DIGITAL RIGHTS MANAGEMENT AS INFORMATION ACCESS BARRIER

By Jason Puckett

As librarians, our mission is to provide information. We have an obligation to provide, to the best of our ability, information in a form that readers can access according to their needs, with respect for their self-determination and minimal barriers to its free use.

Digital rights management (DRM) technology creates intentional and artificial information usage barriers. In doing so, it compromises libraries’ mission of providing free access to information – “free” in the sense that users can make their own determination about how to use that information appropriately and ethically. By providing and supporting information that incorporates DRM, we choose to privilege a system that allows the publisher or vendor to intervene in the reader’s freedom of information use. It has become increasingly apparent that libraries must adopt a position on the issue of DRM and begin advocating for DRM-free information systems.

DRM: Definition and Issues

Digital rights management is the name given to a set of technologies used by publishers of digital content (like music, video, or electronic texts) to control the ways in which content consumers (like library users) are able to use information. DRM usually works by encrypting a digital object like an audio, video, or text file and providing some method for the user to decrypt it and use it only in ways specified by the publisher: perhaps only on a specific device, or for a set number of uses, or only on screen (that is, disabling printing or reading via screen reader software).

DRM is a form of cryptography, the process of protecting information from unauthorized use by transforming it so that only the authorized receiver can read it. The sender – in this context, the information vendor or provider – encrypts the digital object via a “key” of some kind. The recipient – the information user – may decrypt it for use with a copy of the same key, usually automatically. The information is protected from “attackers” – unauthorized users, or uses – who lack the key.
The provider treats the information user as authorized recipient in this scenario, providing her with the key (embedded within software) to read the digital object. It also treats the user as unauthorized recipient or “attacker,” however, by preventing those uses that the provider chooses to disallow. In essence, DRM treats the information user as attacker on her own computer, blocking uses of information undesired by the provider, regardless of whether the information object is legally owned and whether the use in question is otherwise legally permissible. (This is one reason why most DRM is usually cracked very quickly: in order to access the digital object at all, the vendor must provide the receiver with the object, the cipher, and the key, rendering all DRM schemes potentially vulnerable to cracking [Doctorow, “Content” 6-7].)

DRM may be applied by vendors and publishers to nearly any format of digital information. It is frequently used in digital audio and video, and is frequently designed to permit playing content only on specified devices or for a limited time. For example, DVD manufacturers employ a form of DRM called region encoding, in which publishers control when, and for how much, DVDs are released in different parts of the world by preventing DVDs from one region from working with players from another. Vendors of online research databases often implement controls that prevent copying and pasting of text from electronic articles.

I construct the question of DRM here with two sets of stakeholders: first, commercial providers of digital information to libraries such as e-book and database vendors; and second, users of that information as provided to them in turn by libraries. (This is a vast simplification for the sake of this particular argument, of course, and ignores other stakeholders such as content creators with whom libraries rarely have direct dealings.) In its present form DRM and the regulations surrounding it privilege the commercial providers at the expense of information users.

*The Digital Millennium Copyright Act of 1998*

Changes in how audiences interact with media cause copyright and fair use to take on a new importance in cultural life. Copyright law was originally written to apply to companies and publishers – “Big Content,” to use activist Cory Doctorow’s phrase – who had the means of mass copying and distribution, to protect them from unfair competition. What has changed in the twenty-first century is that now we all have those means. Thanks to the way computers and the internet operate, every content consumer now triggers laws never originally meant to apply to individuals. Every instance of accessing information online requires copying: from the host server to the destination computer and hops in between, and even internally on the user’s computer between memory and hard drive (Boyle 50-51). These copies are not theft, they are the result of routinely accessing information, and so copyright has become more important in daily information interactions because we constantly engage in behavior to which copyright could potentially apply.
DRM became a much more significant factor in digital copyright with the passage of the Digital Millennium Copyright Act (DMCA) of 1998. The DMCA is key because it upsets the carefully crafted balance between copyright owners and information users (more about this below). It also strengthens DRM (in legal code, not software code) by making it illegal to bypass.

Commercial interests have held a strong influence over copyright law for a century, beginning with the revision of copyright law with the Copyright Act of 1909: “Because the technical details were beyond the grasp of the legislature, representatives of industry were enlisted to help the copyright office draft the legislation…. This form of deliberation had become tradition by the time the DMCA came around” (Gimm 7-8).

Over time, the U.S. entertainment industry wanted greater control over copyright law. They lobbied for increasingly stringent international copyright treaties. By the 1990s these treaties exceeded simply punishing copyright infractions to actually prohibiting the circumvention of new anti-copying technologies. This lobbying process ultimately led to the creation of the DMCA in the United States (Von Lohmann and Seltzer 26).

The DMCA and harm to fair use

The doctrine of fair use dictates that certain uses of copyrighted material are legal and valid regardless of, and potentially in contradiction to, the wishes of the copyright holder. Fair use is, by definition, a use that the copyright holder has not authorized in advance (Erickson & Mulligan 993). These uses may include criticism, comment, classroom exhibition and creating derivative works, and fair use distinguishes between commercial and noncommercial use. The exact parameters of fair use are intentionally left ambiguous to render them subject to human judgment on a case-by-case basis (Gillespie 59).

DRM restrictions, on the other hand, are enforced by computers that cannot serve up case-by-case judgments. Copyright law is not easily reducible to code, and “only those policies that can be reliably reduced to yes/no decisions” can be successfully decided by pre-programmed logic (Erickson & Mulligan 992).

Under the DMCA it became illegal to circumvent technological measures like encryption and DRM, even if the circumvention is undertaken for a legal fair use (Boyle 87). A library user with a physical book can use her own judgment to determine whether photocopying some or all of it is reasonable and defensible as fair use. If that same user has an electronic edition of that same title, the publisher may use DRM to remove the user’s determination from the equation: attempting to bypass DRM to make a similar copy is illegal under the DMCA, solely because of the electronic rather than physical format. (One analysis of the debate framing the DMCA’s passage indicates that legislators tended to side most often
with content providers rather than user advocates or other stakeholders [Maxwell 11]).

But at least the e-book user might have the option of resorting to a paper edition free of restrictions. For purely digital media like audiovisual materials there may be no such equivalent. A professor who wishes to excerpt a collection of video clips to show as part of a class discussion would likely be covered squarely under fair use. However, if he uses DVDs encrypted with DRM from the university library as his source material he is breaking the law. Even if he obtains permission from the films’ rights holders to use the clips, the use is illegal because he may not legally bypass the DVD encryption. “Under the DMCA, legality doesn’t depend on how the copy will be used but rather on the means by which the digital content is copied” (Von Lohmann and Seltzer 26).

The combination of the DMCA and DRM can make a crime out of an otherwise legal information use. “[O]ne must not only have a fair use right to use the material but one must also have the permission to gain access to the work to make a fair use of it in the first instance…. It is as if the landowner is allowed to…erect a locked gate across the public walkway or point of access leading to the park or public space. Even if one ‘sneaks’ over the fence to make a lawful ‘fair use’ of the land, the law will still see harm in the act of fence hopping” (Lipinski 829-830).

Every use of a digital work involves copying in some way: copying from a web server to a browser or from a hard drive to RAM, for example. This renders every use of a digital work subject to copyright as enforced by the provider’s DRM, and “the definition of piracy has been altered such that every incidental, automatic ‘copy’ made in the random access memory of home computers is now included as potentially infringing” (Gimm 16). The degree of control that DRM enacts upon digital works, however, is far greater than the equivalent restrictions that copyright law enacts over physical works (Lessig 99). This can effectively make fair use of some materials impossible for the average user: since the code is the arbiter of what uses are authorized, there is no venue for them to “challenge the code” and exercise fair use in defiance of the DRM (Erickson & Mulligan 994).

Users, consumers, pirates?

By changing the terminology used to describe computer-related actions, copyright owners control the discourse. Thus, sharing becomes stealing. Creative work becomes private property. Corporations become victims of piracy (Halbert 101).

Entertainment industry (that is, information provider) heavyweights like the Recording Industry Association of America (RIAA) and Motion Picture Association of America (MPAA) have taken great pains to construct scenarios of the dangers of the internet and unfettered copying
They have lobbied for stricter copyright controls that favor the producers of digital information at the expense of consumer rights by consistently casting new technologies in the good-and-evil rhetoric of crimes like theft and violence. Initial examples of this include former MPAA president and CEO Jack Valenti’s comparison of the then-new VCR to the Boston Strangler (Boyle 109). The content industry’s favorite metaphor, however, one that has become so common that we forget that it is a metaphor, is that of piracy.

In support of technological measures like DRM and legal measures like the DMCA, the entertainment industry and legislators co-opted the term “pirate” decades ago to describe those who violated intellectual property and copyright law. The strategic and calculated framing of IP infractions as “piracy” is a scare tactic that bears some examination. EFF attorney Fred von Lohmann argues that “the term ‘pirate’ is misapplied to the kinds of activities that go on in digital networks among everyday users” (Postigo 1016).

Literal piracy refers to crimes of theft, usually accompanied by violence, committed in transportation vehicles. The term pirate has been applied to many different contexts that make use of its frightening connotations to support legislation like the DMCA, to the sole benefit of information providers. Metaphorical acts of “piracy” that involve violations of intellectual property law “obliterate the differences between stealing, all forms of copying and pirating ... ‘[P]iracy’ has been applied to violent acts across transportation vehicles and to virtually every communication medium” (Gimm 15-16).

The use of piracy as a metaphor for intellectual property infractions is not new. “[P]reviously unrelated, undesirable activities were labeled a form of piracy. In fact, metaphoric use has always been, by and large, limited to the realm of communication law. The reason has everything to do with some of the first people to invoke the metaphors being printers” – information providers, not users. “A quick glance at the historical record shows that the pirate metaphor was resurrected each time a new communication technology encountered the threat of copyright or licensing infringements” (Gimm 11-12).

The term piracy carries implications that the entertainment industry has used to its advantage in the debate surrounding the DMCA and similar legislation: theft, violence, and foreign threats. This represents a strategic and calculated framing of language.

Framing copyright infringements in this way is to use “theft” to describe an act that does not involve stealing as it has ever been historically understood. Content owners have used this framing for legal influence. For example, ReplayTV was an early competitor of the TiVo, manufacturing digital video recorders capable of skipping commercials and transmitting recorded programs to other devices. Jamie Kellner, former CEO of Turner
Broadcasting System Inc., called skipping commercials “theft” and in a lawsuit involving 28 major entertainment companies, sued ReplayTV for copyright infringement in 2001. The company went bankrupt and its successor settled the case by removing these two features from future models of the ReplayTV device (Von Lohmann and Seltzer 26). Opponents of this framing point out that the theft metaphor breaks down because unlike real property, IP is “an infinite resource, infinitely replicable” and in giving away an idea, the original owner is no poorer (Postigo 1013).

The piracy metaphor also implicitly defines the problem of infringement as crimes primarily committed by foreigners against the United States, allowing advocates to use the DMCA as leverage to enact international enforcement (Gimm 22). United States trade negotiators have pressured Canada and several other countries in Europe, Asia, Latin America and elsewhere into adopting copyright laws similar to the DMCA as a requirement for trade agreements with the U.S. “U.S. entertainment companies are successfully spreading the copyright code changes established by the DMCA around the world.” (Von Lohmann and Seltzer 26).

**Valuing vendors over users**

It is to the advantage of those who sell information – publishers and vendors – to limit the ways in which that information can be accessed and used: on a single device, for a limited time, in limited ways. They can maximize profits by rendering a plentiful commodity, information, artificially scarce. It is to the advantage of those who use information – library users, among others – to have information in formats that are platform-agnostic and free from restrictions. This allows them to use information on their own devices to best suit their own needs.

This tension renders these two stakeholders in opposition to each other with regard to free information use. Libraries stand as middlemen between them. We usually serve as the only point of contact or negotiation between vendors and library users. Users have no opportunity to advocate with information vendors on their own behalf, and may not even know the issues at stake. One obligation of our role as information professionals is to serve as informed advocates and take the part of the library user in this conflict of interest.

Publishers argue that because accessing digital information typically involves making a copy (usually downloading to the user’s computer from a vendor’s server), they are justified in exerting greater controls over the use of that copy than they could place on the equivalent physical work (Eschenfelder 207). As a result, DRM frequently has the net effect of preventing users from freely making use of information they have legally purchased, or legitimately accessed via their library. Civil liberties organizations such as the Electronic Frontier Foundation also fear that DRM serves as a means to erode users’ fair use and other rights (Nisbet).
Copyright out of balance

New media scholar Hector Postigo cites protection, incentive and balance as three “historically enduring themes” used by policy-makers and copyright owners in constructing copyright (Postigo 1011).

*Protection* is the theme of increasing protection in copyright law against the making of illicit copies. Copyright holders have used this argument to construct consumers as thieves and pirates on the assumption that if they *could* make improper copies of digital objects (a process that only gets easier and easier over time) they *would*. This assumption becomes a greater problem as users use digital tools to create and remix in addition to passively consuming media (Postigo 1012).

*Incentive* is the argument that changes in copyright law should favor the production of more intellectual property: copyright is, after all, intended to promote creation. Unfortunately copyright owners have used this law to convince lawmakers to increasingly circumscribe the privilege of fair use. Since the DMCA legally protected DRM, fair use is no longer guaranteed and can be negotiated away in license agreements accompanying digital media (Postigo 1012).

The *balance* theme states that copyright holders’ rights should maintain a balance with the rights of the public, and that changes to copyright law should not disturb this balance. Copyright has always been a system that grants certain rights to the intellectual property owner but reserves other ones (notably fair use) to the user of the IP. “It has been widely accepted by legal scholars that whatever balance in copyright there was prior to the passage of the DMCA has been disturbed in favor of copyright owners” (Postigo, 1011).

Copyright law increasingly frames ownership of IP as an absolute, as total control, with fair use a loophole limited by the circumstance of whether the information user can happen to get physical access to the media in question. “The question is whether the Congress has the power to add a new right of access-denial to the intellectual property monopoly it is constructing, undermining – as to some works and some fair uses – the balance that the law sets up” (Boyle 108). By passing the DMCA, Congress established a new intellectual property right in favor of copyright holders: “a law aimed directly at expression, that made it illegal to get access for the purpose of making fair use *even when you legally bought the physical book, or the physical DVD, and now wish to quote it or parody it...*Congress had now, by law, allowed a copyright owner to distribute a particular work *with the exclusive rights but without* some of those limitations” (Boyle 95-96) [emphasis in original].

This issue of balancing copyright holders’ rights and information users’ rights is perhaps the most critical one for libraries’ mission of providing access to information. The British Library has published a manifesto
explicitly addressing the question of copyright balance and the challenges to libraries presented by recent developments in digital copyright. They note recommendations for change beginning with “Digital is not different,” discussing the danger of erosion of users’ rights to use digital content in the same way as the physical equivalent, and the threat DRM poses to “Fair Dealing,” the British analogue of fair use.

**DRM and search tools**

Many library users find online research tools difficult enough to use under ideal circumstances. DRM measures implemented by vendors of research databases often make the situation worse. Libraries often provide users with information discovery tools that cripple or disable standard behaviors of their computers. Some forms of DRM, particularly for text resources such as licensed e-resources, use a range of restrictions that make common uses like copying, pasting, printing and saving intentionally difficult to use (Eschenfelder 206). For example, e-book vendors may discourage printing too much text at once by forcing users to access the material in small chunks, or disable standard context menus to prevent use of the clipboard copy feature (Eschenfelder 209, 213).

License restrictions like these provide barriers to our users on a regular basis. Adding to this mix DRM that purposefully disables the behavior of standard functions confuses and discourages information seekers still further.

**Users with disabilities**

DRM is especially problematic to users with disabilities. Publishers of e-content often apply DRM that makes it incompatible with compensatory technology like screen readers. Adobe and Microsoft build DRM technology into their e-book software that allows publishers to disable text-to-speech capability, making the content useless to visually disabled readers (Kramer).

In early 2009, publisher Random House and the Author’s Guild convinced Amazon to activate a feature of the DRM in its popular Kindle e-book reader, disabling the text-to-speech function on selected titles. This feature allowed the Kindle to read electronic books aloud, a useful feature for those with visual or textual handicaps. Amazon disabled the feature on the disputed titles, remotely and retroactively downgrading the functionality of the Kindle device. An ALA representative recently testified to the U.S. Copyright Office that this represents a case in which DRM has negatively affected the access of disabled persons (Terry).

**Audio books**

Library users who check out paper books are free to read them anywhere they wish. Library users who check out physical copies of audio books –
on CD, for example — are free to listen to them on any player: in their cars, at home, on a portable player, and can move the content between devices freely. One of the advantages of digital online audio books is, theoretically, convenience, but thanks to DRM the user who checks out a downloaded audio book online has by far the fewest options for using the information. The Dekalb County system in Georgia, for example (the author’s public library), offers downloadable audio books from NetLibrary, one of the largest vendors of library e-books. NetLibrary provides audio books in a mixture of formats. Some are Windows Media files with DRM that renders them unplayable on iPods, the audio device used by a vast majority of personal media player owners. Some are MP3 files, which will play on nearly any device (NetLibrary). This confusing mix of formats and restrictions means that the user must not only locate the book she wants, but sort out which books can be used on her device of choice.

DRM that restricts hardware playback is usually only compatible with one kind of hardware, forcing libraries to made a decision about which type of devices to support. Most people use more than one device in their daily lives — a laptop, a desktop, a work computer, a smartphone, a portable media player — and libraries should strive to provide content that will work with as many of these devices as possible.

One-source devices

A recent trend in personal media players is the “one-source” device model. A device that uses electronic content like books or music is often designed to work (either solely or most easily) with content created by a given vendor, usually the device’s manufacturer. These devices can lock the customer (individual or library) into a near-monopoly relationship with that vendor. The first problem is simply that it is difficult or impossible to purchase content from other sources. The second is that once the customer has invested a collection of media for the device she cannot change to a different hardware platform without losing access to that collection. DRM usually renders media content unusable on other devices: imagine if audio CDs would only play on one brand of CD player, and libraries could not buy another brand of player without losing the use of all their collected CDs. “[T]o the extent that it imposes restrictions on the access, portability, and use of legally bought digital products, DRM may also reduce the value of such products for consumers...[T]he most limiting restriction for consumers [is] the requirement of limiting songs to only one device and that this lowered utility for all consumers” (Sinha, Machado and Sellman 42).

This model is potentially dangerous to freedom of information because it allows the vendor to act as gatekeeper for information with little accountability. Users have little or no recourse when the vendor chooses to block or disable a given use of the device.
For example, the Apple iPhone has only one source for available software, an online repository called the App Store. Users can only install programs (free or commercial) that Apple has approved for inclusion in the App store. In 2009, a programmer named James Montgomerie created an iPhone program called Eucalyptus to access the free Project Gutenberg archive of public domain books. Apple rejected Eucalyptus because it permitted viewing of what it considered inappropriate content: the Gutenberg text edition of the *Kama Sutra* (von Lohmann). Note that Eucalyptus contained no e-text content of its own; it simply provided access to an online collection of e-books. This is the equivalent of denying permission to install a web browser because it could potentially be used to view sites that your computer’s manufacturer finds inappropriate.

Apple did eventually relent in the case of Eucalyptus, perhaps because of the negative publicity the incident generated, but their App Store remains the sole source for content for the iPhone. The vendor, not the device’s owner, decides what may be installed on an iPhone. Apple maintains that users who attempt to install any other software on their iPhones violate the DMCA (Hayes).

This is just one example of many similar devices on the market. Amazon restricts its popular Kindle e-book reader to only allow online purchases from Amazon.com. The Kindle does allow users to load their own texts in other formats like PDF, but retains DRM-based controls on books purchased from Amazon. In 2009 Amazon used a previously unrevealed feature to remotely delete Kindle editions of George Orwell’s *Animal Farm* and *1984* from customers’ devices. A high school student sued Amazon after his homework notes, kept on the Kindle, were rendered useless by the deletion (Kellogg). Amazon has not informed customers what other remote applications of its DRM may be possible.

**Obsolescence and Preservation**

Libraries and archives that deal with electronic formats have long been concerned about the problem of format obsolescence, information that becomes inaccessible because it cannot be read by modern hardware. DRM harms long-term prospects for preservation of digital information by making content difficult, impossible or illegal to copy or convert. It is “rarely designed to allow for ‘fair dealing’ and legitimate library uses and often impair[s] successful preservation in the long term by preventing any copying or software updates....Preservation necessarily involves making copies of content, if only as a backup or to mitigate against wear and tear, and perhaps migrating them from one medium to another (“format shifting”)” (Gibby and Green 67).

Because DRM is typically tied to one specific vendor, access to data encumbered with DRM is often limited by the lifespan or business decisions of that vendor. When a digital media company goes out of business or...
decides to discontinue or change its DRM practices its customers may suffer loss of access to their digital files.

Figure 1: This comic concisely and bluntly points out the disadvantages of owning media files encumbered by DRM. “Steal This Comic” by Randall Munroe, http://xkcd.com/488/

This can happen even when the provider ceases to use DRM and moves to an unencumbered format. In 2008 Walmart discontinued selling DRM-encrypted music files and began selling DRM-free content. When the company shut down its DRM authentication servers, it emailed all customers who had purchased music in the previous format informing them that it would no longer support access to those files. Customers were advised to rip their files to CD before the DRM’s expiration date to avoid losing their music entirely (Doctorow, “Wal*Mart”).

Loss of access may even be out of the hands of the vendor. In early 2009 the e-book company OverDrive ceased doing business with the consumer e-book vendor Fictionwise, cutting off access for customers to previously purchased OverDrive e-books with DRM. Fictionwise made an effort to provide its customers with access to lost titles via other vendors, but
in many cases no substitute for the OverDrive content was available (Fictionwise).

To date this scenario has mostly affected purchases from information vendors by individual consumers, but it could happen as easily with library vendors. OverDrive, for example, does provide e-books and audio books to libraries as well as to consumers.

Action and Opinions

*DRM makes solving many of these problems both legally and technically impossible. For example, libraries have the right to circumvent DRM for a work in order to evaluate whether they want to purchase it. However, they cannot do so without the software tools to crack the work’s DRM protection. But the distribution of those tools is illegal under DMCA* (Bailey 125).

The difficult question is what librarians can do about it. DRM is, at present, a solidly entrenched aspect of a great deal of online digital content. Realistically, we cannot simply refuse to purchase any DRM-encumbered content for our libraries: this would cut off our users entirely from much of the content they want and need. On the other hand, it represents a significant usage barrier. “DRM changes the fundamental relationship between the creators, publishers, and users, to the detriment of creators, users, and the institutions that serve them. DRM, if not carefully balanced, limits the ability of libraries and schools to serve the information needs of their users and their communities in several ways” (American Library Association).

I see two ways in which librarians can best approach the problem of DRM. First, we must help to educate our users as consumers of information. Whether they realize it or not, they regularly encounter DRM throughout their online lives, and as information professionals we owe it to them to help make them aware of the issues. Part of the DRM strategy is to change users’ perceptions of culture and technology, to encourage them to adopt a passive attitude toward using information content. “Those who design and deploy DRM systems tend to think of culture as something to be sold and consumed; fair use, remaking, tinkering and critique are outside of the paradigm within which they understand what they do” (Gillespie 227).

We should inform users that the library does not impose DRM restrictions on the content we offer, but that often we must agree to the restrictions in order to be able to provide online content at all. We should emphasize which collections are compatible with the widest range of devices and operating systems, and explain that we are not always able to offer content compatible with every system. (For example, for several years there were no vendors that sold Apple-compatible audio content to libraries.) In the absence of a DRM-free library vendor, we should encourage users to utilize for-pay vendors that do not use DRM as an alternative: for example,
Amazon.com now sells DRM-free audio content. Users that are better educated on the issues will come to see the library as their ally, not as an information obstruction.

Second, libraries are the primary customers of many vendors that sell DRM-encumbered information. We must vote with our wallets by voicing our problems with DRM to vendor representatives when we negotiate contracts, and by supporting companies like Springer and BWI that offer online content without DRM (Houghton-Jan 54). Publishers and vendors do respond positively to customer concerns about DRM: Knovel and Referex, among other vendors, have removed DRM systems in response to library and user complaints (Eschenfelder 218).

Information vendors are not evil. They are in business to make money, and they see DRM as one way to protect their means of income. But on this issue, libraries should take a stand against the pro-DRM stance of many of the companies we deal with, and ally ourselves with anti-DRM and pro-fair-use activist movements like EFF and Defective By Design to advocate for open, freely usable digital content.

A significant part of our role is to serve as an advocate for the user’s unhindered access to information, and when we do nothing to protest unreasonable DRM restrictions we implicitly give our consent. That puts us on the wrong side of the debate: that of the vendors, not that of the library users for whom we should be advocating.

References


