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The following are a reply to the comments on the DMCA previously submitted. As a private citizen, I would like to thank the Copyright Office and the National Telecommunications and Information Administration for giving the public the chance to submit comments electronically and their posting of those comments so that they may reach the broadest audience.

The first comment to which I would like to reply is that of Time Warner Inc. The blending of factual or correct statements with what the writer desires others to believe has been done with superb rhetorical skill but does not provide justification for them. In particular, after one and half pages of discussion of the first sale doctrine, Time Warner Inc. makes the statement that the exhaustion doctrine "...applies with equal, indeed, greater force to digital transmissions" without any justification. As I will discuss below, this is not the case. Digital transmissions are in no way different than high quality analog transmissions and have several drawbacks I assume that Time Warner Inc. is unaware.

In the second paragraph on page 2, Time Warner Inc. states "The first sale doctrine should not be distorted into a vehicle for permitting unauthorized copying and distribution." This is a curious statement to make in a commentary on a law. Laws discuss legality and illegality, not what is authorized and what is unauthorized. As I will discuss below, control of what is "authorized" and "unauthorized" has been a major factor in the Motion Picture industry since its inception. In preparing this reply, I read the U.S. Supreme Court decision "Motion Picture Patents Co. v. Universal Film Mfg. Co. , 243, U.S.S 502 (1917). The parallels between that case decided 83yrs ago and the actions of the DVD industry are striking<sup>1</sup>. The primary difference is that the technology is different. The approach is slightly different but the intention is the same. The issue is not preventing illegal copying. It is having control. This can be seen time and again in the content providers. This was never the intention of the DMCA but without explicit statement of what accesses or protects are permissible, the DMCA allows media providers to decide what is authorized or

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<sup>1</sup> As the first lawsuit brought under the DMCA, I heartily recommend that all who wrote or administer the DMCA should make themselves aware of the facts of that case and ask how the interest of the public is being served? Is it really in the interest of the public in the long term to allow access controls that only enrich the wealthy corporations? One chilling aspect of that case is the disregard of the first amendment. Another is the traditional role of reverse engineering to create new products. The courts have routinely ruled that reverse engineering ultimately benefits society. Yet in the DeCSS case, seemingly the first amendment, reverse engineering, or even a lack of any provable or significant damages is sufficient. While making his ruling according to the law, the judge seemed aware that the impact of the DMCA in that case was well beyond the intention of that law.

unauthorized. Any circumvention that is done is illegal under the DMCA and provides the media content provider an insidious control into the home and means of public discourse.

Later in that paragraph Time Warner Inc. states " There is no social or economic rationale for altering that policy to permit unlimited reproduction and distribution of protected works by owners of a single copy." This is fallacious a priori. Access controls prevent even a single copy or from being made and there are reasons for doing so that are "fair use"<sup>2</sup>. As discussed below, digital media cannot be protected by any access control mechanism from reproduction. Ironically, only media pirates would need to make unlimited copies and can do so despite ANY measures allowed under the DMCA. As I will elaborate below, the DMCA does not prevent piracy of any sort. The content providers lobbied for the DMCA as a means to provide control over the public and private use.

Turning now to the Time Warner Inc responses to the questions posed in the Request For Public Comment:

(a) What effect, if any, has the enactment of prohibitions on circumvention of technological protection measures had on the operation of the first sale doctrine?

None. Technical protection measures do not stand in the way of a user becoming "the owner of a particular copy or phonorecord lawfully made under this title." Once having acquired such a "copy or phonorecord", the user may "dispose" of it pursuant to Section 109.

*It is obvious that the owner of the particular copy owns the physical media but this reply begs the question. To what "technical protection measures" does Time Warner refer? Surely, they have no seer able to know all that can be conceived or even a technical staff able to substantiate this claim. The fact is that technical protection measures CAN be devised that can prevent the user to "dispose of it". Consider the regional coding of the DVD. Purchasers of DVDs are not free to dispose of them outside their region or to persons inside their regions who do not a regional player. This is not a hypothetical but an actual fact. Furthermore, if the devices needed to access the copy are not manufactured any longer what the owner of a copy has is questionable. Under the DVD attempts to make a player would be classified as circumventing access controls even after the industry has abandoned the media<sup>3</sup>.*

Time Warner's comment is thought provoking. Previous to the 20<sup>th</sup> Century, all media was "self contained". The owner of a book, a picture, a newspaper, sheet music, or a photograph required no additional technology to use it. With the advent of sound and motion picture recording, that has changed. Some additional device is required. The media have changed considerably from the wax cylinders of the gramophone to the compact disk of today. Changes in technology DO prevent owners of copies from using them once the playback device is no longer manufactured and repairable. This has been to the financial enrichment of Time Warner Inc among other but the benefit to the public is doubtful.

When I was growing up in the 1960s there were books, film, records, and reel-to-reel magnetic or videotapes. While books are still used, consumers have not been as fortunate with the media for audio or visual. For audio media, consumers have seen the demise of the reel-to-reel tape and LP recording, the rise and fall of the 8-track and the 4 track, the rise and decline of the cassette tape, the rise of the Compact Disk and now DVD audio awaits. The visual media has changed similarly; from the Beta vs. VHS war won by VHS, to the rise and decline of the laser disk and now the DVD. Other than Beta, laser disk, and DVD, I have had recordings in ALL of these formats at one time or the other. Over the years I have noticed that the copyright holders do not always release from master tapes the same recordings as new media is introduced.

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<sup>2</sup> Consider the DVD. The DVD Trust comprised of DVD manufacturer and content provider, Time Warner Inc. , DVD-CCA, MPAA, and the DVD manufacturers have created a system where even a single copy cannot be made.

<sup>3</sup> While our laws cover abandoned real or personal property, they do not cover abandoned "intellectual property" or abandoned media formats. As I consider the types of media or computer file formats that are used or have been used, I am reminded of the Biblical Tower of Babel.

There are specific performances I have on phonograph records<sup>4</sup> that I would gladly pay the full list price of a CD to have but these are not available. The media providers do not release recordings with any speed and prices are kept artificially high. They release inferior recordings not from original master tapes or release edited films that are butchery of a film released in the theaters or on television<sup>5</sup>. They do not release many recordings at all<sup>6</sup>. Also, the makers of the electronics are quick to produce players of the new media and cease production of the equipment needed to play old media. The 1400 records I purchased between 1970 and 1990 may be usable for my entire life but I cannot play them often because of the difficulty of purchasing replacement stylus or phonograph cartridges. Between the producers of recordings and the makers of electronics, the consumer has been repurchasing the same material in different media for over several decades and media players<sup>7</sup>. Almost by necessity has the consumer been recording records onto tapes or CDs. The concept of media shifting has even entered into our legal system. The courts recognized this in the BetaMax case. Congress enacted the Home Recording Act. Now, the use of access controls on digital media and the DMCA would effectively negate both of these, placing the consumer in the position of having to repurchase recordings each time the copyright holders and electronics manufacturers decide on a new and improved media format<sup>8</sup>.

The more I consider the DMCA and several of the responses (e.g., Time Warner Inc. Software & Information Industry Association), I become more convinced that the Digital Millennium Copyright Act (DMCA) is not about protecting copyright owners from immediate piracy of their works. As such the first question is what are the reasons for enacting the DMCA? Existing law is sufficiently clear on what is permissible copying and what is not. One industry group has lobbied heavily that the DMCA is required to prevent widespread piracy of digital works - in no way can the DMCA accomplish this. The "piracy industry" has no need to bypass access controls<sup>9</sup>. A *bit for bit copy of a digital media is indistinguishable from the original*. Statements to the contrary are made in ignorance or with the intent to deceive. Since the DMCA cannot prevent commercial "pirates", to whom is this law directed at primarily? Other than the providers of unlicensed cable box descramblers, the access control provided by the DMCA is directed at consumers. In recent court cases, such as the DeCSS case in New York, it has become quite obvious from the testimony that the intent of several groups who lobbied for this act was to implement *access controls that overturn the BetaMax decision, obviate the Home Recording Act, and create a perpetual monopoly on copyright material*. Since the nature of digital media is understood by few, there are aspects of this media

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<sup>4</sup> For example, one of my favorite records is Leonard Bernstein's 1973 recording of Roy Harris Symphony #3. It is studio recording made at the heights of a great conductor of a work he championed in his youth. The only recording available of that work by that conductor is from an inferior live performance made late in the conductor's life.

<sup>5</sup> How is one to know if there is a butchery of a film or other work until the consumer has paid for and viewed the work. Shrink wrap licenses, caveat emptor and legal complicity exacerbates this situation.

<sup>6</sup> It is ironic that in many states, ownership rights of real property must be exercised at least once a year or the property becomes forfeit. With the current copyright laws, a copyright owner need never exercise that right.

<sup>7</sup> One must ask the question that the media have been changing and the consumer electronics industry has benefited so has the copyright holders through sales of the same material in yet another media and the consumer continues to have to buy new players, new media, and dispose of the old.

<sup>8</sup> The compact disk has been on the market for 15 years. Not only have the prices never come down but now the industry is preparing the DVD Audio to replace it and it is not clear to me what the benefits over a digital compact disk are. As a professional who works with digital signal processing, I know there is little in audio fidelity to be gained by increasing the sample rate over what it is on a compact disk. The "Achilles heel" of any sound system is always the speakers. Improved fidelity of the media will have little impact. DVDs may promise longer playing times but my CD player can play up to 5 CDs in succession. Others can play hundreds. Other than having access control for the benefit of the content provider, there is little rationale behind the introduction of the DVD audio except for those who routinely believe "new and improved" advertising campaigns.

<sup>9</sup> Nor would they care if they did. Piracy is already a crime but since they have no need to circumvent access controls, at least they cannot also be charged with violating the DMCA.

that are unique and have not been considered when the DMCA was enacted. These aspects and the DMCA undermine the base of copyright law.

Reading the comments #18 by American Library Association, American Association of Law Libraries, Association of Research Libraries, Medical Library Association, and Special Libraries Association, I can see that the American library system has legitimate concerns regarding the long term archiving and access to material that has technological access controls. The technology does exist to keep digital material from being used by the general public in libraries and it is not certain that without explicit prohibition in the DMCA that it will not be used. Furthermore, as a professional with some knowledge of digital technology and encryption, there are aspects of this technology that they are probably not aware and ultimately must be addressed during the discussion of the best way to handle digital media and transmission. Some of these concerns were addressed by others (e.g., Robert S. Thau & Bryan Taylor). Rather than provide a point by point affirmation or commentary, the remainder of my comments are general and amplify points made by several comments.

While the Digital Millennium Copyright Act (DCMA) addresses some of aspects of "fair use" of digital media, there is one aspect "fair use" for the previous generation of analog media that it does not address—"partial" use when the media is damaged or aged. Previously, the media for communications has always been an analog nature—books, film, phonograph records, video or audiotapes. One aspect of these media has always been that if it is physically damaged, one can still get some use out of it. A book that is waterlogged can be dried out. Torn pages can be mended or replaced with photocopies. Bindings can be replaced. Scratched or warped records may still be played. Magnetic tapes can be spliced. The videotape that is crinkled by my VCR can be pressed flat and rewound into the cassette. Even though compact disks are digital media, they are not encrypted. In each of these cases, damage done to one part of the media only degrades the quality of the media and does not destroy the information on it.

This has always been the case for all media used to this time and it has become so implicit in the definition of "fair use" that is taken for granted. This is not the case for digital media that uses encryption as part of its access control method. The intolerance of encryption systems to even minor damage is not a weakness but is inherent. This has never been an issue before; which is one reason it has not been considered in the creation of the DCMA. One claim for the reason for the DCMA has been that digital format can be copied without degradation from copy to copy. This is actually not true since bit errors will always occur in copying albeit with small probability. What has not been addressed in the DCMA is the fact that encryption techniques used for effective access controls can magnify the effects of a single error into hundreds or thousands.

As Claude Shannon proved in 1949<sup>10</sup>, cipher systems which do not produce widely different output for small differences in either the key or "plaintext" are more easily "cracked" than those that do. If even one bit is different in either the key or the text, then a strong cryptosystem should produce scrambled output until the system resynchronizes. This creates some difficulties when the encrypted "ciphertext" is transmitted over some communications channel such as radio, cable, Compact Disk (CD) or a Digital VideoDisk (DVD). There is always some chance that bit errors will occur. When this happens, a strong cryptosystem produces what appears to be random data. If the errors occur often enough, the cryptosystem produces a scrambled output stream. The stronger the encryption scheme, the more likely this will happen. In addition, access control systems using encryption are likely to prevent any access in the event of damage.

For storage of digital media, the current choices are the Compact Disk (CD) or the Digital Versatile Disk (DVD). While these media are reputed to have long lives, it is doubtful that they will exceed that of

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<sup>10</sup> C. Shannon, "Communications Theory of Secrecy Systems", Bell Systems Technical Journal (1949), pp.,656--715. Shannon applied the "theory of information" he had created to all known ciphers up to that date. He proved that the only theoretically unbreakable cryptosystem was the so-called one-time-pad of random numbers. He introduced the criteria used to evaluate cryptosystems. One criteria is the measure of randomness of the "ciphertext" as a function of small changes in the cipher key.

parchment, paper, or possibly even a 78-rpm record. As they degrade or are damaged, the encryption used in access control is likely to render them completely unusable<sup>11</sup>. For these reasons, librarians, archivists, and consumers have reasons for concern because what the *DMCA does not require is time limits on the access control*.

How then are the copyright materials on digital media to pass into the public domain at the expiration of copyright? Media purchased during the copyright period still have access control protection but the DMCA would make it illegal to bypass this access control since the means to do so has been made illegal. Is the creator of the media required to lift the access protection? Are they required to produce copies without access protection after that point AND have an exchange program exchanging older copies? Will the copyright holders merely keep producing new versions with extra footage, sound, effects, digitally enhanced special effects etc., that allow them to copyright new versions and claim that anyone who circumvents the new copyright version to access public domain material violates the DMCA so that NOTHING can enter the public domain? Would they even be in business? If the method of access control is kept secret, could anyone determine what it was? *The use of access controls of digital media has the ability create a perpetual monopoly on copyright material. This is counter to the basis of copyright law.*

Time Warner Inc. in several places uses the phrase "unauthorized". Exactly what "unauthorized" copying or access is not defined. But then, One other aspect of the DMCA that is of concern is that it discusses devices used for access control but *at no time does it explicitly define what accesses to copyright material can be legally controlled or what are appropriate for what material*. Does the copyright holder have the right to determine where or when copyright material can be accessed? Does the copyright holder have the right to control what copyright material is accessed or in what order?<sup>12</sup> The technology exists to do this today to do this. Unless defined, the DMCA allows the copyright holder the new ability to create arbitrary definitions of access and then provides a legal means to prevent make circumventing these bizarre access controls<sup>13</sup> illegal or allow media provider to devise new "authorizations."

Another aspect of the DMCA that borders on the bizarre, are the provisions allowing "researchers" to study systems with permissions from the creators. The creators of any access control system are hardly likely to grant it. Furthermore, if the access control is so weak that it can be cracked without knowledge of the algorithms, why should it be given any legal protection or make criminal the activities of persons more skilled than the creators? Seemingly in the recent DeCSS case, the amateurs possess greater skill than the "professionals." Why a corporation would give permission to have their expensive access control systems tested by the truly gifted rather than their paid experts when the DMCA provided protection from professional incompetence is considerably bizarre.

For the above reasons, I believe that the whole reasons for the DMCA need to be reconsidered. Since in no way it can eliminate illegal piracy, the lobbyists for this seem more intent upon creating a technologically monopoly. At a minimum, the deficiencies and ambiguities in its current version that do not address even the existing technology should be repaired.

Sincerely,

Michael A. Rolenz

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<sup>11</sup> The end result would be nothing but random bits and not even be recoverable as 78-rpm recordings can be.

<sup>12</sup> While controlling access to parts of a copyrighted database would be reasonable, is allowing the maker of a DVD audio to control the order in which the songs are played reasonable?.

<sup>13</sup> The concept of disabling the fast forward on a DVD video seems ridiculous but is required by the DVD association. So too is disabling scenes or other features on a DVD. The notion of having DVDs that can only be played on machines purchased in certain regions is also bizarre.