Intellectual Property Protection for IT Developments - The Debate Continues

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Abstract

The level of intellectual property protection which should be afforded to IT developments has been the subject of debate in both legal and scientific circles for the past 15 years. The extent to which third parties should be allowed to use the work of a developer raises conflicting public policy and commercial issues. The paper addresses those issues, the current intellectual property regime and in particular recent developments in the U.S. and Australia which have seen a considerable expansion in the use of patents and an evolving role for the protection provided by copyright.

Keywords

intellectual property, patents, copyright, trade marks

1 PATENTS

The U.S. Patent Office has recently been forced to extend the types of patents which can be obtained for IT developments by the U.S. Court of Appeals for the Federal Circuit (CAFC). Previously the U.S. Patent Office, which has limited searching facilities, was able to restrict the subject matter for which it would grant a patent based on an almost incomprehensible mathematical algorithm test, known as the Freeman/Walter/Abele Test. The Freeman/Walter/Abele Test, whilst ideologically being a test to prevent the grant of patents for mathematical algorithms, effectively required patents directed to computer programs or software developments to be limited to use with specific hardware equipment or to a specific industrial application.

Patents for the computer program itself or how it alone operated were largely excluded. The CAFC has over the years in a number of decisions gradually eroded the Patent Office practice. Two recent decisions, *In re Lowry* and *In re Beauregard*, prompted the Patent Office to formulate examination guidelines for an entirely new practice. The guidelines, which were issued in February 1996, remove the reliance on the Freeman Test and introduce a much simpler test which requires a Patent Examiner to essentially determine whether the development has the requisite utility, i.e. whether it has a useful application in the technical arts. The guidelines are extensive and provide Examiner's with instructions on how to conduct a search of the relevant prior art, how to determine the monopoly sought, whether the invention relates to patentable subject matter, whether the disclosure requirements are met by the specification, and whether the invention meets the novelty and inventive step requirements. The guidelines make it clear that if the claimed invention relates to either of the following it does not constitute patentable subject matter:

1. A natural phenomenon (e.g. energy or magnetism).
2. Functional descriptive material *per se*, such as a data structure or computer program *per se* not stored on a computer readable medium.
3. Nonfunctional descriptive material, such as music, literary works or mere data.
4. A process which merely manipulates an abstract idea or solves a purely mathematical problem without any limitation to a practical application.

The guidelines allow patenting of all other types of products and processes involving or implemented using computer programs. In particular, claims directed to a computer program or data structure stored on a computer readable medium will now be allowed. A U.S. patent will therefore be able to directly cover a computer program stored on disk or CD-ROM, without requiring the program to be used or stored in some specific apparatus to infringe the patent. The U.S. Patent Office is anticipating a 30-50% increase in the number of software patent applications filed.

Australia has had a liberal practice with respect to patenting of IT developments since a decision of the Australian Federal Court, *IBM v. The Commissioner of Patents*, in 1991. Previously Australia also used the Freeman/Walter/Abele Test but the IBM decision ensured a more rational test was adopted. The test which the Australian Patent Office uses to determine if an IT development constitutes patentable subject matter is to simply ask whether the development 'involves the production of some commercially useful effect'. This test has given rise to a practice which is similar to that currently being proposed by the U.S. Patent Office. Over the past four years that the practice has been in operation in Australia, there has not been any dramatic increase in the number of software patents obtained. This may of course simply reflect the size and the importance of the Australian market. The one noticeable change, particularly for practitioners in the area, is that applications are now simply examined on their merits, i.e. whether the invention claimed is sufficiently novel and inventive, and time and money is not wasted on arguments as to whether the subject matter claimed is capable of being protected by a patent. There is also more flexibility in the types of patent claims which can be obtained. In particular it has been possible to obtain acceptance of claims directed to memory have particular program modules stored thereon.

The Japanese and European Patent Offices have both indicated that they may eventually have to adopt similar practices to that proposed in the U.S. and currently being used in Australia. The European Patent Office (EPO) is however unfortunately hampered by a specific exclusion in the European patent convention regarding the patenting of computer programs. The EPO has

however been able to grant patents for software inventions by strictly limiting the exclusion to computer programs 'as such'. A claim is considered to be acceptable provided the claimed subject matter makes a technical contribution to the known art or it provides a technical effect. The technical effect test is difficult to apply objectively and can relate to the internal technical effect a computer program has on a machine's operation. The Japanese Patent Office (JPO) has a new practice which is more liberal than that of the EPO, but claims to software embodied in a computer readable medium cannot be obtained. The claimed invention must meet one of the following conditions in order to constitute patentable subject matter:

- i. Natural laws must be utilised in information processing by software.
- ii. Hardware resources must be utilised.

New Zealand has recently adopted the Australian practice, following the decision in *Hughes Aircraft's Application*. The commercially useful effect test applied in Australia and New Zealand so far has been sensible and does not impose any significant difficulties in practice, whereas the technical effect test and the exclusion in the European Patent Convention have imposed difficulties and lead to curious decisions, particular in the U.K. Courts.

Patents for IT developments has now expanded to an extent that they are regularly obtained for all manner of software inventions, including telecommunications protocols, encryption algorithms and even features of video games. Although computer programs have been in existence since the 1950s, software patents have only been available in the U.S. since 1981 and have only come to the fore in a number of jurisdictions in the last four years. This has come as somewhat of a surprise to sections of the IT industry which have never had to deal with the issue of software patents. The 30 year lag also means that the Patent Offices have not amassed a collection of patent literature which would normally trace the development of a technology. This gap in the material which the Patent Office has at its disposal has resulted in the granting of patent claims which are not truly novel and inventive and which understandably has drawn criticism from the industry. The U.S. Patent Office in particular is working to address the quality of its examination procedures and the new guidelines give explicit instructions in this regard. The efforts of the Software Patent Institute of Michigan to compile a complete database of known art should also assist. A good example of what can occur if the examination process is not thorough is the saga which erupted following the granting of U.S. Patent No. 5,241,671, otherwise known as Compton's multimedia patent. The patent was ultimately reexamined at the insistence of the U.S. Commissioner.

Before issuing the new guidelines the U.S. Commissioner of Patents conducted Hearings which were open to all parties to voice their opinions on the granting of software patents. The view which people tend to take on the issue is either based on ideology or the manner in which they develop programs. Some developers want to be able to take any part they wish of the work of others, but do not wish others to take any part of their work. Of course what applies to one must also apply to the other. Some people have argued that patents should be abolished in general but this tends to ignore commercial realities and the fact that entire industries, such as the pharmaceuticals industry, are built on and to some extent defined by patents. Others specifically argue that software patents should be abolished, but this relies on an argument that software is inherently different to any other technology, for example electronic circuits, and therefore merits a special exclusion. The fact that software patents were not available for 30 to 40 years is largely an historic anomaly, due to the attitudes of hardware manufacturers, the intransigence of Patent Offices, and the commercial importance of software during that time. The only argument which

can be clearly supported is that granting of broad and invalid software patent claims should be abolished.

Many have taken advantage of the availability of software patents and are using them to maintain their position in the market or to obtain royalties in order to recoup their development costs. Their use is not restricted to large corporations, such as Microsoft and Novell. A good example of how a software patent can be used to level the playing field and protect a development was the successful litigation Stac Electronics brought against Microsoft when Microsoft included a data compression routine in MS-DOS Version 6 which infringed two of Stac's patents. Stac was awarded \$120 million in damages and the two parties ultimately entered into a commercial relationship.

2 COPYRIGHT

In addition to the changes being wrought by the world's major Patent Offices, the copyright industry has been lobbying extensively to change copyright law to also provide more extensive protection for information technology developments, in particular computer programs, databases and multimedia products. In September 1995 a U.S. Working Group on intellectual property rights, under the auspice of the Information Infrastructure Task Force released a White Paper on 'Intellectual Property and the National Information Infrastructure'. The White Paper included implementing legislation which was introduced into the U.S. House of Representatives at the end of September 1995 as the NII Copyright Protection Act of 1995. The legislation seeks to introduce a transmission right which would make it an infringement of copyright to distribute a reproduction by any device or process whereby a copy of the work is fixed beyond the place from which it was sent. Importation by a transmission is also intended to be prohibited. Circumvention of copyright protection systems is also dealt with, together with a prohibition against knowingly removing or altering any copyright management information, which includes identifying information concerning the author of a work.

With regard to running programs which are not authorised, the Working Group refers to three decisions, *MAI System Corp. v. Peak Computer, Inc.*; *Advanced Computer Services v. MAI Systems Corp.*; and *Triad Systems Corp. v. Southern Express Co.*, as a basis for stating that the loading of software into a computer's RAM amounts to making a reproduction. The three decisions all relate to instances where third parties ran software on a computer which they were not authorised to do so, notwithstanding the owner of the computer had a licence to use the software. Whether such transient copying would constitute reproduction in a material form in common law jurisdictions, such as Australia is debatable.

In Australia we have seen a number of reports covering copyright protection for IT developments. Reports released recently include a Copyright Law Review Committee (CLRC) Report, a Copyright Convergence Group Report, an Industry Commission Report, and a Report to the Prime Minister's Science and Engineering Council. Fortunately with all of the disparate issues raised in the reports, the Australian government has not yet embarked on wholesale amendment of the Australian Copyright Act and has only introduced amendments to comply with the TRIPS agreement under the GATT Uruguay round. These amendments include improved custom seizure provisions and the introduction of a rental right for copyright owners. The CLRC Report issued in June 1995 is the most comprehensive and is currently being considered by an Inter-Departmental Committee established by the new Australian Government. The contentious

issues are the proposed decompilation exceptions and the retention of provisions preventing the parallel importation of computer programs. The CLRC has proposed that decompilation be allowed to achieve interoperability or error correction. Reverse engineering that includes decompilation is intended to be prohibited except to the extent that is required for interoperability or error correction or falls within the fair dealing provisions of the Australian Copyright Act. The CLRC felt that allowing reverse engineering would provide competitors wishing to claim programs with a free ride on the efforts of the original creator. The CLRC in the Report reversed a previous recommendation that the parallel importation restrictions be abolished, however, it is not clear that parallel importation restrictions will remain. The implementation of a transmission right as proposed by the Copyright Convergence Group is also being considered. The EEC has also been active with its Directive on the Legal Protection of Computer Programs having largely been implemented by member countries, and its Directive for Data Protection having been finalised.

In amongst all the proposals for change, the Courts have struggled to apply the existing law to IT products. The U.S. Supreme Court heard argument in *Lotus v. Borland* over the Lotus 123 command structure and failed to deliver a written decision having split 4-4. The Supreme Court therefore confirmed the decision of the lower Court which held in favour of Borland that a set of commands in a hierarchy is unprotectable under the law of copyright. The Court felt the 123 command hierarchy was a 'method of operation' which is specifically excluded by the U.S. copyright statute.

The U.S. Court of Appeals for the Federal Circuit in a *Computer Associates International v. Altai, Inc.* put forward an interesting test to determine whether the non-literal elements of two or more programs are substantially similar in order to find infringement. The test is referred to as the abstraction-filtration-comparison test which first involves dissecting the original program protected by copyright to isolate each level of extraction contained within it. The abstraction levels are then filtered to separate protectable expression from non-protectable material. Non-protectable material includes elements of the program that were dictated by efficiency, dictated by external factors or part of the public domain. The remaining kernel or core of protectable expression is then compared with the defendant's work to determine if the two are substantially similar. The decision has been followed in a number of other U.S. jurisdictions and was even followed in the U.K. in *Jonathan Richardson and Computer v. Flanders*. The U.K. High Court however in a later decision *IBCOS Computers v. Barclays Mercantile* criticised this approach and adopted a more traditional approach of simply comparing the two programs as a whole to determine whether a substantial part of the original program had been reproduced.

The most controversial Court decisions however have probably been handed down in Australia. These include the decisions in the case of *Autodesk v. Dyason* and the recent decision of the Federal Court in *Data Access Corporation v. Powerflex Services Pty. Ltd.*, which is on appeal.

Autodesk sold an early version of AutoCAD with a hardware lock which required the lock to be placed on a port of a computer in order for AutoCAD to run on that computer. AutoCAD included a program Widget.C which periodically caused a pulse to be sent to the port of the computer for the lock and then compare the response received with a look-up table which Widget.C established. The lock included an exclusive OR gate and a shift register containing a 7 bit code which were connected to form a pseudo-random number generator that provided a unique 1 bit response on receipt of each pulse. The response was unique to the extent that it was repeated every 127 bits, and therefore the look-up table of Widget.C held the 127 bit sequence. Dyason sold a substitute lock, referred to as the Auto-Key lock, made after the 127 responses had

been monitored using an oscilloscope and recorded. The Auto-Key lock include an EPROM which stored the 127 bit sequence and performed the same function as the AutoCAD lock.

The Federal Court initially found that both the AutoCAD lock and the Auto-Key lock constituted a computer program as defined in s.10 of the Copyright Act. The Court then went on to find that as the two locks perform the same function, the Auto-Key lock was an infringement of the copyright in the AutoCAD lock. The Full Federal Court disagreed and on allowing the appeal found that although the combination of Widget.C and one of the locks fell within the definition of computer program in s.10, there was no objective similarity between the two locks and therefore no infringement of copyright could be found.

The Australian High Court, in a unanimous decision, found infringement of copyright. In a different approach yet again, the Court found that the Auto-Key lock reproduced the look-up table of Widget.C, which the Court felt was 'a substantial, indeed essential, part of that program'. It was not necessary that the reproduction of a substantial part of a computer program should itself be a computer program within the meaning of the definition in the Act. Therefore infringement was found by indirectly copying 127 bits of a program in a large software package such as AutoCAD. The decision means that taking any part of another party's computer program, no matter how minor it may seem, particularly on a quantitative level, is fraught with danger.

Certainly Dr. Bennett found that out when his PFXplus database application development system was found to infringe the copyright in Data Access' system in *Data Access Corporation v. Powerflex Services Pty. Ltd.* As Dr. Bennett had decided to develop a compatible system he used the same 192 command words as Data Access, such as 'Filelist', 'Graphic' and 'Plot', in his language. The Court found that each of the words in the PFXplus language was an expression of a set of instructions intended to cause a device to perform a particular function and therefore constituted a computer program within the meaning of s.10 of the Copyright Act. Dr. Bennett therefore infringed because he had taken the same words. The Court distinguished *Lotus v. Borland* on the grounds that there is no express exclusion for methods of operation in the Australian Act and was more inclined to follow the earlier decision of *Lotus v. Paperback*. The allocation of words to the 16 function keys was also the same as that for the DataFlex language and the Court also felt that each of these words constituted a computer program on the grounds that they are an expression of a set of instructions and PFXplus was considered to infringe the copyright in those words as well.

Clearly copyright law, particularly in Australia, has extended its reach into areas to protect elements of computer programs for which it was never intended to do so. When protection extends too far it upsets the delicate balance between rewarding innovation with the grant of exclusive rights and allowing the dissemination and use of innovation.

3 TRADE MARKS

Whilst trade mark practice has not caused significant difficulties for the IT community in the past, the expansion of the Internet, and in particular trading on the World Wide Web, has raised a number of ownership and jurisdiction problems. Technically, if a mark is used in the course of offering goods or services with an intention to trade with the Australian public, for example, then that use can be sufficient to establish ownership of the mark in Australia. Therefore anyone who sets up a web site to offer goods for sale in another jurisdiction and uses a trade mark could automatically claim ownership of that mark in Australia by virtue that of the fact that the site is

accessible from Australia and this indicates an intention to trade in Australia. INTERNIC has recently had to address the ownership issue in the context of registering domain names. INTERNIC now requires a person registering a domain name to state that they hold all proprietary rights in the name and that they will indemnify INTERNIC from any claim. If a domain name becomes a subject of a dispute between two parties then INTERNIC will only let the disputed name continue to be used if it receives an indemnity from any legal claim or costs.

Trade mark practitioners have also been concerned with how infringement issues should be resolved, for example, in situations where a site using a trade mark is located in a region where registration is not available and has not been obtained but can be accessed from countries or regions where a registration has been granted. If the site in the foreign country uses the trade mark in connection with offering goods or services for sale, and this constitutes an intention to trade in another jurisdiction, then use of that trade mark could be held to constitute an infringement in that jurisdiction. However action against the foreign party can only be brought in the jurisdiction in which infringement occurs. Whilst it can be argued that an international trade mark registration system, similar to that put forward by the Madrid protocol, is a solution, I doubt whether this is possible given that a web site can be placed in any country with a stable telecommunications service and this country may not be a signatory to the international system. Industry self regulation on the use of registered trade marks on the web, either through INTERNIC or some other governing body, may be another solution.

4 CIRCUIT LAYOUTS OR MASK WORKS

A number of western nations introduced a form of copyright style protection for the mask layouts which define the various layers of semiconductor chips in the late 1980's. The legislation has only rarely been the subject of litigation and appears to have been largely unused. However it cannot be ignored and needs to be considered with respect to the overlap it has with copyright protection for computer programs. For example, in Australia, the Circuit Layouts Act 1989 can allow the parallel importation of programs stored on protected circuits.

5 TRADE SECRETS

The most cost effective and potent form of intellectual property protection, which may be a solution for the future. But for most current IT products, due to the manner in which they are used and sold, it is almost impossible to maintain trade secret protection.

6 SUI GENERIS PROTECTION

The Latin phrase, *sui generis*, is used to refer to legislation which would be specifically drafted to cover IT developments, without falling under one of the previous categories. There are many proponents for this form of legislation, which constantly begs the question: Is IT so unlike any other human development that it requires a specific form of intellectual property legislation to grant effective protection, whilst still meeting all public policy and commercial concerns?

7 PUBLIC POLICY AND COMMERCIAL CONCERNS

Public policy dictates that innovation and technology should be available to all to use and derive benefit from, without undue restriction. Dissemination of information concerning technology should also be as widespread as possible to facilitate development on the basis of the work of predecessors. No restrictions on the use of or the availability of information on innovation is an ideal which unfortunately cannot be achieved if the cost of innovation has to be recouped. Therefore commercial reality dictates that some form of protection must be granted to innovators to enable them to recoup development costs without the fear of immediate misappropriation of their work. Therefore a balance needs to be struck between rewarding innovation by the grant of exclusive rights versus freedom in the use of technology. Patents seek to achieve this by forcing publication of a full disclosure, granting a limited term, and only granting a monopoly for those inventions which qualify after an application process. Copyright seeks to achieve this by automatically granting a limited set of specific exclusive rights for only certain types of subject matter. Patents upset the balance when they are granted for inventions which are not truly worthy of a monopoly grant, and copyright upsets the balance when it extends protection beyond its traditional bounds and for non-traditional subject matter. The granting of bad patents can be prevented by improving examination procedures and the quality of prior art material available during the examination process. Copyright can be curtailed by making legislative changes to restrict its scope or, as one commentator has suggested, establishing a code for determining copyright infringement which Courts would be asked to follow. The IT industry needs to voice any concerns it has in order to bring about change that it wants.

8 BIOGRAPHY

David is the partner responsible for the computer science patent practice of Davies Collison Cave. He is an experienced patent attorney who holds a Bachelor of Electrical and Electronic Engineering Degree with Honours from the University of Adelaide. He majored in VLSI semiconductor chip design, and computer science. He is a Registered Patent Attorney and specialises in patent, design and copyright advice for electrical, electronic, computer and telecommunications products. David lectures in computer software protection and integrated circuit legislation for Masters of Laws, Technology Law and Intellectual Property Diploma courses at the University of Melbourne. He also gives lectures in patent law and computer software protection for the Bachelor of Laws course at Monash University, Melbourne. He is regularly invited to speak on issues related to computer software protection and contributes to a number of intellectual property journals.