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Digital Copyright Protection: Issues in the Digital Library Environment

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ABSTRACT

Copyright and intellectual property rights (IPR) have been established and extended over hundreds of years. Although initially developed to give a publisher control over the right to publish (copy) a work, they were extended to give rights to authors, painters, photographers, film producers, software writers, and many others. 'Access to information' is the buzzword of the recent past and today is essential in business, education, and research and has a direct impact on literacy levels, economic growth, and quality of life. Information hubs/ houses like archives, libraries and museums, etc. have had a fundamental role to play in the development of a democratic society by enabling access for all members of the community to a wide range of knowledge, ideas, opinion as well as cultural, and scientific and educational information. Libraries provide access to digital material through a variety of legal constructs; license agreements, exceptions under national copyright law, legal deposit, and the public domain. Digital rights management (DRM) poses a threat. At worst, it can block access, at best it can inhibit by making access time-consuming and costly to arrange. Today, these institutions are crippled by a parallel harmonisation of limitations and exceptions thrust upon them by technology (digital) that serve the public interest, glorifying the 'rights' and de-meaning 'fair-use'. An attempt has been made in this article to introduce the issues concerning the copyright protection in the digital library environment.

Keywords: Copyright, digital copyright, intellectual property rights, digital rights management, digital library issues

1. INTRODUCTION

Information and communication technology (ICT) and digital information have opened up new opportunities to access essential content and provide innovative services and scholarly information. Libraries provide access to digital material through a variety of legal constructs; license agreements, exceptions under national copyright law, legal deposit, and the public domain. Libraries in the west are already experiencing the problems associated with digital rights management (DRM). Material bought by the library has become inaccessible through technical protection measures. The result is that the material is effectively removed from the library collection. Anti-circumvention laws prevent libraries from availing themselves of their lawful exceptions under national copyright laws. This can prevent or place restrictions on copying or sharing or lending material, current awareness services, book reviews, exhibitions, and sending information to students who can't come to the library. In short, libraries have fewer rights in the digital environment than in the print world. Instead, libraries have to negotiate special agreements with individual rights holder to obtain DRM-free material or permission to circumvent in restricted circumstances. The result is that the digital divide will increase as under-resourced libraries or those in developing countries or the underprivileged communities (ironically standing to benefit most from digital technologies) lose out on their statutory rights.

2. COPYRIGHT HISTORY

The Berne Convention for the Protection of Literary and Artistic Works (Berne Convention- an international agreement governing copyright), was first accepted in Berne, Switzerland in 1886. It required its signatories to recognize the copyright of works of authors from other signatory countries (known as members of the Berne Union) in the same way as it recognises the copyright of its own nationals. It was Indeed a landmark event in the history of copyright. The organisation subsequently relocated to Geneva in 1960, and was succeeded in 1967

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with the establishment of the World Intellectual Property Organisation (WIPO) by treaty as an agency of the United Nations[1]. WIPO's Standing Committee on Copyright and Related Rights met in Geneva to consider the copyright exceptions and limitations on March 10-12, 2008, and began discussions about exceptions to, and limitations on, rights granted to copyright holders by international instruments, a topic which is of vital importance to developing countries. WIPO member countries universally supported keeping the topic of 'exceptions and limitations' on the Committee's agenda.

The WIPO Secretariat in 2008 was requested to present on studies commissioned by WIPO on exceptions and limitations for the visually impaired and libraries and archives and was also asked to commission a new study on exceptions and limitations for the benefit of educational activities, including distance education and the trans-border aspect of it. Member countries have asked WIPO to include the subject of exceptions and limitations to copyright and related rights for the purposes of education, libraries and archives, and disabled persons on the agenda of the Committee and to strengthen international understanding of the need to have adequate limitations, learning from existing models and moving towards agreement on exceptions and limitations for public interest purposes, which, like minimum standards, were to be envisaged in all legislation for the benefit of the international community. As a result, copyright exceptions and limitations is an ongoing focus of the work of WIPO's Copyright Committee in the past and the coming years. All these developments have been due to the result of the demented international copyright regime which is less balanced than it has been at any point in the past[2].

First, the range of rights granted to copyright owners expanded. For instance, the 1994 Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) created a new right to control rental of copyrighted works and extended copyright to 'computer software'. The 1996 WIPO Copyright and Phonograms and Performances Treaties created a new right of making available, expanded the right of communication to the public, and extended the right of reproduction into the storage of data in digital form.

Second, the length of copyright term has also expanded in recent years. Although the internationally harmonized term is 50 years after the life of the author, many countries have now adopted the higher term of life of author plus 70 years (or in some cases 95 years), as a result of recent bilateral trade agreements with the United States and/or the European Community.

Third, while creating new opportunities for the creation and dissemination of copyrighted works, new developments in information and communication Technologies (ICTs) have challenged the traditional balance embodied in the copyright system. The 1996 WIPO Internet Treaties required signatory countries to provide legal protection to technologies, technological protection measures (TPMs), that can be used by rightsholders' to control access to, and use of, digital copyrighted works. Private rightsholders have been able to use legally-enforced TPMs to control the level of access information users can have, and on what terms.

3. DIGITAL EVOLUTION

The invention of Abacus, long ago, paved way to an evolution which mankind had not anticipated; not anticipated to lead the path/way to form one of the most important evolutions that was being evolved today on which life revolves around and depends on it so much that many-a-times it is unthinkable to do them without, such as logarithms, calculators, punch card, tabulators, Boolean logic, computers, compact discs, storage tapes, telephone, internet, mobile phones, tablets and handheld PDA's, e-books, etc. The impact is such that it is used as benchmarks by Governments and institutions, for making policy decisions worldwide.

Libraries have marched hand in hand, adapted and adopted themselves when any new technology had evolved paving way for electronic libraries, networked libraries, digital libraries, virtual libraries, etc. In each of the situations when libraries transformed there had been problem situations which have been tried to overcome, solve and find a resolution. Copyright issues have been in the forefront all times even when digital libraries stated to emerge.

4. COPYRIGHT IN DIGITAL LIBRARY ENVIRONMENT

Digital technology enables the transmission and use of all of these protected materials in digital form over interactive networks. The process of 'digitisation' allows the conversion of such materials into binary form (0s & 1s), which can be transmitted across the internet, and then re-distributed, copied, and stored in perfect digital form. While the transmission of text, sound, images, and computer programs over the internet is already commonplace, this is also becoming true for transmission of audiovisual works such as feature films, e-books as the technical constraints of narrow bandwidth begin to disappear. A material protected by copyright and related rights, spanning the range of information and entertainment products, constitutes much of the valuable subject matter of e-commerce.

Given the capabilities and characteristics of digital network technologies, e-commerce has had a tremendous impact on the system of copyright and related rights, and the scope of copyright and related

rights in turn is affecting how e-commerce evolves. It is essential that legal rules are set and applied appropriately, to ensure that digital technology does not undermine the basic tenets of copyright and related rights. The digital environment is facilitating copyright licensing by different means, including by helping to rapidly locate and identify licensors and licensees, providing virtual platforms for exchange and automating contracts, payments, and the delivery of goods and services. In this regard, digital technology is making great impact on the territorial and temporal framework for copyright licensing. Moreover, a number of new licensing practices are emerging in the new technological environment.

The proliferation of new licensing practices appears to reflect the development of collaborative creativity and a new, more dynamic position of the user in the network environment. Each user is now, thanks to readily available digital technologies and media hardware and software, a potential consumer, producer, creator, and distributor of creative work. While licensing is finely tuned for the analog world, the digital environment has changed the way in which copyright content is marketed, distributed, delivered and consumed, and this has had significant consequences for the upstream and downstream processes of rights clearance[1].

Business dictionary.com defines digital rights as: "Copyrights associated with digitised content (such as music or written works) published and/or distributed online over internet or other computerised communication networks"[3].

Long before the arrival of digital or even electronic media, copyright holders, content producers, or other financially or artistically interested parties had business and legal objections to copying technologies. The advent of personal computers as household appliances has made it convenient for users to convert media (which may or may not be copyrighted) originally in a physical/analog form or a broadcast form into a universal, digital form (ripping). This, combined with the internet and popular file sharing tools, has made unauthorised distribution of copies of copyrighted digital media (digital piracy) much easier.

Concerns in digital libraries have turned from how to digitise materials, store and make to how to manage the rights along with the materials. The advent of digital media and analog/digital conversion technologies, especially those that are usable on mass-market general-purpose personal computers, has vastly increased the concerns of copyright-dependent individuals and organisations, because these individuals and organisations are partly or wholly dependent on the revenue generated from such works.

5. COPYRIGHT INFRINGEMENT TYPES

Direct Infringement—Wholesale reproduction and distribution of copyrighted works.

Contributory Infringement—Users knowingly encouraging infringing activity infringement.

Vicarious Infringement—A violation which occurs when operator has the ability to supervise users, but chooses not to supervise and control for financial benefits[4].

6. DIGITAL RIGHTS MANAGEMENT

The Digital Rights Management (DRM) is a term for access control technologies that are used by hardware manufacturers, publishers, copyright holders, and individuals to limit the use of digital content and devices. The term is used to describe any technology that inhibits uses of digital content that is not desired or intended by the content provider. The term does not generally refer to other forms of copy protection, which can be circumvented without modifying the file or device, such as serial numbers or keyfiles. It can also refer to restrictions associated with specific instances of digital works or devices.

Webopedia defines DRM as 'Short for digital rights management, a system for protecting the copyrights of data circulated via the internet or other digital media by enabling secure distribution and/or disabling illegal distribution of the data. Typically, a DRM system protects intellectual property by either encrypting the data so that it can only be accessed by authorised users or marking the content with a digital watermark or similar method so that the content can not be freely distributed'[5].

Publishers and vendors across the world put their foot together to bring out necessary counter measures to protect themselves from piracy and infringement. They argue that because of piracy, infringement, copyright owners cannot make a return on their investments in content creation; they will stop investing in new content (or the continued exploitation of old content, for that matter). Taken to the extreme, rampant infringement will result in the collapse of the music, movie and publishing industries, say copyright owners. Thus as a counter measure they have been compelled to adopt new protection measures such as DRM. The DRM technologies are aimed at increasing the kinds and/or scope of control that rights-holders can assert over their intellectual property assets.

The DRM technologies have enabled publishers to enforce access policies that not only disallow copyright infringements, but also prevent lawful fair use of copyrighted works, or even implement use constraints on non-copyrighted works that they distribute; examples

include the placement of DRM on certain public-domain or open-licensed e-books, or DRM included in consumer electronic devices that time-shift (and apply DRM to) both copyrighted and non-copyrighted works. DRM as of now is most commonly used by the entertainment industry (e.g., film and recording) and a few publishers.

7. DRM TECHNIQUES

The DRM techniques include:

(a) Restrictive Licensing Agreements

The access to digital materials, copyright and public domain are controlled. Some restrictive licenses are imposed on consumers as a condition of entering a website or when downloading software.

(b) Encryption

This technology is designed to control access and reproduction of online information. This includes encryption, scrambling of expressive material, and embedding of a tag, preparing backup copies for personal use[4].

8. DRM ISSUES

Libraries and archives play a crucial role, and some have a legal mandate to preserve and make available our cultural and scientific heritage for future generations. The DRM jeopardises this role as they have the potential to lock away covered material forever. The issue of long term preservation carries a real urgency as media must be adapted regularly to new data formats, operating systems and data carriers. In addition, data (e.g. music, software, electronic journals) stored in proprietary DRM formats is at much greater risk of being lost once the playback media is no longer available. Under DRM, there is a great risk that the public record of the future may be distorted. The DRM technologies attempt to control use of digital media by preventing access, copying or conversion to other formats beyond users.

9. FAIR USE DOCTRINE AND AMBIGUITY

Given the broad scope of the Copyright Act, copyright would intrude into everyday life in innumerable ways were it not for the fair use doctrine and other exceptions. Fair use serves a crucial role in limiting the reach of what would otherwise be an intolerably expansive grant of rights to copyright owners. Were it not for the fair use doctrine, each of the following activities would be infringing:

- Whistling a tune while walking down the street (public performance)
- Cutting out a cartoon and posting it on your office door (public display)
- Photocopying a newspaper article for your files (reproduction)
- Quoting a line from the movies in an e-mail to a co-worker (reproduction)
- Reverse engineering of computer code (reproduction)
- Playing an excerpt of 'play/drama' in a copyright law course (public performance)
- Quoting from a novel in a review (reproduction).

If they are to preserve fair use in its traditional form, the DRM technologies must leave room for these unauthorised uses of copyrighted works, as well as myriad other commonplace uses that have not been tested in court[6].

Fair use has repeatedly been invoked to prevent copyright owners from misusing their copyrights in order to stifle legitimate marketplace competition. The fair use doctrine, thus, operates to limit copyright in order to preserve competition. The fair use doctrine also plays an important role by providing a reservoir of incentives to spur innovation. Many DRM vendors express frustration with the imprecision surrounding fair use and national preservation laws. Unfortunately, fair use cannot be defined with precision. The fair use doctrine operates as a 'safety valve' not just for free expression, but also to mediate the tension between copyright and new technologies[7].

The collection and long-term preservation of digital content pose challenges to the intellectual property regime within which libraries and archives are accustomed to working. When the problem is viewed in this light, it becomes clear that the ambiguity of the fair use doctrine is not a bug, but a crucial feature. If DRM systems are to preserve fair use, they must somehow preserve its ambiguity, its ability to evolve and embrace as yet unrealised uses of copyrighted works. A consideration of technologies past, present and future, and their collisions with the fair use doctrine, illustrates the virtues of ambiguity in fair use.

10. CONTROL AND TECHNOLOGY

There is no doubt that DRM has the potential to have a tremendous impact on libraries and how they do their work. The impact is hard to predict today because it is a technology in the early stages of its potential development. But it is possible to present some general cautions based on current experience with protected works. On the contrary, more sophisticated DRM systems may allow libraries to provide additional services beyond lending, such as integrating digital library materials into courseware at educational institutions. But DRM is likely to provide significant challenges as well, especially in areas like control, technical requirements, etc. This means that the content and the control of the content will remain in vendor systems, and libraries will 'outsource' access to the digital materials to these

vendors and or users. This is not unlike the situation in libraries today in relation to online databases and digital reference materials, but the impact of this model should be expected to increase as the technology grows in complexity and expense. Implications of this model range from the library's right to archive materials to issues of patron privacy[8].

The DRM companies such as Adobe, Amazon, Microsoft, Sony, etc. have developed licensing control systems for digital copyright protection that prevent printing documents, inhibit the use of print screen, and prevent anyone who is not authorised from seeing document content. Companies believe it as the only effective way of protecting the ownership of the information[9].

The Digital Millennium Copyright Act (DMCA) is a United States copyright law that implements treaties of the World Intellectual Property Organisation (WIPO). It criminalises production and dissemination of technology, devices, or services intended to circumvent measures (commonly known as digital rights management or DRM) that control access to copyrighted works. It also criminalises the act of circumventing an access control, whether or not there is actual infringement of copyright itself. In addition, the DMCA heightens the penalties for copyright infringement on the internet. Passed on October 12, 1998 by a unanimous vote in the US Senate and signed into law by President Bill Clinton on October 28, 1998, the DMCA amended Title 17 of the US Code to extend the reach of copyright, while limiting the liability of the providers of online services for copyright infringement by their users[10].

On May 22, 2001, the European Union passed the Copyright Directive or EUCD, which addresses some of the same issues as the DMCA. The DMCA's principal innovation in the field of copyright, the exemption from direct and indirect liability of internet service providers and other intermediaries was separately addressed, and largely followed, in Europe by means of the separate Electronic Commerce Directive. There are already 'digital loan' softwares in wide use by public libraries in the USA that does not bother to impose any DRM on e-books, opting instead to automatically delete the books after the loan period has expired[11].

In a resolute to make move against the DRM prophecies certain initiatives have caught the world by storm. They have been supported by individuals, agencies and also being funded by them. Some of the developments are:

11. OPEN ARCHIVES INITIATIVE

The open archives initiative (OAI) develops and promotes interoperability standards that aim to facilitate the efficient dissemination of content. The OAI has its roots in an effort to enhance access to e-print archives as a means of increasing the availability of scholarly communication. Continued support of this work remains a cornerstone of the Open Archives program. The fundamental technological framework and standards that are developing to support this work are, however, independent of both the type of content offered and the economic mechanisms surrounding that content, and promise to have much broader relevance in opening up access to a range of digital materials. As a result, the Open Archives Initiative is currently an organisation and an effort explicitly in transition, and is committed to exploring and enabling this new and broader range of applications[12].

11.1 Open Archives Initiative-Protocol for Metadata Harvesting

The open archives initiative-protocol for metadata harvesting (OAI-PMH) is a low-barrier mechanism for repository interoperability. *Data Providers* are repositories that expose structured metadata via OAI-PMH. *Service Providers* then make OAI-PMH service requests to harvest that metadata.

11.2 Open Archives Initiative-Object Reuse and Exchange

Open archives initiative-object reuse and exchange (OAI-ORE) defines standards for the description and exchange of aggregations of Web resources. These aggregations, sometimes called compound digital objects, may combine distributed resources with multiple media types including text, images, data, and video. The goal of these standards is to expose the rich content in these aggregations to applications that support authoring, deposit, exchange, visualisation, reuse, and preservation. Although a motivating use case for the work is the changing nature of scholarship and scholarly communication, and the need for cyber infrastructure to support that scholarship, the intent of the effort is to develop standards that generalise across all web-based information including the increasing popular social networks of 'web 2.0'.

11.3 Open Source Initiative

The open source model includes the concept of concurrent yet different agendas and differing approaches in production, in contrast with more centralised models of development such as those typically used in commercial software companies. A main principle and practice of open source software development is peer production by bartering and collaboration, with the end-product, source-material, 'blueprints', and documentation available at no cost to the public. This is increasingly being applied in other fields of endeavor, such as biotechnology.

11.4 Creative Commons

In December 2002, Creative Commons released its first set of copyright licenses for free to the public. Creative Commons developed its licenses—inspired in part by the Free Software Foundation's GNU General Public License (GNU GPL)—alongside a Web application platform to help you license your works freely for certain uses, on certain conditions; or dedicate your works to the public domain. In the years following the initial release, Creative Commons and its licenses have grown at an exponential rate around the world. The licenses have been further improved, and ported to over 50 jurisdictions[13].

11.5 Free and Open Source Software

Freeware (from 'free' and 'software') is computer software that is available for use at no cost or for an optional fee, but usually with one or more restricted usage rights. Freeware is in contrast to commercial software, which is typically sold for profit. The term does not imply that the software is free and open source software (FOSS). Freeware is a loosely defined category, which includes both closed and open source proprietary software[14].

11.6 GNU Project

The GNU project uses software that is free for users to copy, edit, and distribute. It is free in the sense that users can change the software to fit individual needs. The way programmers obtain the free software depends on where they get it. The software could be provided to the programmer from friends or over the internet, or the company a programmer works for may purchase the software. Proceeds from purchases support the GNU project. The GNU has four kinds of freedom for the software:

- Freedom to run the program
- Freedom to access the code
- Freedom to redistribute the program to anyone
- Freedom to improve the software

12. CONCLUSIONS

A 'one size fits all' rights solution is unlikely. Some of the information resources will arrive at the library with their own embedded rights technology, as e-books do today. Some information resources on the market will have controls that libraries find so unacceptable that they will choose not to obtain those materials.

Some controls, such as further development of access control technologies, will benefit digital libraries, allowing them to provide more resources more easily to remote users. The right answer to the rights question for digital libraries is not between rights technology A and rights technology B. Libraries need to understand a broad rights landscape, i.e., heterogeneous resources to manage and the users to serve. The due diligence needed to assert will not only be to respect the intellectual property rights in the resources being managed but also to defend the rights of users to exercise their constitutional and legal rights to make use of these resources.

Today, one may need to think about a tiered system of digital copyright protection, where stronger controls are allowed in exchange for the fact that the copyright owner is not able to use the available law as an effective deterrent to copyright theft. The strengthening of the existing copyright act and to explore the possibility of bringing a new act in place is the need of the day.

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