Feature

Perspectives on DRM: Between Digital Rights Management and Digital Restrictions Management

by Rafal Kasprowski

Digital rights management (DRM) is commonly defined as the set of technological protection measures (TPM) by which rights holders prevent the use of digital content they license in ways that could compromise the commercial value of their products. Restrictions on such uses as downloading, printing, saving and emailing content are encoded directly in the products or the hardware needed to use them and are therefore in immediate effect. This automatic deployment challenges the fair use provisions of copyright law, which protect certain uses and let judges determine the outcome of a dispute.

This report of a panel session organized by the author at the 2008 Annual Meeting of the American Society for Information Science & Technology (ASIS&T) presents the DRM issue in four contexts: use restrictions in libraries, the anti-circumvention rules of the Digital Millennium Copyright Act (DMCA), commercial and academic licensing and DRM-free software alternatives. The four panelists were Kristin R. Eschenfelder, associate professor at the School of Library and Information Studies of the University of Wisconsin-Madison and recipient of multiple grants for her work on DRM; Kevin L. Smith, J.D., scholarly communications officer at Duke University and author of the highly regarded web log Scholarly Communications @ Duke; Bill Burger, vice president of marketing at the Copyright Clearance Center (CCC), a leading provider of content licensing solutions for corporations and academic institutions; and John Sullivan, operations manager at the Free Software Foundation, a nonprofit that promotes the development and use of free software and campaigns against DRM. The session was recorded in October 2008 and is complemented in this report with a 2009 update to the DMCA legislation.

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The Many Faces of Use Restrictions in Libraries

Based on the results of her studies of use restrictions in libraries, Kristin R. Eschenfelder reported that libraries are not only trying to cope with DRM but are also considering using DRM software to their advantage. She argued that use restrictions have a cultural component and proposed the recognition of a category of *soft use* restrictions, which are often encountered when users access scholarly publications.

Eschenfelder first discussed several issues with DRM in libraries including the following:

- DRM viewers present interoperability issues and require additional work to be compatible with all the computer platforms used by patrons.
- Preservation of digital content (such as video games) that has been encased with a TPM can only be possible if it could be extracted from the DRM software.
- DRM creates obstacles between users and easy access to resources, which can cause patron dissatisfaction.

Overall, the concept of DRM appears to be contrary to the library's basic mission to enable maximum access to cultural goods.

In the archives and special collections area, however, there is a fair amount of interest in using rights management technologies. For example, for content that may need to be protected from misuse, such as artifacts at archeological sites that need to be protected from treasure hunters, DRM

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systems can vet users and authenticate them remotely, which safely eliminates the need to meet with archivists in person. DRM software may also help institutions handle content with copyright restrictions. The New York Public Library (NYPL), for instance, has been considering bringing its digitized collection of dance and performance videos closer to the public outside the NYPL system as long as it is possible to restrict access to this online content to library locations only. These examples show that DRM may actually provide opportunities to expand access to online materials in ways previously not possible.

In another study Eschenfelder explored the nature of DRM in today's applications. Her starting point was the use of DRM technologies in consumer media such as digital music and film, which effectively prevent certain uses. These DRM restrictions would fall into what Eschenfelder defines as *hard technology* use restrictions, that is, systems that strictly control or disallow direct or subsequent use such as saving, printing or emailing, though these same functionalities are provided by the operating system or browser. By contrast, scholarly publications appear to provide few examples of these hard technology restrictions. DRM falls more often within the category defined by Eschenfelder as *soft technology* use restrictions. In soft restrictions the interface or server-side configurations of software or hardware may discourage certain uses, but the desired use may be achieved through workarounds such as repeating the same use in multiple sessions or using operating system or browser functionalities.

Eschenfelder also considered non-technology use restrictions. Some use restrictions are based on policies and laws and their interpretation. For example, certain license terms that govern how we can use digital and intellectual property may or may not be enforced by internal policies. How communities of practice understand and perceive relevant laws and how they treat differences between terms of use statements on publisher sites compared to licenses signed by universities shapes how digital and intellectual property is used. Certain cultural norms, such as the gatekeeper role of archivists, constitute another set of non-technological use restrictions. We learn in library school about information ethics and respecting the wishes of special collections and archive donors regarding who should view their material. That libraries should restrict access to archival information in a particular way is a cultural norm.

Eschenfelder concluded with examples from one of her published papers on soft use restrictions which she considers forms of DRM. They include the following:

Extent-of-Use TPM. The publisher's server blocks the user's IP address when the frequency of document requests exceeds a publisher-defined threshold.

TPM by Frustration or "Chunking." E-book content, in particular, is broken into chunks, which makes it inconvenient to print, email and save. Chunk sizes vary among vendors. Some vendors even let users view entire books (which some consider to be as inconvenient as viewing one page at a time).

TPM by Obfuscation. The user interface does not adequately advertise use functionality, such as printing or saving, whether by bad design or by intention. Perhaps the publisher did not hire enough interface designers or did not want to prohibit these uses explicitly in its license (so as to not alienate certain users) even though it clearly wished to discourage them.

TPM by Omission. Common uses such as saving, printing and emailing are not provided by corresponding tools or buttons, but are available if users experiment with browser or operating system functionalities.

TPM by Decomposition. The hybrid nature of the HTML format causes the saving, emailing and transferring of content to generate files with style sheets and several folders. Making content available only in HTML may discourage these uses. Content in PDF format is not affected in the same way.

TPM by Threat. Users often encounter declarations in pop-ups advising them against a particular use, such as for graphic content in encyclopedias or biographies. When users right-click on an image, they are warned against saving the image, although there is no technological barrier to their doing so.

Mitigating the Effects of the DMCA Anti-Circumvention Rules

Kevin L. Smith discussed the effects on higher education of the legal protections accorded by the DMCA anti-circumvention rules to DRM systems and presented the three current options to mitigate the impact of these rules: the Library of Congress' rulemaking authority, a bill called the "Fair Use Act" that was introduced in Congress in 2007 and a major law review article that proposed a judicially created "reverse notice and take down" procedure for DRM restrictions.

In its essential form DRM is a type of self-help, a kind of fence erected around a property to keep trespassers away, which frees the owner from having to engage in often lengthy and costly legal procedures. Copyright law with its fair use provisions was deemed not strict enough as digital materials multiplied, and license agreements were introduced to enforce DRM restrictions in some cases. Finally as DRM restrictions are relatively easy to bypass, Congress passed an even stricter law, the DMCA with its anti-circumvention rules, to protect DRM systems. Anti-circumvention provisions may be required by international intellectual property treaties that include the United States, but the extent to which "digital locks" can be applied thanks to the DMCA is, according to Smith, unprecedented and well beyond the requirements of any treaty.

The DMCA imposes some specific rules on DRM systems, but makes it illegal to circumvent DRM measures. Section 1201(a) of copyright law forbids circumvention of DRM systems for purposes other than those defined by four statutory exceptions: encryption research, law enforcement, privacy protection and library acquisitions. The latter allows libraries to bypass DRM systems for product trials only. As no vendor will refuse to temporarily unblock a DRM restriction in view of a potential sale, there is no real benefit to this statutory exception. Copyright law provides room for enforcing other exceptions. Congress has authorized the Library of Congress to investigate cases that can lead to new exceptions and to enforce these exceptions. Under section 1201(b), copyright law also forbids selling DRM circumvention technology, such as "DeCSS" programs for decrypting the content scrambling system used on most DVDs. Despite these provisions, other "rights, remedies, limitations or defenses to copyright infringement" are meant to be unaffected by the DMCA protections according to section 1201(c). Fair use falls within these rights, but, despite this fact, the law does not make allowances for circumvention for legal purposes such as fair use. The DMCA does make room, however, for commercial competition. Companies that have tried to prevent the marketing of generic electronic products such as printer cartridges or garage door openers, which arguably circumvent existing access mechanisms, have been unsuccessful in the courts.

DRM presents several problems for content use in institutions of higher learning. Content providers may lock public domain content in databases using DRM software and prevent users from downloading certain material. This kind of anti-competitive use of DRM has not been challenged in the courts. It is also not possible to take clips from DVDs to illustrate, for example, film editing techniques or personality types in psychology courses, because under the DMCA such use would amount to circumventing the content scrambling system embedded in DVDs, even though this type of reproduction is fair use in a face-to-face classroom presentation. Smith observed that software for converting DVD content to digital files is not distributed in the United States. If it were, it might violate section 1201(b) of copyright law. He also considered whether regional DVD codes may be a form of protected TPM. It is certainly possible to buy DVD players that can play DVDs from all regions, but could such players constitute a form of DRM circumvention protected under the DMCA? Finally, music legally purchased and loaded on a DRM-enabled device may not play on classroom equipment. A professor, for example, may download music to be taught in a course, but then may not be able to play that music back in class even though it would be legal to do so. These are the kinds of problems that various attempts to mitigate the impact of anti-circumvention rules have tried to address.

There are attempts to mitigate the impact of the DMCA anti-circumvention rules. As mentioned above, the Library of Congress has legislative authority from Congress to develop rulemaking exceptions for "classes of works" every three years. Since the DMCA was enacted in 1998, the Library of Congress has enforced exceptions three times – in 2000, 2003 and 2006 – and was scheduled to do so again in 2009. Of the six exceptions passed in 2006, one specifically allows film and media studies professors to circumvent TPM to

make film clip compilations for coursework using DVD copies held by their institution's film-studies library. A movement has been underway to expand this exception to include K-12 educators, all subject areas and all legally obtained copies. This expansion would not threaten the companies' income in any way. As expanding the exceptions to the anti-circumvention rules involves public hearings and testimony by individuals, presenting compelling arguments to the Library of Congress has proven to be effective. In fact, in the case of the exception for film and media studies it was enough for a single professor to present the case that DRM inhibited his teaching to convince the Library of Congress to draft an exception that would accommodate him.

In February 2007, the Fair Use Act was introduced in Congress, but never passed. It would have codified into law all six exceptions from 2006, which are currently rule-made and remain subject to periodic reviews. The Fair Use Act would have permitted the circumvention of TPM for, among other cases, (1) access to public domain works, (2) access to works of public interest for criticism, scholarship, reporting or research, (3) compilations of educational film clips and (4) preservation in libraries. The latter is of particular importance as the various media with historical content, including DVDs, begin to deteriorate. Smith argued that what frightens publishers about the Fair Use Act is that, if implemented, it would render ineffectual the anti-circumvention rules. Fair use would constitute an exception so broad that decisions regarding the right to circumvent would often be made after the actual circumvention. If a content owner objected, the user could take the matter to court, and only then would a judge decide whether fair use can justify that particular circumvention. The Fair Use Act would thus defeat the anti-circumvention rule's self-help purpose.

Two proposals have been suggested to allow judges to mitigate the effects of the anti-circumvention rules. The first approach, proposed by Timothy K. Armstrong in an article entitled "Fair Circumvention" [1], would allow judges to analyze any circumvention situation by factoring fair use provisions into the interpretation of the DMCA in the same way as with copyright law. The second and more promising proposal from an article by Reichmann, Samuelson & Dinwoodie, called "Reverse Notice and Takedown" [2], suggests that users give rights holders notice of their intent to circumvent on a defined date, at which point rights holders could object within that designated period or take down the TPM. If the rights holder objects, then the user could bring the case to court in an effort to obtain a favorable judgment. This option would be useful to libraries in many cases, such as making preservation copies.

Digital Rights Management Landscape in Commercial and Academic Licensing

Bill Burger explained the rationale for DRM in the current publishing environment, the opposing positions on this issue between rights holders and content users, and the issues the Copyright Clearance Center (CCC) encounters as it tries to mediate agreements between these two parties.

The CCC, founded following the 1976 revision of the Copyright Act, identifies markets and acts as intermediary between rights holders and content users. It does not hold rights to any content but only collects and equitably distributes the royalties from uses of other parties' content. Burger pointed out that the information needs of customers often change faster than the CCC is able to convince rights holders to provide the appropriate access rights to their content.

Copyright allows rights holders to control a number of things: (1) copying of content, (2) distribution of content from the first publication through subsequent modes of access, (3) public performance and display of content, (4) preparation of derivative works (translations, adaptations, etc.) and (5) permission for others to do any of the above. Rights holders may work with agents and intermediaries such as aggregators or other organizations who sell their rights or bundle access to the content in a variety of ways.

Burger defined DRM as a set of technologies, in existence since the advent of the digital age over 20 years ago, employed by rights holders to restrict how digital works are accessed, used and reproduced. Because "spontaneous pay-per-use licensing," which the CCC engages in, is impeded by DRM systems wherever they prevent the redistribution or copying of content, the CCC does not encourage their use. Customers are frustrated by DRM when they legally secure first copies from document delivery services with a license from the CCC, but then cannot redistribute that content in their

corporations because it is controlled by a DRM system. The CCC negotiates with document delivery services to provide content DRM-free, but this arrangement is not possible when document delivery services have explicit agreements with rights holders to deliver content with a DRM system.

DRM is omnipresent in everyday content storage devices, for example, Apple's iPod and iTunes products (which use Apple's Fair Play system), e-books (which use DRM-enabled Adobe Acrobat and Microsoft Reader), Amazon's Kindle (which prevents users from printing books and viewing them on any other support), DVDs (which use a content scrambling system) and Blu-ray Discs (which use the advanced access content system). According to Burger, one reason companies use DRM systems even on content in the public domain is to protect access to the product that they invested in. It would be contrary to their business model to not recoup their investment. Their desire to prevent content cannibalization may not only have logical but also emotional reasons in the context of a digital economy in flux where the processes for delivering online content are not fully mature.

Rights holders are often not willing to provide content in a way that users find satisfactory. Users want convenient access, the ability to use and share information, transparency in pricing and no annoyances. They also want their use of information to be unbound by formats and devices, which is a major point of contention with publishers, because the publishers' business model relies on content being resold multiple times. That same business model also implies that publishers protect their intellectual property, maintain control over the distribution of their content and be compensated for its use, all in an effort to produce commercially viable products and serve their customers, who are their market. Digital distribution also lets publishers track content use, which was not possible in the print world. Some DRM software may indeed help publishers understand how their content is used, although using DRM for that purpose alone would be a poor use of the technology. Burger noted that understanding how a rights holder's needs may overlap with a user's needs is an important component in agreement negotiations.

Besides its inconvenience to users and vulnerability to hackers, DRM often punishes a publisher's best customers, who need to use the content the most and spend the most money for the corresponding products. DRM can prevent publishers from investing in new business models and can in fact slow technological innovation, as exemplified by the fate of the DAT technology, which music labels burdened with so many use restrictions that it became commercially non-viable. DRM can undermine fair-use rights and, with excessive use restrictions to a limited number of devices, can also be deemed anti-competitive.

Despite the various protection measures used by publishers, DRM does allow for high value content to be more accessible; after all, the necessity to physically visit the library to access content in the print world presented barriers of its own. As imperfect as the situation may be, it is necessary to encourage the transition in publishing from print to electronic, because without DRM publishers would be less likely to migrate. In many cases, DRM is for now, and in some environments may always be, simply an inevitable part of purchasing online content.

Free Software: The Ethical Alternative to Digital Restrictions Management

John Sullivan provided an overview of the Free Software Foundation's mission to promote freedom for computer users and argued that because DRM presents inherent ethical problems its use should be abandoned in favor of DRM-free software.

The Free Software Foundation (FSF) was founded in 1985 and has as its mission the advancement of free software for all to use. At the core of the free software movement is the ethical conviction that if software can be shared easily then everyone should be free to do so. To the FSF, free software is not just about the practical benefits of open source code, but of a right to four basic freedoms: (1) freedom to run the program, (2) freedom to study and improve the program, (3) freedom to make and share copies of the program, (4) freedom to share modified versions of the program. Software should only come with a copyright license, not a proprietary software license that defines permitted and prohibited uses. Examples of free software include the GNU/Linux operating system, Firefox web browser, OpenOffice.org suite and the Apache web server, which runs most of the sites on the Internet.

Sullivan explained that DRM requires proprietary software and does not

work with free software. DRM systems must be proprietary because they have to monitor the user or deny the user the ability to do something on their own computer. If the user could just freely modify DRM systems, they would be ineffective. DRM is fundamentally incompatible with the four essential freedoms and, for this reason, is a wrong practice according to the FSF. In its campaigns to sensitize the public to the flaws of DRM, the FSF often uses subversive terms, such as "digital restrictions management," "defective by design" and "treacherous computing."

Unlike copyright, noted Sullivan, DRM does not expire after a certain time to make works freely available. It often resides on systems that are used to distribute works for which copyright has expired or over which there is no legitimate copyright concern. It may also cover patented and trademarked works that have a different status from copyright under the law. DRM obstructs private uses of works like printing, as well as fair use, which is especially important in academia, where students and teachers need to be able to take excerpts and simultaneously experience works.

Other options besides DRM exist for ensuring the viability of works. Free software has made the creation and distribution of works easier. Thanks to Creative Commons licenses, many people, including academics and artists, want to freely share the works they create. Information is a resource that users should be able to share freely if they choose to do so. Sullivan argued that some companies using DRM systems blame the entertainment industry for forcing them to do so, but these companies need to be held accountable for their business choices because they lock users into their products, which allows them to make considerable profits.

Avoiding DRM is not just an issue of ease of use; DRM is a social problem and making choices involving DRM is about fundamental ideals. Even if DRM software were free, it would still be inappropriate to the FSF, as the DMCA anti-circumvention provisions might still threaten users with imprisonment for modifying these systems. Any DRM is also based on end-user license agreements (EULAs) and terms of service, which allow their providers to prevent access to information on a given expiration date.

With many legitimate security and encryption tools, it is not third-party companies that control access, but the users themselves. As DRM-free businesses like Amazon, Rhapsody, eMusic.com and Overdrive have shown, Sullivan argued, it is not necessary to use DRM systems to be successful. He encouraged users to use licenses that prevent their work from being distributed in a way that deprives users and readers of important freedoms. The GNU General Public License version 3 is one such license, appropriate for software. For other works, the licenses offered by the Creative Commons also include provisions that prevent DRM from being used.

2009 Update on Exceptions to DMCA Anti-Circumvention Rules

The situation regarding exceptions to the anti-circumvention rules is, surprisingly, largely unchanged since October 2008. The Library of Congress initiated its rule-making process to revise the exceptions in that same month, with a goal of announcing new exceptions at the end of October 2009. The higher education community was very active in requesting that the exception that allows certain professors to circumvent DRM for the purpose of making compilations of film clips to use in the classroom be expanded to include more faculty members. The motion picture industry, on the other hand, argued that even the current exception was unnecessary and should be eliminated.

On October 28, 2009 the Copyright Office announced that it was delaying the rulemaking process and extending the current set of exceptions, indefinitely. They predicted that the delay would only be for about 3-4 weeks, but as of this writing, no new exceptions have been announced.

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