# Ethical Issues of DRM

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Digital Rights Management (DRM) is a technology that attempts to manage access to digital content. Through DRM, copyright holders and publishers attempt to control copying, viewing, distribution and access to digital content.

In this essay, I will examine the ethical issues surrounding the employment of DRM methods as well as evaluate the effectiveness of DRM practices at achieving their intended purposes, through a brief history of DRM and various case studies where DRM use and/or circumvention has caused ethical controversy. I will then propose require which I believe DRM implementations must satisfy in order to be considered ethical.

Publishers and content creators believe that DRM should be used in order to reduce piracy and unlicensed consumption / copying of the content they create/distribute.

For as long as creative content has existed, people have had motivation to create copies of such content, whether it be for monetary profit or otherwise. The 20th/21st century advent of widespread digital computers and the ubiquity of internet access in the western world, has allowed such copying to be not only widespread, but easy, fast and robust.

As an example, when magnetic tapes were the dominant format for music publishers to distribute the content of artists, special machinery (another tape and a device to record the sound) was required to copy the music from this tape. Due to the analog format, the copy was not a robust copy and the time taken to make at least 1 copy, was the amount of time taken to play the original tape. Means of distribution also had to be physical as the internet did not exist at this point in time. To pirate (copy and distribute for profit) a piece of music, required significant time and investment.

With the advent of the internet, the digitisation of media and ease of mass digital distribution in the late 20th century, the cost of piracy was in essence completely nullified. Artists and publishers believe piracy represent a significant threat to their ability to control copyright, distribution and profits from their intellectual property. The common argument being that if a user may receive an item of digital content for free due to piracy, why would they wish to pay for it to receive it from a legitimate source?

As such, the concept of Digital Rights Management evolved as a means to control the use, copying and distribution of digital content after sale to the consumer with the belief that this would allow publishers and content creators to reduce piracy of their copyrighted content and enforce the content is used as licensed to the consumer. DRM essential evolved from early copy protection methods. Examples of such methods include the copy protection of the game "Lemmings" which would ask you to enter a series of codes which were distributed with the game's manual before you were allowed to play and assumed that it would be infeasible for pirates to copy and distribute large game manuals. Other copy protection schemes include hardware decryption keys such as those used in DVD and Bluray players.

DRM is now commonly employed as a means of access control. Examples include Apples iTunes ACC format which originally only allowed the user to play music purchased from apple on apple branded devices. Similarly Amazon employed DRM in order to force the consumer of their Amazon published eBooks to only be able to view the content on Amazon branded devices.

Proponents believe that digital content must be locked down and controlled for the benefit of copyright holders. As the intent of copyright law is to provide incentive for artists and publishers to create and publish creative content, DRM exists to provide incentive for artists and publishers to create and publish digital content despite the lack of barriers to piracy and unlawful distribution of such content.

DRM is conceptually noble. It aims to benefit artists and reduce digital piracy. Its implementation however has been historically blotched, in almost all cases completely failing to prevent piracy and in reality often punishing legitimate consumers. It also has the potential to be misused, as in many cases it has, in order to secure monopoly control of digital content, or to reduce the rights of consumers for example. DRM that prevents consumer copying cannot distinguish fair from unfair use and therefore restricts legal rights of consumers by design.

It must also be noted that there is no evidence that DRM generally achieves its purpose of reducing digital piracy. There are very few forms of DRM that remain uncracked or effective for significant periods of time. There are many reasons for this. Each new DRM mechanism is seen as a challenge for crackers, and thus many forms of DRM are circumvented merely for the challenge. All forms of digital content also suffer from the "Analog Loophole". In order to be consumed, the digital audiovisuals must be converted to an analogue form. DRM has no control over the content in this form, and as such, all non-interactive content DRM may be bypassed by this method. At first it appears that this method should suffer from a loss of quality as with the historical example of magnetic tape copying, however, it is often trivial to record pure digital signals from audio and video cards within the machinery itself. Due to this, corporations are increasingly trying to restrict and manage consumer use of hardware and software after sale (an example being the case of Sony V Geoffrey Hotz, a hacker who hacked his PlayStation 3 in order to reactivate a feature which was artificially disabled by Sony in a firmware update [23]). Mathematical models in fact suggest that DRM mechanisms do little to decrease piracy and in many cases actually increase the level of piracy, and decrease legitimate sales.

> "Our analysis suggests that, counterintuitively, download piracy might decrease when the firm allows legal DRM-free downloads. Furthermore, we find that a decrease in piracy does not guarantee an increase in firm profits and that that copyright owners do not always benefit from making it harder to copy music illegally"
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> - Music downloads and the flip side of DRM, Dinah A. Vernik et al [3]

Many forms of DRM also use personal information in order to authenticate digital rights. This carries its own ethical dilemas and quandaries which I shall not discuss in this essay. Many forms of DRM (Starforce, MediaMax, SecuROM) are indistinguishable from common malware and spyware in the ways they operate on a consumers computer and are often classified as such by virus scanners. I have included many case studies and evaluations of various forms of DRM.

Foundations such as the Electronic Frontier Foundation and the Free Software Foundation believe that DRM practices infringe the consumers rights beyond the scope of any copyright laws through and that DRM is abused far too much as a tool for anticompetitive practices, such as device lock-in, regional or individual price fixing and monopolistic practices. [4]

FairPlay is a DRM technology created by Apple in order to regulate consumer download and consumption of music to designated Apple branded devices. The EFF accuses Apple of attempting to gain a monopoly on the downloadable music industry through anticompetitive practices. Due to consumer demands, Apple eventually began selling DRM free works in their iTunes store at a premium price. The EFF and many others consider this premium as a form of extortion towards paying customers. As of present, Apple has completely phased out DRM in their iTunes store. [5]

According to the EFF,

> "FairPlay is bad for everyone besides Apple. Useless to copyright owners, irritating to legit customers. So, when you think about it, Apple's warm embrace of DRM here is every bit as reprehensible as Lexmark's effort to use DRM to eliminate inter-operable printer cartridges and Chamberlain's effort to use DRM against replacement garage door clickers."[5]

Games publishers such as Electronic Arts, Ubisoft and Blizzard have used "Always-Online DRM" to control piracy in games which they have published. The concept is that in order to play the game, you must be continuously connected to the internet as at any moment, the game may validate itself with the server to ensure the copy of the game is legitimate. These techniques caused controversy as not only did they fail to stop piracy (cracked versions of the respective games were almost immediately released [26]) but the servers of all three publishers, could not handle the sheer amount of legitimate user traffic generated by such schemes. As such, may legitimate users were locked from the services for days, or had their experience vastly reduced by the DRM implementation, whereas illegitimate users, had no such qualms. Electronic Arts denied legitimate consumers refunds, as the consumers had agreed to the consequences in Electronic Arts terms of service.

The company Amazon created controversy when it forcibly removed eBooks that legitimate users had purchased and refunded the users automatically because the specific eBooks in particular, violated Amazons terms of service and as such, should not have been saleable in the Amazon Kindle store in the first place. Because users had agreed to Amazons terms, they maintain that their actions were perfectly legal [17]. This raises the question as to how far companies should be allowed to go in terms of the control they have over their consumers purchases. If Amazon was to go bankrupt, would all Amazon purchases be made inaccessible since the service has been terminated? This has already happened in many cases. For example, after the shutdown of the Yahoo Music Store on 30th September 2008, the DRM licence servers were taken offline and thus any music purchased from the yahoo store could not be validated [25]. Yahoo suggested the users burn the content to a CD and then rip the CD, essentially providing a workaround for their own DRM for legitimate customers which was already utilised by pirates.

Forms of DRM such as Starforce DRM and Sony BMG's MediaMax DRM caused controversy when they were discovered to be discretely installed on the users machine via a video game install or a Sony BMG music CD, and hidden from the user much in the same way (and using the same techniques to achieve this) a root kit or malware is hidden. [14]
Starforce installs itself as a ring-0 kernel level device driver, which allows it to monitor CD usage on Windows computers. It attempts to monitor CD usage in order to detect copying of specific CD's and cause a system reboot if thats the case, regardless of what else the user is doing. It is also reported to cause terrible system instability and in some cases, hardware failure, particularly of the CD drive.
MediaMax instead installs itself invisibly on the users system when the user plays specific Sony BMG CDs. It then sends data about what CDs the user plays on their system and when to SunnComm servers. Essentially it acts as spyware, invading the users privacy without their explicit consent.
Both these technologies violate users confidence and install and hide themselves using common Windows malware and spyware techniques (they are often detected by antivirus software), invade their privacy without explicit consent (the software itself is neither detailed in the installation process nor the licensing agreement), are notoriously difficult to remove, let alone detect (they are not removed with the software they were installed with and must be removed with specialised removal tools from third parties), and may damage the users hardware and degrade software performance. [10] [11]

As a publisher, copyright holder or software engineer, it ethical to implement DRM mechanism such as those that exist? I will evaluate this question from a Kantian perspective, Utilitarian, act consequentialist and rule consequentialist perspectives.

For this to be true from a Kantian perspective, it must be possible for it to exist in its current state as a universal ethical law and that implementation of DRM must treat the consumer as an end and not simply a means (first and second categorical imperative). I propose that the implementation of DRM in its current manifestation cannot exist as a universal ethical law as it is clear through example that it can too easily be manipulated by corporations such as apple to gain market advantage through consumer lock-in. I have also shown that DRM removes the consumers rights especially when it comes to fair use. We are also not treating the consumer as a rational being who can determine through rationality, the proper fair use of the content in question. This treats the consumer not as an end in themselves but simply as a means. Limiting the use and consumption of content to paying and authorised customers is not itself unethical, however, if for the implementation of DRM to exist as a universal law, the consumer must retain all rights and freedoms. It can be seen that this is not the case with DRM as it is currently implemented, as DRM cannot ensure the consumer will retain fair use of the content. We can thus see that from a Kantian perspective, implementation of DRM is unethical.

From a Utilitarian perspective, the implementation of DRM is unethical, as DRM, from example, has negatively impacted legitimate customers whether it be through corporate manipulation, restriction and violation of rights, property damage, loss of content, or simply a degraded consumer experience, and it has simply failed to reduce digital piracy. By this reasoning I propose that not implementing DRM produces more happiness overall than implementing DRM. From this perspective however, piracy must be considered as ethical, as it produces a greater overall happiness to more people than the absence of piracy. From a rule consequentialist perspective, if the rights of consumers are removed in favour of the happiness of copyright holders, then the happiness of the consumers will decrease because the rights of many must be sacrificed for the happiness of the few. Since DRM is not effective and countering digital piracy, I believe that the overall utility of the copyright holders would also be diminished.

For DRM to be implemented ethically it must not negatively affect legitimate consumers in any way. This includes restricting the consumers legal rights such as fair use and it must not damage the consumer or the possessions of the consumer in any way. The content must also not be better with the DRM mechanisms removed or improved by removing the DRM mechanisms. The DRM must also respect copyright and should never lock legitimate users from their purchased content, even if the company responsible goes out of business. The DRM software itself must also be known to the user in advance and clear to the user that it is will be used before sale, and the user should be able to remove it with the removal of the DRM content. DRM must also not invade the privacy of the users in any way. DRM itself is also only useful if it actually helps to prevent digital piracy and protect copyright. In this regard, almost all forms of DRM fail. DRM must also be format agnostic, if a format becomes obsolete, it is a companies responsibility to maintain customer access regardless of format. I do not believe that any DRM mechanism will be able to feasibly satisfy these requirements and I have not found a single implementation of DRM that does.

Overall I believe the use of DRM mechanisms in software and digital content is unethical, and the requirements to make it ethical impose extra and infeasible responsibilities upon publishers and content creators. Due to the fact that scientific evidence shows that DRM mechanisms do not satisfactorily perform their indented function, it is a waste of resources to implement them. Past actions of DRM implementors show that DRM is all too easily used to manipulate markets and consumers to corporate

advantage. I believe that software services such as Spottily prove that software as a service is a viable business model which is able to provide the consumer with a quality service which does not violate their consumer rights and simultaneously satisfies copyright holders and thus stand as a viable alternative to increasingly intrusive DRM mechanisms.

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