether a product or process, in all fields of technology...

2. The current patent law has explicit limitations that patents "be not contrary to the law, nor mischievous to the state by raising of the prices of commodities at home or hurt of trade, or generally inconvenient". The FTA does not include these limitations. The "generally inconvenient" exception previously offered some hope of limiting the scope of software and business method patents.

3. Producer/consumer balance of IP rights in general was clearly not considered in Chapter 17 of the FTA. The only balance mentioned is "between rights of authors, on the one hand, and rights of performers and producers of phonograms, on the other hand". (What about the rest of us?).

4. As a nation of IT users with no large (closed) shrink-wrapped software producers, the balance we choose will probably be very different from the United States, yet this is not taken into consideration in the FTA. Our market is different, yet we are treating our market as if it is the same as that of the United States.

5. The ability of future Australian lawmakers to support Open Source software innovation and infrastructure against patent claims, should the situation get out of control, has been severely restricted by this section.

Conclusion

Australian PC Authority recently published a letter from someone who had purchased an Open Source Linux distribution called Xandros. Xandros is a competitor to Microsoft Windows, based on the best of Open Source software, combined with support, manuals, installation CDs and everything consumers expect from a box of software. There were two complaints in the letter, the second of which was as follows:

> I want flawless multimedia. I tried to play a quite legal DVD in Xandros, only to be told that it wouldn't play because of copyright concerns, and there was no obvious way to change its mind.

Of course, Xandros cannot distribute the DVD-decoding part of the “Xine” software which would actually play DVDs. Like most people, the user doesn't see this as a copyright issue at all. Unfortunately, the negotiators of the FTA didn't see banning of these Linux DVD players as a problem, and it's too late to change their minds.

Strengthening of Intellectual Property monopoly powers assists large incumbent players at the expense of smaller, new players. The Open Source phenomenon lowers the barriers to entry for creating and distributing software, encouraging a flood of new contenders and competition, which has increased productivity among its millions of users. Australia's interests are clearly aligned with this process, and so the balance of our laws should be similarly aligned.

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