

Copyright: New Freedoms vs New Controls

Copyright was created at a time of great technological change as a direct result of that change (the invention of the printing press). Now we are at the time of another technological change, where computers and computer networks are becoming part of our everyday lives. This is forcing change in copyright law and even in the way copyright is used.

Copyright Law

Copyright is a form of Intellectual Property (IP), a legal concept where the “owner of copyright in a work possesses the right to copy and .. the right to prevent others from copying” [1].

Copyright law aims to assert some controls over distributors and users, in order to protect copyright holders and provide an incentive for them to create future work. By letting them benefit from their work for a set period, copyright aims to “contribute to the cultural and economic development of nations.” [3]

UK copyright law, in the form of the Statute of Anne, was first created in 1709, in response to printing press [1]. It has since gone through many revisions as technology has advanced, to incorporate changes such as pictures, audio and cinema. The Copyright Designs and Patents Act 1988 is the main law defining copyright in the UK today [1]. UK copyright law incorporates the 1886 Berne convention, and the 1971 changes, which is an international

agreement for all signed countries to honour the copyrights of other signed countries and is administered by the World Intellectual Property Organisation (WIPO) [2].

UK copyright usually lasts for life plus 70 years, and seeks to give some rights to the copyright holder, while keeping some for the consumer, in the form of 'fair dealing'. This enables limited copying and, in the case of software, limited backups and reverse engineering [1].

Incorporating computing

The advent of computers created some interesting problems with regard to whether programs and data held on a computer should be copyrighted, and to what extent. This necessitated changes in the form of 'The Copyright (Computer Programs) Regulations 1992', to include software and again in 1998 to protect electronic databases [1].

The WIPO incorporated the Internet in its treaties in 1996, by creating the WIPO Copyright Treaty and the WIPO Performances and Phonograms Treaty [3].

The European Union (EU) also created a new copyright directive in response to the idea that “technological development has multiplied and diversified the vectors for creation, production and exploitation” (point 5) [5]. This was implemented by the UK with 'The Copyright and Related Rights Regulations 2003' [4]. The directive seeks to create “a harmonised legal framework on copyright and related rights” (point 4) [5], with the aim to “safeguard employment and encourage new job creation”(point 4) [5].

Changing the rules

When viewing a document or executing a program on a computer, a copy of the resource needs to be made, often several copies are made, either in whole or in part. It could be a resource that is loaded into memory for access or cached as part of browsing the World Wide Web [7]. The UK has now taken this fact into account when creating, 'The Copyright and Related Rights Regulations 2003'(part 2, section 8) [4], by allowing the lawful creation of temporary copies when necessary.

However, this requirement of a copy being made causes problems . This is a problem because the copies that are made are perfect, with no loss of quality of the original. Copies can be made easily and quickly at near zero cost, thus it entails that reproduction, distribution and publication can be carried out at near zero cost [12].

Computer networks, mainly the Internet, have increased freedoms for access and communication of copyrighted materials. They have made it cheap and easy to send perfect copies of copyrighted resources to a world audience [12]. As a result, new methods of distribution for products have become available.

New publishing mediums have been created that take advantage of this near zero cost of distribution, with products such as electronic books (ebooks), on-line dictionaries and new ways to buy songs. These products often have many advantages over traditional mediums, like increased flexibility and searching [12].

This has lead to new markets, where some control has been

removed from the old distributors to individual copyright holders, who can use the technology to produce and distribute their own work [12]. It has enabled bands to promote themselves and distribute their own songs without needing record companies.

P. Eve Athanasekou, in his paper 'Copyright in cyberspace' [7], makes the point that most people are either are not aware of or do not care about copyright. This has lead to individuals making small infringements of copyright; the taking of an image for use in a personal Website or the sharing of a song, for example.

However, these individual infringements and the fact that near zero cost for distributors also means near zero cost for everyone else, has caused widespread piracy [11]. In particular that of music, and increasingly video, which is much more extensive than anything previous. A particularly popular method of piracy has emerged: peer to peer networking.

Peer-to-peer

Peer to peer (P2P) networks are a method of file sharing that takes full advantage of the unregulated and unprecedented ease of copying. It works by putting a user in touch with other users who hold the particular file they are searching for, it then facilitates the file transfer. They are completely distributed systems, which makes copyright enforcement particularly difficult [9].

The British Phonographic Industry (BPI) states that “An estimated 8.0m people in UK are downloading music – 92% of them doing so illegally” [6]. Although the nature of the organisation suggests they are likely to give an estimate in the higher range, an unbiased source states that P2P programs , like Kazaa and Morpheus, have

had a total of 100 million downloads [8]. These figures indicate that it is a massive problem.

However, the effects of this for the distributors are not clear, even the BPI have announced an increase in album sells by 5.6% in 2003 [6]. A potential reason for this, is that file sharing acts as a form of advertising and offers users the opportunity to try before you buy.

Peer to peer networks also have other benefits, they can make use of the unused processor cycles and disk space of modern computers for distributed programs. This has lead to systems like [SETI@home](#), which processes data in search of extraterrestrial life and Distributed Science, which seeks to further medical research [10]. Peer to peer networks also have the potential to become the proper peer controlled system that Tim Berners-Lee first envisaged for the World Wide Web [9].

So, even the worst methods of copyright infringement could have benefits if used in the right manner. However, there are those who want to preserve their copyright and so seek greater controls.

New controls

As has been discussed, the nature of computing requires that a copy of a resource is automatically created when it is accessed. Therefore, for copyright holders to be able to control the right to make a copy of their work in a digital world, which is their right under copyright law, they are required to control access. [12]

Lessig [13] argues that the Internet is not inherently free, and that whoever owns the code (software) has the control. Companies and Governments have started to use software to gain control over

copyright, in an effort to try to stop copyright infringement.

This control can be exerted in a number of ways. The white paper 'Intellectual Property and the National Information Infrastructure' by Bruce Lehman for the United States Commerce Department [14] makes a number of suggestions:

- Server and file level controls
- Encryption
- Digital Signatures
- Steganography (Digital Watermarking)

Lehman [14] then goes on to outline a rights management system using these technological restrictions, which has since been expanded upon by a number of large companies to create 'Digital Rights Management' (DRM).

DRM uses technological restrictions, like the ones mentioned above to protect copyrighted resources [15]. These restrictions are being used for on-line resources such as ebooks, however it is argued that DRM is a “poor fit for modeling copyright policy” [15] and often fails to take into account fair dealing rights allowed under UK Copyright law [19].

DRM has the potential to give too much control to the copyright owner [12] and in addition to this there are privacy concerns with many DRM implementations [18].

Music companies have attempted to incorporate the technology to create copy protected compact discs in an effort to stop music piracy. However, this has not been particularly successful [16] and so far, users have shown a tendency to avoid DRM resources in

favour of the convenience of resources with less restriction [19].

The US music industry has also taken additional steps to try to stop piracy, with some limited success. The Recording Industry Association of America (RIAA) has been embarking on a media campaign, highlighting the importance of copyright and the wrongs of piracy, and suing individuals who share songs in an effort to scare other music pirates [17].

In response to the way computers have changed the nature of copying and as a result of pressure from distributors trying to prevent piracy, copyright law has changed accordingly [12]. The European Copyright Directive allowed for DRM systems and to aid them, it made attempts to circumvent these system illegal, while at the same time seeking to preserve the fair dealing rights of users [20].

New Freedoms

Lawrence Lessig, a Law Professor at Stanford University, believes that some resources should not be controlled, instead they should remain free, he argues that: “free resources have been crucial to innovation and creativity; that without them, creativity is crippled”[9]. Indeed, Lessig argues that too much control may “reduce, rather than increase, social welfare” [21].

The paper 'The Digital Dilemma' [12] concludes that new business models can be more effective than technological controls, which often fail because of the decreased convenience for users and because of the technological problems of implementing the complexities of copyright law for all types of users. Lawrence Lessig suggests a change in the way copyright is thought of, as well

as a change in business model [21]. Both suggest openness as an alternative to controlling access.

Within computing this can be achieved by using free and open source software (FOSS). To allow people to continue to benefit from developing software, copyright law is used with licensing to preserve some control, which still gives incentive for future innovation and development [21].

Instead of incorporating controls on copyrighted materials in an effort to restrict distribution, FOSS does the opposite. FOSS lets copyright holders give up certain rights and increases the freedoms of users. Depending on the license, the resources can be distributed freely. [21]

The FOSS movement has been growing in recent years, it makes use of a large variety of licenses, which often use copyleft such as the GNU General Public License (the GPL) [22]. Copyleft requires that software is “licensed under terms that require follow-on users to require others to adopt the same license” for all derived code. Has spawned new business models as the software can be given away for free, for example by companies selling support for a product or selling a version of FOSS software that has extra features, and has also increased innovation and competition [12].

Using licenses to add freedoms to copyrighted works does not have to be limited to software. The Creative Commons project [23] gives copyright holders the opportunity to apply such licenses for any type of copyrightable work. It offers a variety of licenses, which can incorporate copyleft, stop people making derivative works or limit people to non commercial use. It allows creators of works to

give up some or all of their rights under copyright law.

These projects have found a way to give control to users and programmers, rather than distributors, and have enabled new business models, which companies and even music bands are now successfully taking advantage of [24].

However, licenses can be used to restrict rights, companies such as Microsoft have been using end user license agreements (EULA) to give additional restrictions, on top of copyright laws, for users. Rather than updating copyright law to incorporate new controls, such as DRM, it should be updated to give clarification on the use of such licenses in future. The evidence shows that using copyright to increase freedoms is more likely to be effective as a way to prevent piracy, than increasing controls.

IT professionals and ethics

There are an increasing number of options available for copyrighting digital resources. Copyright can be used to create greater freedoms for users and greater opportunities for IT professionals by giving access to more resources and new business models, but only when its power is limited and is not used as a way to control access.

This has led to ethical issues and obligations for IT professionals, who often create copyrighted material in the form of software, documentation and Websites. To aid IT professionals in their choices, computing societies publish codes of conduct for their members.

The British Computer Society's (BCS) code of conduct for its

members, states that [25]:

“members must have knowledge and understanding of, and compliance with, relevant legislation, regulations and standards” and that members should seek to upgrade their knowledge and skill.

Therefore, they should be aware of new developments in copyright law and the options, such as FOSS and the Creative Commons, that are available to them,

The code of conduction also states that members [25]:

should “use high standards”, and should aim towards “advancing public knowledge and understanding of the profession”,

Using FOSS can help them do this, the software is freely accessible and the source code is available, so there is full accountability and full access to the work for the public and for fellow IT professionals.

The Advanced Computing Machinery (ACM) Code of Ethics and Professional Responsibility [26], says that members should:

“Contribute to society”

By making their work publicly accessible, IT professionals can achieve this.

“Know and respect existing laws pertaining to professional work”

Computers have changed and continue to cause changes in copyright law, IT professionals should be aware of all the changes.

“Strive to achieve the highest quality [and] effectiveness..”

It has been shown that there are serious doubts over the effectiveness of controlling access to copyrighted material in an attempt to preserve copyright, whereas increased openness can lead to increased quality and effectiveness.

“Accept and provide professional review”

Peer review and accessibility to work is important to both societies, controlling access to copyrighted works can prevent this.

In conclusion, IT professionals have a responsibility to be aware of all available copyright options that have been created by advances in computing and should choose the most appropriate, taking into account their employers but also fellow IT professionals and the public. They should seek to avoid any rights management controls and licenses that unfairly restrict users rights, instead they should try to limit the controls given by copyright using an appropriate license, in order to gain the greatest benefit for everyone.

Summary

Copyright has always had to change as a result of technology, and today is no different. Computers and networks have caused changes that have created new ethical issues. It is now easier to break copyright, but it is now also possible to prevent copying by using strict measures to control access to materials. Organisations have been created that use copyright in a positive way, which can

benefit copyright holders, by creating new markets and benefit users by giving them extra freedoms. IT professionals have a duty to choose between the many options they now have to copyright their work and should ensure that they make a choice that gives the most amount of freedom as is practicable.

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