

Digital Rights Management & its Consumer Concerns

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Abstract—With the advent of e-technology, almost everything we do or live off is digital. But this huge expansion of digital world had an evil concomitant in the form of theft and piracy. To combat piracy companies introduced Digital Rights Management or DRM but this also has severe side effects, consumer inconvenience being the most notable amongst them. Also, DRM technologies have hindered consumers to enjoy their basic consumer rights and have restricted traditional usages (like copying, sharing). This paper analyzes the problems faced from the points of view of both copy-right holders, which introduces DRM and the consumers. We also have discussed the need of DRM as well as the extent to which consumer rights are significantly affected by its introduction. Further we have attempted to provide a solution which can take care of both sides to great extent.

Keywords— *Digital Rights Management; DRM; Piracy; Copyright*

I. INTRODUCTION

Digital Rights Management (DRM) is anti-piracy technology that restricts the use of digital files in order to protect the interests of copyright holders [1]. It is a term associated with the set of technologies deployed by companies to prevent digital contents from unauthorized usage. DRM technologies can restrict users to print, copy, alter, save, and restrict usage for a period, number or length of view-time.

These techniques may be embedded within the operating system or in the hardware of any device. DRM approaches can be broadly classified into two, containment and marking. The containment approach refers to those DRM systems which use encryption of content to protect it from unauthorized usage. "Marking" is achieved

by placing a watermark, flag or an electronic tag on content which signals the hardware that the content is copy protected.

Although DRM does come in many different forms, it usually has four common stages: packaging, distribution, license-serving, and license acquisition [2]. Packaging is when DRM encryption keys are built right into the software, the music file, or the movie file. The packaged file can be placed on a Web site for download, placed on a media server for streaming, distributed on a CD, or e-mailed to consumers. License Serving is where specialized servers authenticate legitimate users through an Internet connection, and allow them to access the DRM files. Simultaneously, license servers lock up the files when illegitimate users try to open or copy the files. License Acquisition is where legitimate customers acquire their encryption keys so they can unlock their files.

II. CONSUMER CONCERNS

DRM systems can prevent the anonymous consumption of content. DRM systems could lead to a standard practice where content owners require all purchasers of media to identify themselves. In other areas where individuals can borrow or purchase media, such as video rental stores or libraries, statutory and ethical protections prevent the transfer of personal information linked to the content acquired. Such protections do not exist in the music and growing electronic book markets. In these unregulated areas, artists and authors may have more difficulty in finding an audience for their work because of the privacy risks associated with linking identity to content consumption [1].

□ Access to and usages of content

Consumer organizations also took the impact on civil rights when by pointing to the risk that DRM systems have the potential to control who gets access to content and manner in which it is used, thereby endangering journalistic investigation, commentary, and other freedom of speech. Additionally, there were demands that public access to digital (DRM-protected) content should be ensured for informational, educational and cultural purposes [8].

□ Privacy

Some DRM technologies have been developed with little regard for privacy protection. The systems usually require the user to reveal his or her identity and rights to access protected content. Upon authentication of identity and rights to the content, the user can access the content.

□ Transparency and Fair Contract Terms

Statutory and Common Law interpretations of copyright law afford individuals "Fair Use" rights. Fair Use provides a defence to individuals who engage in an unauthorized use of protected content. It is impossible for DRM systems to incorporate Fair Use principles because they are difficult to define, and evolve over time. Fred von Lohmann of the Electronic Frontier Foundation has argued that for DRM to recognize Fair Use, engineers must be able to program a federal judge onto a computer chip.

Fair Use allows individuals to interact with content to promote cultural production, learning, innovation, and equity between content owners and consumers. Fair Use includes libraries' and educators' rights to provide content to users, the right to sell physical copies of certain content that one acquires lawfully (the "First Sale" doctrine), and the ability to make a backup copy of software and music. No DRM scheme developed affords users these rights[1].

□ *Interoperability*

Portability of DRM-based products on different devices and their flexible use depends on the interoperability of infrastructure, concepts, specifications, contracts etc. Also for the realization of the concept of super distribution, which means the authorized forwarding of content to other end-users, interoperability between masses of different hardware and software systems is required. The considered consumer organizations emphasized the need for interoperability in order to use content on different platforms and devices, also to avoid vendor lock-in. In general, similar to many other basic software or ICT standards and protocols also DRM systems could be created and established as closed systems and leave competitors with incompatible products [8].

□ *Security and Hardware Issues*

DRM enabled content may change the security settings of the Operating System without even the consent of the consumer - a clear example of security breach by DRM. Consumer organizations demand that DRM should not interfere with the internet and security settings of the Operating System. Furthermore some DRM technologies are Operating System Dependent, For instance some digital contents cannot be run on Linux specifically due to the restriction caused by the DRM.

□ *Product Diversity and Pricing*

In addition to preventing anonymity in access to digital information, DRM can be used to facilitate profiling of users' preferences or to limit access to certain content. This is done by assigning an identifier to content or to the content player, and attaching personal information to the identifier. For instance, Microsoft's Windows Media Player has an embedded globally-unique identifier (GUID) to track users. Similarly, Microsoft's eBook Reader requires the user to "activate" the software and link it to a Passport account. From there, Microsoft captures a unique hardware identifier of the user's computer. There is also an activation limit that can stop a user from transferring an eBook to other computers. This enables Microsoft to prevent users from sharing books or from reading a book on a different machine. Also, Windows Media Player creates a log file of the content a user views, and "phones home" to a central server to obtain content titles. These technologies mark an important development in the use of copyright law: copyright can regulate duplication of works to protect content owners. Now, copyright is being used as a justification to both protect content and to profile the consumers of content.

Linking personally-identifiable information to content may result in "price discrimination." Price discrimination is the practice of selling an item at different costs to different consumers. It can be facilitated where the seller knows the consumer's identity, and can associate the identity with a profile that includes financial information on the consumer. DRM systems may enable content owners to control access to content, but also to adjust the price of content based on the consumer's identity [1].

□ *Library & Knowledge Preservation Concerns*

The primary issue of Libraries is not much with DRM but with its policy which re-strict libraries to share knowledge and resources freely. It completely changes the outlook and working methodology of libraries. DRM limits their working in the following ways:

[1] *First Sale Concept*: It hinders the first owner to share the content (even without making a copy), CD, Music etc. with anyone else, even friends. This restricts the libraries to share/rent its resources.

[2] *Time Limits*: DRM induces the technology which removes certain rights/content after a certain period of time. It implies that even after paying, the user is restricted within a time frame. The fundamental objective of libraries is to preserve knowledge and with DRM, it seems very restricted in its objective.

□ *DRM is a Threat to Open Source Software*

DRM schemes and laws that require embedding copy protection into devices endanger the development of open-source software. Open-source software developers rely on reverse engineering to write programs that can interact with hardware. This practice is illegal under the DMCA[9].

III. WE WITHOUT DRM

DRM may have the potential to destroy society's part of that bargain, by enabling copyright owners to prevent even those unauthorized uses of copyrighted works that we recognize to be lawful, all in the name of stopping Internet-based infringement. The solution is to develop a humane DRM which will solve all these problems thereby providing better user experience, and increased chances of privacy.

DRM framework incorporating the following set of criteria can go a long way in addressing consumer concerns mentioned in Section 3[13]:

1. For Copyright Owners: It must limit (or, ideally, prevent) large-scale unauthorized redistribution of copyrighted works over the Internet or any similar medium. In addition, it must allow a range of business models for distributing content, within the constraints of copyright law.

2. For Technology Makers: It must maintain technology companies' ability to create a wide range of innovative non-infringing products, and to design, build, and maintain those products efficiently. It must maintain the ability to choose between open- source and closed-source development models. It must enable technology makers to come up with robust, interoperable, relatively simple technologies that are fault-tolerant and easy to maintain.

3. For Citizens and Ordinary Users: It must maintain access to a wide variety of creative works, both past and present, including both public-domain works and works still protected by copyright. It must maintain access to advancing consumer technology for uses not related to copyright. It must continue to allow for maintain fair use (including time-

shifting, space-shifting, archiving, format translation, excerpting, and so on) and also must be flexible enough to allow for new, innovative fair uses (e.g., uses of home networking and other kinds of fair use we haven't yet imagined or discovered).

Every DRM is broken sooner or later and the maximum gainers are the commercial players. When DRM is meant to be broken why not induce ways and models which stop piracy and illegal usage rather than making users go through a bad experience. We have suggested the following ways by which equilibrium between consumers and DRM providers could be attained.

1. By competing with prices and increasing sales

Profits could be increased in two ways; One by higher prices and the other by higher sales. To compete with goods prone to piracy in market, companies can encourage higher sales by bringing a decline in prices. The latest example is "Flyte" by Flipkart which allows users to download complete albums and even single tracks for as low as Rs. 6.

2. By spreading awareness

Most people in India don't even know about licensed softwares and that the songs they are downloading are illegal. Even if they know about licensed softwares they aren't aware whether it is for a single PC or multiple unless it's an antivirus whose DRM controls its installation on devices more than the licensed number. Even some of the bigger institutions aren't aware of the schemes provided to them by IT companies like Microsoft's Volume Licensing which provides lifetime licensing and is computer independent. Moreover people in general are unaware that usage of pirated products can bring in viruses and malware resulting in loss of personnel and financial data. Thus the need for spreading awareness regarding ill effects of piracy amongst the users can provide significant reduction in piracy.

3. By implementing laws strictly

Whether its online sales or offline, pirated products are sold openly and exhaustively. Pirated CD's cost from as little as Rs. 15. It has taken a whole chain of systematic production and sales in millions to bring the end user cost at that price. Almost every hardware vendor in India feels free to load pirated softwares in the computers. This clearly indicates the slackness in law implementation over the sale and purchase of pirated products. If only piracy is treated like other criminal offences, 80% of the piracy would lose its root.

4. More emphasis on bigger institutions

Even the bigger institutions in India which are the sources of maximum revenue are not keen on eradicating piracy completely. A survey done on 50 colleges and schools of M.P., India indicated that not a single college had fully licensed softwares and only 22 colleges were aware that most softwares are available at a reduced prices for educational institutions. Hence different models exist between general use and educational but awareness and more control needs to be exercised by the Government.

5. Country Specific Business models which take care of customers India unlike US and other European countries lags way behind in sale of genuine products and its awareness. Therefore country specific business models are the need of the hour. A simple to use, easily available, multilingual, economic model can do wonders in India.

6. Transparent Contract Terms

The contract terms in most of the digital content are very bulky, complex and technical. Moreover it does not clearly specify the usage terms and the restrictions that would be imposed on consumers later. If only the restrictions are explicitly clear, it would go a long way in consumer satisfaction.

IV. CONCLUSION

In a vast country like India, it is not easy dealing with piracy. In fact there is no official data regarding the financial losses due to piracy. We have discussed about the current laws in India and the new laws that are being introduced but their efficacy is yet to be tested. The main reasons behind copyright piracy are poor enforcement and lack of awareness on copyright matters. A rigorous programme for spreading awareness amongst the users and training of appropriate number of enforcing authorities is the need of the hour. We have suggested some methods for implementing new business models and DRM technologies which can prove highly beneficial in reducing piracy and also be just towards consumer rights but still it will take a long time and a team of dedicated minds to achieve it.

REFERENCES

- [1] Digital Rights Management and Privacy, Electronic Privacy Information Center <http://epic.org/privacy/drm/>
- [2] Paul Gil: What Is 'DRM' About.com Guide <http://netforbeginners.about.com/od/d/f/What-Is-DRM-Digital-Rights-Management.htm> (June 2012)
- [3] The GeminiGeek : What Is Piracy? <http://www.thegeminigeek.com/what-is-piracy/>
- [4] Stuart Haber, Bill Horne, Joe Pato, Tomas Sander, Robert Endre Tarjan Trusted Systems Laboratory ,HP Laboratories Cambridge, HPL-2003-110:If Piracy is the Problem, Is DRM the Answer? <http://www.hpl.hp.com/techreports/2003/HPL-2003-110.pdf> (May 27th, 2003)
- [5] Rohit Sharma: Digital Piracy: No Music to Ears, [indiabiznews.com](http://www.indiabiznews.com) <http://www.indiabiznews.com/?q=node/2971> (May 04, 2012)
- [6] Business Software Alliance: Types of Piracy <http://www.bsa.org/country/Anti-Piracy/What-is-Software-Piracy/Types%20of%20Piracy.aspx>
- [7] Ronendra Singh: Indians spent least on legal software in 2011, Global Piracy Study, The HinduBusinessLine <http://www.thehindubusinessline.com/industry-and-economy/info-tech/article3422867.ece> (15 May 2012)
- [8] Natali Helberger (ed.), IviR ,Nicole Dufft, Berlecon ,Stef van Gompel, IviR , Kristóf Kerényi, SEARCH , Bettina Krings, FZK-ITAS, Rik Lambers, IviR, Carsten Orwat, FZK-ITAS, Ulrich Riehm, FZK-ITAS: Digital Rights Management and Consumer Acceptability <http://www.ivir.nl/publications/helberger/INDICAREStateoftheArtReport.pdf> , (December 2004)
- [9] Kranich, Nancy: The Information Commons. Creative Commons, `Chapter 1 (pp. 8-10). (2004)
- [10] Adv. Prashant Mali: IT Act 2000 Software Piracy & Indian Law, CSI Communications (January 2012) , .

- [11] Copyright Office : <http://copyright.gov.in/>
- [12] Prasad Krishna: Privacy and the Indian Copyright Act, 1857 as Amended in 2010, The Center for Internet and Society <http://cis-india.org/a2k/blog/copyright-privacy> (Aug 20, 2010)
- [13] Mike Godwin: What Every Citizen Should Know About DRM, Digital Rights Management Public Knowledge, http://www.publicknowledge.org/pdf/citizens_guide_to_drm.pdf.