Long Comment Regarding a Proposed Exemption Under 17 U.S.C. 1201

[ ] Check here if multimedia evidence is being provided in connection with this comment

Item 1. Commenter Information

OmniQ is a joint venture for the commercial development of a method for non-reproductive substitution of the material object in which a work is fixed. Through a patent-pending invention (see Item 8, below), OmniQ seeks to, among other things, maintain the viability of, and the public benefit afforded by, secondary markets for the exchange of lawfully made copies of copyrighted works. As technological advances often render copies in certain formats obsolete when the technology needed to access them is going into disuse (for example, a DVD is useless without a DVD player), and as digital dissemination and storage technologies increasingly result in the fixation of lawful copies on material objects that are too cumbersome to redistribute and may share space with thousands or even millions of fixations of other works, a new method is needed to preserve important avenues through which those unable to afford new copies in the primary market may continue to obtain access to lower cost second-hand copies notwithstanding the current trend toward digital dissemination together with a reduction in the availability of discrete and transferable individual copies.

Interested parties may contact John Mitchell (john.t.mitchell@zoho.com), 15213 Reserve Road, Accokeek, MD 20607, 301-965-0432.

Item 2. Proposed Class Addressed

Proposed Class 8: Audiovisual Works—Space-Shifting and Format-Shifting

Item 3. Overview

OmniQ suggests that an exemption under this proposed class should, at a minimum, extend to ***non-reproductive substitution of the material object in which the work is embodied***. In such a case, there is no need to apply fair use analysis or to fear that infringing copies will proliferate once a fair use copy is in the wild, because no reproduction is involved. Circumvention to facilitate non-reproductive substitution of the material object in which the work is fixed implicates no copyright interest. OmniQ's patent-pending method eliminates the need for a fair use analysis of a space-shifting reproduction, eliminates the potential harm associated with the multiplication of unauthorized copies, and enhances copyright protection through the use of robust technology that eliminates the need for existing technological protection measures intended to prevent infringing reproductions.

Public Knowledge advocates for the "*reproduction* of the work for the purpose of noncommercial space shifting" (emphasis added), arguing that if done for the purpose of backups or due to obsolescence of the media, such space-shifting constitutes non-infringing fair use. While that may be true, opponents argue that the camel's nose will have gotten under the tent,

because once the fair use reproduction is made, second-generation copies can be made more easily, and many more unauthorized copies may be made and distributed.

OmniQ's solution resolves both concerns, with a vengeance. *Non-reproductive* space-shifting requires no fair use analysis because no copyright interest is implicated. Accordingly, the exemption may cover even commercial space-shifting for purely entertainment purposes, just like DVD movies may be sold or rented without the consent of the copyright holder and for purely entertainment purposes. It can be used in any instance in which the work is digitally embodied in a material object that cannot, as a practical matter, be re-sold, lent, rented or gifted solely because it either shares the same recording medium with thousands of other works (such as a large-capacity hard drive), or because the medium (such as a DVD) relies on older technology of increasing obsolescence with respect to playback (private performance).

"The sole interest of the United States and the primary object in conferring the monopoly lie in the general benefits derived by the public from the labors of authors." *Fox Film Corp. v. Doyal*, 286 U.S. 123, 127 (1932). In pursuit of that interest, Congress endorsed the Supreme Court's conclusion that copyright holders could not extend the scope of their copyrights by means of an end-user license agreement that gave them greater control over copies they no longer owned. *Bobbs-Merrill Co. v. Straus*, 210 U.S. 339 (1908). The codification of the first sale doctrine (which actually never has required a first sale) carried with it a strong expression of public policy favoring secondary markets for re-dissemination of copies: "it would be most unwise to permit the copyright proprietor to exercise any control whatever over the article which is the subject of copyright after said proprietor has made the first sale." H.R. Rep. No. 2222, 60th Cong., 2d Session (1909). When an end-user license agreement printed on the inside cover of a book in the manner of *Bobbs-Merrill* (and which can legally and practically be ignored) is replaced with TPM to achieve the same ends (but which might not be so easily circumvented and ostensibly carries with it the threat of civil or criminal prosecution), it is important that both the legal means and the practical means of ignoring it are within reach of the public, in order to prevent the copyright holder from exercising "any control whatever" over the transfer of ownership of lawfully made copies. That's what OmniQ's patent aims to do, and with the aid of a sensible exemption from the anti-circumvention prohibition, can do more efficiently, reaching a broader segment of the population.

Item 4. Technological Protection Measure(s) and Method(s) of Circumvention

The TPM(s) that control access to audiovisual works on DVD and blu-ray discs have been identified by the proponents and opponents. Although this comment is in response to the specific Proposed Class 8, OmniQ's patent-pending method for non-reproductive space-shifting is largely agnostic to the class of works and to the TPM being used. Not limited to audiovisual works, it can apply equally to space-shifting of sound recordings, literary works, and visual works – anything fixed in a digital format (including, for example, Proposed Class 10: Literary Works Distributed Electronically—SpaceShifting and Format-Shifting).

The OmniQ invention is also largely agnostic to the TPM, at least with respect to the TPM used with DVDs and Blu-ray discs. But the TPM nevertheless presents a barrier to fulfilling the Constitutional objectives.

For example, the OmniQ system can "ingest" a DVD to substitute a hard drive for the plastic medium, keeping intact the entire work together with all TPM surrounding it. Likewise, any movie reproduced (downloaded) under license may carry TPM to prevent reproduction. But when "the work" of interest is just the motion picture, having to maintain the surrounding TPM is very inefficient, and a useless exercise once the TPM has become useless; it is akin to forcing consumers to keep the shrink wrap and electronic article surveillance tags together with the DVD long after they have become worthless for their intended purposes of preventing tampering and theft. And, since the DVD of any motion picture often includes other copyrighted works (such as movie previews or "trailers", interviews, or "making of" features), if the person receiving the space-shifted copy only desires the feature film, it is more efficient to only space-shift the primary work on the DVD, and ignore the undesired works. Similarly, a francophone film buff may be happy space-shifting just the original French language film, without the English subtitles.

As described in the patent application, OmniQ's method for non-reproductive space-shifting can easily substitute the hard drive for the plastic, where the entire "disc image" is preserved. But because OmniQ's encryption system is so much more robust than the Copy Scramble System ("CSS") in preventing reproductions, CSS no longer serves any legitimate function once OmniQ's space-shifting has been completed. Specifically, past technologies have either involved DVD direct reproductions through so-called "rippers" (*e.g.*, the DVDFab software at issue in *Advanced Access Content System Licensing Administrator, LLC v. Shen*, 14-cv-01112-VSB (S.D.N.Y.)) that result in the multiplication of unauthorized reproductions, or more "creative" efforts to contain the reproductions by making the unauthorized reproduction first, and then attempting to delete all other copies (*e.g.*, *Capitol Records, LLC v. ReDigi Inc.*, 934 F. Supp. 2d 640 (S.D.N.Y. 2013). Before ReDigi's "copy and delete" approach, Congress considered (but did not adopt) the legitimacy of a "forward-and-delete" method of space-shifting advocated by former Congressman Rick Boucher. Introduced during the 105th Congress, he proposed to legalize the reproduction of a copyrighted work from one medium to another so long as the source copy was subsequently destroyed. The "Digital Era Copyright Enhancement Act," provided that Section 109(a) (*i.e.*, the entitlement of owners of lawfully made copies to transfer ownership or possession of them without the consent of the copyright owner)

> applies where the owner of a particular copy or phonorecord in a digital format lawfully made under this title, or any person authorized by such owner, performs, displays or distributes the work by means of transmission to a single recipient, if that person erases or destroys his or her copy or phonorecord at substantially the same time. The reproduction of the work, to the extent necessary for such performance, display, distribution, is not an infringement.

H.R. 3048, 105th Cong., Section 4. The intent was to permit the owner of a lawfully made copy to do the *equivalent* of transferring possession even though the tangible medium itself would not change hands. The drawback was that, for a period of more than a transitory duration, there would be two copies that could simultaneously be perceived or further reproduced. And, the system did not lend itself to containment – "trust me, I deleted the source copy right away" was too tenuous a basis for granting the right, particularly at a time when most computer operating systems allow for the recovery of deleted items.

OmniQ's patent-pending method resolves all of those concerns. Throughout the entire process, there is never a multiplication of the work into copies. There is never a point in which the work is fixed in two material objects at once. And, the system is so robust that there is no

backup: If the material object substitution fails, the copy is lost forever. If the person to whose hard drive the fixation is shifted breaks the hard drive, the copy is lost forever. Just like when a Netflix customer receives a broken DVD in the mail, Netflix must replace it with an entirely different lawfully made copy – it cannot simply say, "don't worry, we will burn you a new copy."

The OmniQ space-shifting process need not "bypass or disable" the TPM, but the TPM is nevertheless a hindrance. It is far easier to bypass or disable the CSS on a DVD movie than to bypass or disable the OmniQ encryption. (See attached.) With OmniQ, no "back doors" are permitted. Indeed, the OmniQ encryption is so strong that not even the business using it can keep a "back door" to decrypt it in case of loss. In that sense, OmniQ agrees with members of the House Government Oversight and Reform Committee's Information Technology Subcommittee who, at a hearing on April 29, 2015, criticized the inherent weakness of encryption with back-door access:

> "It is clear to me that creating a pathway for decryption only for good guys is technologically stupid," said Rep. Ted Lieu (D-Calif.), who has a bachelor's in computer science from Stanford University. "You just can't do that."

Andrea Peterson, "Congressman with computer science degree: Encryption back-doors are 'technologically stupid'," The Switch, The Washington Post, April 30, 2015, available at http://www.washingtonpost.com/blogs/the-switch/wp/2015/04/30/congressman-with-computer-science-degree-encryption-back-doors-are-technologically-stupid/.

> Rep. Jason Chaffetz (R-Utah), chairman of the Government Oversight and Reform Committee, also expressed concern about back doors.
>
> "It's impossible to build a back-door for just the good guys — if somebody at the Genius Bar could figure it out, so could the nefarious folks in a van down by the river," he said.

Id. OmniQ's method of non-reproductive space-shifting ensures that the person who owns of controls neither the material object in which the work is fixed cannot use a back door to regain the fixation – the ability to perceive or reproduce the work from the material object – once the space-shifting occurs.

OmniQ's encryption is sufficiently strong as to ensure that the work will have long entered the public domain by the time a brute force attack succeeds. And for that reason, the independent deployment of such a system is to be preferred over TPM applied by the copyright holder. Any copyright holder that used the OmniQ invention to prevent reproduction long after the copyright expired might face charges of monopolization or copyright misuse. By independently protecting the work from being reproduced from that copy, the OmniQ method continues to incentivize the copyright holder to reproduce the work into additional copies, or license others to do so.

But the ability to lawfully bypass the virtually useless TPM will make space-shifting much more efficient and less costly than having to respect it, thereby making lawful copies more widely accessible to people of all walks of life through low-cost space-shifting.

For more specific details on OmniQ's technology, please see the attached provisional patent application referenced under Item 8.

Item 5. Asserted Noninfringing Use(s)

There are two fundamental non-infringing uses: Private performances and non-reproductive space-shifting.

Private performances: Because the private performance of a work is not within the scope of exclusive rights, the private performance is *always* non-infringing. It may strike some as surprising, but even the thief who steals an infringing DVD copy of a motion picture is free to watch the movie, and does so without infringing anyone's copyright. There has never been – and never can be – a case where even a commercial infringer found guilty of making infringing reproductions and distributing the resulting copies for profit is also found guilty of watching the movie from one of those copies. It is a legal impossibility. So we need not explain non-infringing private performances in any greater detail, since there will never be an infringing private performance.

Although it is quite obvious that no private performance can ever be infringing as a matter of law, it warrants noting that there are efforts to re-frame non-exclusive rights belonging to the public as if they were licenses or other purely permissive uses, instead of uses as of right. For example, the DVD CCA and AACS LA joint opposition, at 4-5, makes the remarkable assertion that private performances are licensed:

> When consumers buy a DVD or Blu-ray disc, they are not purchasing the motion picture itself, rather they are purchasing access to the motion picture which affords only the right to access the work according to the format's particular specifications (i.e., through the use of a DVD player), or the Blu-ray Disc format specifications (i.e., through the use of a Blu-ray format player).

While it is true that the consumer is not "purchasing the motion picture itself," insofar as the consumer is not purchasing the intangible copyright (see 17 U.S.C. § 202), the consumer is certainly purchasing a lawfully made copy of the motion picture itself. And, since no copyright grants the copyright owner the exclusive right to privately perform the motion picture, there is no "exclusive right of access" that the copyright owner can sell. (Sneaking into a theater without paying is not an act of copyright infringement. The "right of access" is not a copyright, but rather a charge from the theater owner, who has a right to charge for access to a theater seat regardless whether a copyrighted work will be performed publicly.) The opponents therefore have it backwards. Insofar as the access in question pertains to protecting the work from infringing reproduction, there is some legitimacy to the TPM. But to the extent that the TPM purports to allow the copyright holder to charge for "access" to the exercise of a Constitutionally protected right that properly belongs to the public, it is abhorrent to the Copyright Act and the Constitution, and the Librarian of Congress must not lend aid to such a scheme even if the perpetrators are able to pull it off unassisted by the government. *Shelley v. Kraemer*, 334 US 1 (1948).

Non-Reproductive Space-Shifting: The *only* reason why so-called "space-shifting" has ever raised copyright infringement concerns is that what proponents are advocating is typically not true space-shifting. The methods to date have relied on reproduction under "fair use" analysis, or a ham-handed "copy-and-delete" approach wherein more than one fixation exists that can be independently perceived or reproduced, even if for a relatively short period of time. These may be well-intended, and certainly there are many examples of fair use reproductions, but the "shift" is missing.

But true space-shifting – that is, the substitution of one material object in which the work is fixed for another, and which results in no reproduction – is well represented in U.S. and Canadian jurisprudence. Because the Canadian experience has reached Canada's highest court, we will begin north of the border to provide a fuller legal framework. But because Canadian copyright law is so similar to that of the U.S., and because lower courts in the U.S. have taken the same path, the Supreme Court of Canada has provided useful guidance.

Canadian Space-Shifting Jurisprudence: The leading case, *Théberge v. Galerie d'Art du Petit Champlain inc.*, [2002] 2 S.C.R. 336, 2002 SCC 34 (CanLII), explains the essence of the reproduction right by emphasizing "re". That is, there must be a *multiplication* of copies. Any process that, once complete, has generated no more copies than when the process began, is not a reproduction. As explained by the Court:

> The appellants purchased on the open market a quantity of posters of the respondent's artistic works. They subjected these posters to a technique which involved spreading a special resin or laminating liquid across the face of a poster. The resin is designed to bond with the surface inks. After the applied coating is dried (or cured), the coated poster is submerged in a bath of solvent which loosens the paper substrate but leaves intact the fixed ink/resin layer, thus allowing the latter to be peeled off the former. The rear of the ink/resin layer is then coated with a suitable adhesive resin and transferred to a canvas substrate, which is then smoothed and finished.

Id. at ¶ 35.

> My colleague, Gonthier J., takes the position that if the image were transferred from one piece of paper to a different piece of paper with no other "change", there is a new "fixation" and that would be "reproduction". But in what way has the legitimate economic interest of the copyright holder been infringed? The process began with a single poster and ended with a single poster. The image "fixed" in ink is the subject-matter of the *intellectual* property and it was not reproduced. It was transferred from one display to another. It is difficult to envisage any intellectual content let alone intellectual property embodied in the piece of blank paper peeled away, or in the piece of blank paper substituted for it. When Raphaël's *Madonna di Foligno* was lifted for preservation purposes from its original canvas in 1799 under the direction of the chemist Berthollet and fixed to a new canvas, the resulting work was considered to be no less an original Raphaël. Similarly, when the frescoes of Pompeii were restored by replacement of the underlying plaster, the result was not classified as a "reproduction", even though the old plaster was a constituent physical element of the original frescoes. If a comparable copyright situation arose, I do not think the artist would (or should) have a veto over a purchaser's attempt to preserve the asset. These examples may be more spectacular than the humble swap of substrates of a paper poster, but the principle is the same and applies equally to authorized copies as well as to the original artistic work. In neither case is there reproduction within the meaning of the Act.

Id. at ¶ 38 (emphasis in original).

> The Quebec Court of Appeal adopted a more restricted view than does my colleague, suggesting that the violation of economic rights lay not simply in "fixation" but in moving the ink film from a paper substrate to a substrate of a more costly material, namely canvas ([2000] Q.J. No. 412 (QL), at paras. 18-23). (This was thought to place the respondent's work for resale in a different market niche, as discussed below.) This too, in my view, goes too far. If the "new" substrate material were made of a smooth sheet of vellum (calf) or papyrus, the result would have the identical appearance to the original paper. How has the copyright holder's interest in the "intellectual" property been harmed by such a change in the material composition of the backing? Does the mischief only emerge in appearances, i.e., if the new piece of paper has a textured finish, or is pebbled to look like canvas? No one would deny the world of difference between the original artistic work and a mechanically produced copy, but we are talking here about moving the same physical layer of inks around different blank substrates.
>
> To allow artists to regulate what can or cannot be done with posters in this way would have the public searching for elusive distinctions. There would be no even reasonably "bright line" between infringing and non-infringing conduct, a deficiency that would be particularly mischievous when dealing with pre-judgment seizure at the instance of a plaintiff without judicial supervision.
>
> I do not foreclose the possibility that a change of substrate could, as part of a more extensive set of changes, amount to reproduction in a new form (perhaps, for example, if the respondent's work were incorporated by the ink transfer method into some other artist's original work) but the present case does not rise to that level.

Id. at ¶¶ 39-41. The Court went on to focus on ***re***production: "As one would expect from the very word "copyright", "reproduction" is usually defined as the act of producing additional or new copies of the work in any material form. Multiplication of the copies would be a necessary consequence of this physical concept of "reproduction". *Id.* at ¶ 42 (emphasis in original).

Significantly, the Canadian Supreme Court actually cited U.S. case law in support of its conclusion, and to that we now turn.

United States Space-Shifting Jurisprudence:

The leading case in the United States is *C. M. Paula Co. v. Logan*, 355 F.Supp. 189 (N.D. Tex. 1973). In that case, the court focused on whether the process at issue – using a chemical method for lifting a copyrighted image off on one backing and placing it on another – was an infringement of the reproduction right. It held that it was not:

> The Court notes at the outset that without copying there can be no infringement of copyright. Further, plaintiff has the burden of establishing that there has been a copying—a "reproduction or duplication" of a thing.
>
> The process utilized by defendant that is now in question results in the use of the original image on a ceramic plaque; such process is not a "reproduction or duplication."

> The Court believes that plaintiff's characterization of the print thus used as a decal is appropriate. Each ceramic plaque sold by defendant with a Paula print affixed thereto requires the purchase and use of an individual piece of artwork marketed by the plaintiff. For example, should defendant desire to make one hundred ceramic plaques using the identical Paula print, defendant would be required to purchase one hundred separate Paula prints. The Court finds that the process here in question does not constitute copying

Id. at 191 (citation and footnotes omitted). OmniQ's non-reproductive space-shifting is identical in all significant respects. If, for example, a video service using OmniQ's patent-pending invention wished to substitute a customer's hard drive for the plastic disc of a DVD movie for one hundred customers, then one hundred DVDs of the movie would have to be purchased. At the end of the process, the work is no longer fixed in the 100 DVDs, but instead fixed in 100 customer hard drives. There is no "'reproduction or duplication' of a thing."

As Section 202 of the Copyright Act instructs, we must be mindful of the distinction between the intangible work and the tangible copy of a work. The reproduction right attaches to the work, not the copy. Whether the material object in which the work is fixed is substituted for another material object is inconsequential for purposes of the reproduction right. "The court chooses to focus on the art work itself, not on the material on which the work was mounted or the ultimate use to which the tiles 'lend themselves.' The mode of affixation of the art work onto the mat or tile is insignificant." *Lee v. Deck the Walls, Inc.*, 925 F. Supp. 576, 580 (N.D. Ill. 1996), *aff'd sub nom. Lee v. A.R.T. Co.,* 125 F.3d 580 (7th Cir.1997). The court added, in a footnote, "Certainly Congress did not intend that courts look to the type of adhesive, whether it be Elmer's glue, Superglue or tape, to be the fact upon which a copyright infringement issue should be determined." *Id.*, n. 3. When the Seventh Circuit affirmed, Judge Easterbrook observed, "An alteration that includes (or consumes) a complete copy of the original lacks economic significance." 125 F.3d at 581. "The art was bonded to a slab of ceramic, but it was not changed in the process." *Id.* at 582.

As noted above, this is what distinguishes OmniQ's non-reproductive space-shifting from efforts like that of ReDigi. There, reproductions were, in fact made, even if the next step involved deletion of duplicates. As the *ReDigi* court explained: "It is beside the point that the original phonorecord no longer exists. It matters only that a new phonorecord has been created." *Capitol Records, LLC v. ReDigi Inc*., 934 F.Supp.2d 640, 560 (S.D.N.Y. 2013). In distinguishing *C.M. Paula* (and, by implication, the OmniQ method), the court explained:

> "ReDigi's service is distinguishable from the process in that case. There, the copyrighted print, or material object, was lifted from the greeting card and transferred in toto to the ceramic tile; no new material object was created. By contrast, ReDigi's service by necessity creates a new material object when a digital music file is either uploaded to or downloaded from the Cloud Locker."

Id. at 650-51.

In short, there is strong authority in both the United States and Canada that where the owner of a lawfully made copy transfers the fixation of a work from one material object to another, without altering the work or causing more copies to be created, there is no infringement of the exclusive right to reproduce the work into copies and phonorecords. The copyright holder's right remains inviolate, while the public's interests expressed in the "copyright clause"

of the Constitution are advanced. Moreover, the ability to substitute one material object for another helps ensure that the Copyright Act's (§ 109) plan for unlimited recirculation of lawfully made copies that have already been placed in circulation by the copyright holder will not be stunted merely because modern digital technology makes it cumbersome to transfer the entire library of works (such as a hard drive) sharing a single material object, or to make use of a DVD when DVD players are no longer readily available.

Item 6. Asserted Adverse Effects

The inability to circumvent the technological protection measures at issue has, for purposes of non-reproductive space-shifting, an adverse effect on noninfringing use as a matter of law.

In the exercise of its copyright power, Congress "may not overreach the restraints imposed by the stated constitutional purpose. Nor may it enlarge the patent monopoly without regard to the innovation, advancement or social benefit gained thereby." *Graham v. John Deere Co. of Kansas City*, 383 US 1, 6-7 (1966). Adding "to the sum of useful knowledge" is an inherent requisite of all copyright monopolies, and "may not be ignored." *Id.* at 7. The Librarian of Congress must, therefore, also apply its exemption authority with the same adherence to the constitutional imperative.

Accordingly, when the Copyright Act itself authorizes access without the consent of the copyright owner, it is not enough that there be alternate non-infringing means of access authorized by the copyright owner. For example, Section 109 grants the owner of a lawfully made copy the right to redistribute "that" copy of a work. It empowers the owner of the copy the right to lend it to a friend, to re-sell it for profit, to trade it in for a copy of a different work, or donate it to an after-school program for disadvantaged students. It is no solution for the copyright owner to point to other copies of the work that the friend can buy, to the fact that the would-be second-hand buyer can still buy another new copy or watch a public performance of the work instead of enjoying the private performance from that copy, or that the owner of the lawfully made copy can make a cash contribution to the after-school program so that it can buy its own copy for the disadvantaged children. The whole point is to maximize the dissemination of the work for the benefit of all. When TPM works for the sole benefit of the copyright owner by artificially restricting non-infringing uses established by law, there must be a way of lawfully circumventing the legally baseless restriction.

Item 7. Statutory Factors

Evaluation of the proposed exemption in light of each of the statutory factors set forth in 17 U.S.C. 1201(a)(1)(C):

(i) Availability for use of copyrighted works;

For most of our nation's history with copyright protection, copyrighted works were typically published in discrete copies – material objects in which a single work, or a closely related small collection of works – were embodied, the Copyright Act's sharp distinction between the intangible copyrighted work and the tangible copy of the work (17 U.S.C. § 202) could be given full effect in commerce, together with the Copyright Act's express limitation on the distribution right (17 U.S.C. § 109) which entitles owners of lawfully made copies to

redistribute them without the consent of the copyright holder. (Sections 109 and 202 of the Copyright Act of 1976 were originally codified together in § 41 of the Copyright Act of 1909, and in § 27 of the Copyright Act of 1947. Prior to 1909, these principles were adhered to as part of our common law.)

"Digital copies" have been around since the days of the music CD and DAT (digital audio tape). Music CDs have been manufactured commercially in the United States since the September 21, 1984, release of Bruce Springsteen's *Born in the U.S.A.*, dubbed by CBS as "THE FIRST CBS RECORDS COMPACT DISC MADE IN THE U.S.A." *See* http://www.keithhirsch.com/the-very-rare-red-bruce-springsteen-born-in-the-u-s-a-cd. That same day, *The Edison CD Sampler* was issued from the same plant. *See* http://www.keithhirsch.com/the-edison-cd-sampler. Interestingly, even back then *The Edison CD Sampler* betrayed the publisher's attempted to restrict uses that are statutorily placed beyond the copyright owner's control. Rather than TPM, the digital copy (or "digital phonorecord," to be precise) carried a legal warning resembling the one struck down by the Supreme Court in *Bobbs-Merrill Co. v. Straus*, 210 U.S. 339 (1908): "FOR EDUCATIONAL USE ONLY – NOT FOR SALE." Obviously, it is perfectly lawful for anyone to use it for non-educational use of the CD, and to sell it. But as modern TPM systems allow copyright owners to use technological locks rather than austere and baseless warnings to suppress lawful uses, thumbing one's nose at legal puffery is not an option.

(ii) Availability for use of works for nonprofit archival, preservation, and educational purposes

When it comes to using a work nonprofit archival, preservation and educational purposes, we have already entered into an era in which a permissions-based extra-copyright system is replacing what has historically been an absolute right.

For most of our history with copyrighted works, the works could be perceived without the aid of technological devices. Literary works could be accessed for as long as the ink was protected from fading and the paper from disintegrating with age. Film projectors could be homemade by anyone with modest skill. Even a vinyl phonorecord could be accessed using a homemade turntable equipped with a sewing needle and a paper cone – even before the more modern pizza box offered a more elegant solution. *See* http://www.instructables.com/id/Makedo-Pizza-Box-Gramophone/. The digital format ushered in an era where access to works fixed in that format required something more – a computer and some specially written computer program – to gain access, and that technological step made it feasible, for the first time, for copyright holders to lace their reproductions with digital access locks which, if used responsibly, might do nothing more than protect against copyright infringement, but might otherwise become tools for intentional or unintentional capturing of non-exclusive rights for exclusive control. To illustrate, when a library kept an archive of books for use of its patrons, its use was a noninfringing use authorized by law. The library had an absolute right to make the books available to the public, and the public had an absolute right to read the books. But as the format has changed, such that the book is in a file format fixed on the library's server, the library's ability to lend the copy and the patron's ability to read the copy is severely hindered, where reasonable access requires reproduction or public display. Although it is certainly more practical for the library to make a copy for the customer (almost instantly and at marginal cost), doing so involved a reproduction requiring the copyright holder's permission or, if for a use for which permission is not required,

may be impossible without circumventing TPM. In effect, then, lawful non-infringing uses beyond the control of the copyright holder as a matter of law suddenly fall within the *de facto* control of the copyright holder by operation of the laws of physics and anti-circumvention legislation insufficiently softened by this exemption process.

(iii) Impact that the prohibition on the circumvention of technological measures applied to copyrighted works has on criticism, comment, news reporting, teaching, scholarship, or research

There are two primary ways in which the prohibition on the circumvention of TPM applied to copyrighted works affect criticism, comment, news reporting, teaching, scholarship and research: access to the work and access to a specific copy of the work.

First, all of these activities require some manner of *access to the work*. The private performance of a work is never infringing, of course. Even the private performance by means of an infringing reproduction is constitutionally protected. Accordingly, the only constitutionally permissible prohibition on the circumvention of TPM that controls private performance access must be one that is narrowly tailored to go no farther than necessary to protect a legitimate copyright interest. By analogy, if a copyright holder sells a lawfully made copy of a book the access to which is protected by a padlock, a law that prohibits the owner of the lawfully made copy from breaking the padlock without the copyright holder's permission is illegitimate unless narrowly tailored to protect the copyright interest. So, for example, if the prohibition applies only to the un-distributed copies sitting in the copyright holder's warehouse in order to protect against unauthorized distribution, the fact that a thief cannot read the copy of a locked un-sold book may be acceptable, whereas the copyright owner's use of the lock to impose a metered access to the lawfully made and distributed copies, or to charge a fee to unlock copies redistributed pursuant to § 109, would not.

The difficulty with the uses described in this sub-section (iii), which mirror the statutory examples of fair use, is that the fair use factors are fact-specific, making it difficult to apply a single rule to all access concerns. It may be that if TPM prevents a movie critic from evaluating my copy of a movie, even if doing so is a non-infringing private performance, the movie critic remains free to access the work by other means, such as buying, borrowing or renting a different copy, or watching a public performance. Even so, restrictions imposed by the copyright holder burden the movie critic's freedom if they go beyond essential copyright protection. If the copyright holder's answer to the fact that its TPM blocks non-infringing access to the work is to say that there are other means of accessing the work, such as paying to download it, paying for a movie theater ticket, or buying a different copy, the solution results in an enlargement of the copyright monopoly beyond the statutory limits. In short, any solution that enlarges the scope of the copyright monopoly should be rejected. If the movie critic wishes to privately perform a work from a lawfully made copy, and cannot, the solution is not that the copyright owner can license or otherwise make available some other access. Rather, the solution is to recognize that Section 1201(c) and the First Amendment require that the movie critic be free to privately perform the work without having to turn to the copyright holder for permission.

This brings us to the second way in which TPM may frustrate these uses. It is crucial that the right to privately perform the work be agnostic to the copy from which the private performance is facilitated, just as the Copyright Act and the First Amendment do not distinguish

between a professional film critic who publishes in the New York Times from the 8-year-old film critic who publishes by turning in her homework for Mrs. Doubtfire's second-grade English class. The former may be able to send an assistant, with a budget, to scare up an alternate means of access, whereas the latter may be limited to the copy available from a neighbor or the bargain bin of a thrift shop. Telling the second-grader that she can open an iTunes account to purchase a reproduction rather than circumvent the TPM on the copy she holds in her hands abridges her rights under the Copyright Act and the First Amendment.

In sum, the point here is that both the Constitution and the Copyright Act require that the "impact" be judged not as an economist might judge market alternatives, or as a copyright holder might mix and match the exercise of exclusive rights to maximize profit, but rather on whether the non-infringing means of access reserved to members of the public are abridged. Because I have a right, under the Constitution and under the Copyright Act, to watch a movie from a second-hand copy I received from a previous owner of that lawfully made copy, that right is abridged if the copyright holder uses TPM to limit that freedom and force me to find an alternate means of access even if that alternate means is readily available and at a nominal additional cost.

(iv) Effect of circumvention of technological measures on the market for or value of copyrighted works

When limited to non-reproductive substitution of the material object in which the work is fixed, the impact on the market for and value of the work likely increases. But in any event, because there is no reliance on "fair use," this fair use factor is immaterial. It is no more relevant than a discussion of whether a second-hand bookstore increases or decreases the value of a copyrighted work, since used book sales are a matter of right without regard to fair use.

To properly analyze the impact, we must segregate each exclusive right identified in § 106. First of all, the circumvention would have no impact on the exclusive right to perform or display the work publicly, nor would it have any impact on the exclusive right to create derivative works. (§§ 106(2), 106(4), 106(5) and 106(6).) Although it is conceivable that, in individual instances, there might be an impact (for example, if a licensed public performance of a motion picture is facilitated or hindered by the particular medium in which the work is embodied), it is inconceivable that there would be an overall impact.

With respect to the reproduction right in § 106(1), the non-reproductive substitution would have no effect at all with respect to any individual authorized copy. After all, it is non-reproductive. But by enabling the non-reproductive substitution of the tangible medium in which the work is fixed, the value of the initial copy is likely to increase (whether that value is expressed in a higher market price or simply a higher demand for more copies). For example, the purchase of a DVD-version of a motion picture has more value if there is a greater secondary market for that copy, and the option of non-reproductive substitution of the DVD plastic for a solid state laptop hard drive increases that secondary market.

(v) Other factors that may be appropriate for the Librarian to consider in evaluating the proposed exemption

The proper operation of the U.S. Copyright Act's anti-circumvention prohibition requires that technological protection measures not serve as thumbs on the scale of the Copyright Act's balance between exclusive rights granted under constitutional authority and the non-exclusive

rights enjoyed by the general public. As the Supreme Court instructed, protecting non-exclusive rights is just as important as protecting exclusive rights. *Fogerty v. Fantasy, Inc.*, 510 U.S. 517 (1994). It would be error to allow any TPM to be used in a manner that allows the copyright owner to enlarge the scope of its exclusive rights beyond the limits established by Congress. To borrow from *Fogerty*,

> Because copyright law ultimately serves the purpose of enriching the general public through access to creative works, it is peculiarly important that the boundaries of copyright law be demarcated as clearly as possible. To that end, [members of the public] who seek to advance a variety of [non-infringing uses of copyrighted works] should be encouraged to [circumvent TPM's that encroach upon non-infringing uses] to the same extent that [copyright owners] are encouraged to [deploy TPM to prevent] infringement. In the case before us, the successful [use of non-reproductive space-shifting would result in] increased public exposure to [any digitized] work that could, as a result, lead to further creative pieces. Thus a successful [circumvention of TPM for non-infringing use] may further the policies of the Copyright Act every bit as much as a successful prosecution of [circumvention] claim by the holder of a copyright.

Id., at 527. "It is the right of the public to receive suitable access to social, political, esthetic, moral, and other ideas and experiences which is crucial here." *Red Lion Broadcasting Co. v. FCC*, 395 U.S. 367, 390 (1969). It is incumbent upon the Librarian of Congress to make sure that this right is not abridged by TPM that goes beyond copyright protection by infringing on the public's non-exclusive rights. As the Supreme Court said over 150 years ago, monopolies granted under authority of Article I, Section 8 of the Constitution are not served by use of collateral power to prevent the public from enjoying non-infringing uses of a copyrighted work, for "the benefit to the public or community at large was another and doubtless the primary object in granting and securing that monopoly", *Kendall v. Winsor*, 62 U.S. 322, 328 (1859). In this case, that collateral power is derived from over-broad use of TPM with no safety valve to prevent copyright owner power over non-infringing use.

Such a limitation preventing use of TPM to suppress non-infringing uses is supported by international law. The anti-circumvention provisions were intended to meet the U.S. obligations in the WIPO Copyright Treaty and the WIPO Performances and Phonograms Treaty. Article 11 of the WIPO Copyright Treaty does not require or encourage any legal protection or remedies against circumvention of TPM used to prevent non-infringing acts:

> Contracting Parties shall provide adequate legal protection and effective legal remedies against the circumvention of effective technological measures that are used by authors in connection with the exercise of their rights under this Treaty or the Berne Convention and that restrict acts, in respect of their works, which are not authorized by the authors concerned ***or permitted by law***.

Although 17 U.S.C. § 1201 does not specifically use the WIPO "or permitted by law" formulation (which is identical in Article 18 of the WIPO Performances and Phonograms Treaty), § 1201(c) specifically requires that this section not be read as altering the copyright balance, and the courts have required that there be a nexus between a cognizable copyright and the TPM. *See, e.g., Chamberlain Group v. Skylink Tech., Inc.*, 381 F. 3d 1178 (Fed. Cir. 2004). Where "the critical nexus between access and protection" is missing, *id.* at 1204, there can be no liability.

Where the Copyright Act authorizes a use, anyone circumventing a TPM to make that authorized use is "immune from § 1201(a)(1) circumvention liability. In the absence of allegations of either copyright infringement or § 1201(a)(1) circumvention, [users of the OmniQ invention] cannot be liable for § 1201(a)(2) trafficking." *Id.* The Chamberlain court and others have read "or permitted by law" into the fabric of U.S. copyright jurisprudence. And it could be no other way, since every use that is not prohibited by the Copyright Act is fully protected by the First Amendment to the U.S. Constitution.

Because non-reproductive space-shifting does not involve any reproduction at all, such activity is beyond the reach of the copyright monopoly, and is fully protected by the First Amendment. Accordingly, circumvention of TPM that interferes with *non-reproductive* space-shifting must be allowed.

Item 8. Documentary Evidence

"Method For Non-Reproductive Substitution Of The Material Object In Which A Work Is Embodied," U.S. Patent Application No. 62149238, an invention to shift the fixation of a work from one tangible medium to another without reproduction, and therefore without implicating any of the exclusive rights under 17 U.S.C. § 106 (even without applying the §§ 107-122 exceptions and limitations placed upon those rights). (Attached.)

The OmniQ method of non-reproductive space-shifting need not be the only way. We are not suggesting that the exemption should be patent-specific. Nor are we suggesting that "fair use" alone is an insufficient justification for an exemption when the fair use standard is met. Rather, OmniQ's patent-pending method demonstrates that space-shifting can be carried out without reproduction and in a manner that is more protective of the reproduction right than any TPM in use today, and without the collateral damage when well-intended TPM infringes upon non-exclusive rights. Consequently, non-reproductive space-shifting fully protects the integrity of the reproduction right and, when OmniQ's method is followed, makes it unnecessary for the user to rely on fair use analysis or for the copyright owner to rely on its own TPM.

==========

METHOD FOR NON-REPRODUCTIVE SUBSTITUTION OF THE MATERIAL OBJECT IN WHICH A WORK IS EMBODIED

U.S. Patent Application No. 62,149,238

TITLE: METHOD FOR NON-REPRODUCTIVE SUBSTITUTION OF THE MATERIAL OBJECT IN WHICH A WORK IS EMBODIED

The present invention is directed to a method for transferring a work digitally embodied in one material object (or storage medium) to another material object without reproducing the work into another copy. The present invention is also directed to transferring a work between two material objects across a network. The source (at times alternatively referred to herein as a host or origin) and destination medium (at times alternatively referred to herein as a client) could be similar, as in the case where they both are hard drives, or they could be different, as in the case where a transfer is being made from a CD to a hard drive. In all cases, there is never more than one fixation of the work (i.e., never more than one copy of the work) at any one time.

In the method of the present invention, a work that is digitally fixed is transferred without being reproduced into another copy. That is, as the instantiation of work is moved to the new medium, the original instantiation of the work is destroyed or made otherwise unusable in some physical or electronic way. The present invention is directed to works encompassed in a digital embodiment, often referred to as a digital file, such as but not limited to recorded music (sound recordings), video (motion pictures or other audiovisual works), or ebooks (literary works), and may further be directed to works embodied in analog form in the original medium and transferred to the new medium in digital form.

Although the invention applies to all works regardless of whether they are copyrighted, the present invention nevertheless uses certain terms with the present

meanings assigned to them in the U.S. Copyright Act, 17 U.S.C. §101. Accordingly, a "copy" refers to the material object – a tangible medium of expression – in which a work is fixed by any method on any medium, and from which it can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device. (The term "copy" will, however, be used to include the term "phonorecord" applicable to sound recordings, as the invention provides no basis for making any distinction.) The term "fixed" means that the work's embodiment in the material object is sufficiently permanent or stable to permit it to be perceived, reproduced, or otherwise communicated for a period of more than transitory duration. (This invention sometimes refers to fixation as being "persistent" in the "memory" of a particular medium, in contrast to remaining un-fixed, or in "volatile memory.") Finally, the term "works" includes all works of authorship such as literary works, audiovisual works, architectural works, musical works, and the like, but without regard to whether they qualify for copyright protection or are in fact copyrighted.

BACKGROUND OF THE PRESENT INVENTION

When a work can be directly perceived from printed paper, transferring it to an alternate preferred medium might be as simple as tearing an article out of a magazine and placing the page in a binder, clipping a newspaper photo to paste into a scrapbook, or re-binding a paperback book with a hardcover binding. When, instead of ink on paper, the work is in machine-readable data on a medium such as a plastic optically-readable disc, reproduction of the work onto another storage medium is simple, but presents its own legal problem; doing so may constitute copyright infringement because

the author of the work enjoys the exclusive right to reproduce the work into copies or phonorecords.

Although every owner of a lawfully made copy of a work is free to redistribute that copy without implicating the copyright owner's distribution right, advances in modern technology, together with trends in consumer hardware, are creating a gulf between the Copyright Act's intent to allow wide dissemination and redistribution, and the ability to make that redistribution a reality. This is most noticeable in two scenarios. First, where copies of the work have been distributed in a format that is no longer accessible, we experience a glut of copies that are no longer useful for the purpose for which they were intended. For example, many motion pictures were distributed on DVDs, and widely disseminated through video stores as sales, resales, or rentals. DVD players were commonplace, and were becoming the norm for personal computers, including laptops. But the trend today is to eliminate the optical drives from laptop computers and other devices, making it harder to enjoy the DVD copy. Although the avenues for enjoying motion pictures through "streaming" public performances may be increasing, the number of titles available for on-demand streaming is but a small fraction of the titles published on DVD. There is, therefore, a growing need for technology to allow continued access to DVD copies without an optical drive.

A second scenario involves the consumer who obtains ownership of a lawful copy of a work by reproducing the work onto the consumer's computer hard drive, such as through purchase or gift of a reproduction by "download" either directly from the copyright owner or a licensed retailer. The work might be a sound recording, motion picture, photograph, or literary work, downloaded onto the consumer's hard drive, and

sharing the same material object as thousands of other works. Although legal, it is wholly impractical to lend, sell or give away a computer hard drive as a means of distributing the copy of that single work, yet a reproduction of the work into another copy risks liability for copyright infringement. The owner of the material object in which a particular work is so embodied may wish to share it with others, as the law intends, but is barred by law from reproducing it (even though reproduction is easy), and barred by physics from redistributing just the portion of the hard drive on which the work is embodied. Thus, the Copyright Act's purpose and the consumer's interests are being frustrated unless the owner of the hard drive is able to move the work embodied in the hard drive from that medium to a medium owned by someone else, or to a more convenient medium (such as a newer computer) owned by the same person, without implicating the reproduction right of the copyright owner.

Although the invention is useful without regard to whether the work is copyrighted, the problem to be solved is most compelling in the case of copyrighted works, in order to maintain the historic balance between ownership of the intangible copyright, on the one hand, and ownership of the tangible copies, on the other.

The Copyright Act intends to encourage the widest possible dissemination of copyrighted works. When each work is fixed in its own separate portable and easily transferable material object, such as literary works in a bound book, sound recordings on a CD, or motion pictures on a DVD, that copyright purpose is fulfilled when an owner lends, sells, rents or gives the material object away to another. Freedom to redistribute such copies has always been an integral part of copyright policy, and Congress codified it in 1909 (currently 17 U.S.C. § 109). That is, one purpose of the Copyright Act is to

assure that copyright holders retain no control over the distribution of lawfully made copies of their works when others own those copies.

Because technological advances have enabled the embodiment of thousands of disparate works sharing a single storage medium, it becomes practically impossible to fulfill that purpose of the Copyright Act. For example, if an original work is written on a portion of a computer's hard drive, it is not practical to lend or sell an entire computer hard drive just to allow someone else access to one of the possibly many works also fixed on it. Further, such a process may introduce new copyright issues relative to other works on the same hard drive. And while it is very easy to reproduce the selected work from the hard drive onto another hard drive, doing so implicates the exclusive right of the copyright holder to reproduce the work into copies and phonorecords. Sending a work by electronic mail, or uploading or downloading the work to or from someone else's hard drive, necessarily involves reproduction of the work into copies.

Some limited exceptions allow for copying these types of works. For example, a "fair use" limitation on copyrights (17 U.S.C. § 107) offers a lawful basis for reproducing a work onto a more convenient medium under certain narrow circumstances. However, there is no bright line rule to follow, as the application of the fair use analysis requires the weighing of several factors beyond the comprehension of the average user, raising the risk of unwitting copyright infringement, on the one hand, or self-censorship out of fear of a lawsuit, on the other.

Substantive objectives of the Copyright Act might be met where a work is reproduced from one object to another, and the original immediately deleted. Doing so might also constitute permissible "fair use" under Section 107 of the Copyright Act, but

the fair use determination is fact-specific, and the legal cost of making the determination is extraordinarily high (as is the risk of guessing the outcome incorrectly) in relation to the value of the copy in question.

The theoretical solution is to achieve the substitution of one hard drive or other material object in one place for another one in a remote location (and/or owned by a different person), but without implicating the reproduction right. To do so successfully, there must not be a reproduction of the work – at all times, only one single persistent copy may be maintained from which the work can be reproduced or perceived. But doing so across a network is laden with pitfalls. First, there is the problem of ensuring that there be no reproduction of the work into another copy or phonorecord; only a single fixation must be maintained at all times. It is not sufficient to reproduce the work into the second copy and then destroy the original. Second, network transmissions are error prone and there is a strong likelihood that re-transmissions will be necessary, yet it is a legal imperative that the works not continue to persist in the original material object, even if only as insurance against flawed transmissions, for that would constitute a reproduction if the work could still be perceived or reproduced from the original medium. This problem is especially complex when the quantity of data is large, as is the case with most high definition media today. Third, in cases where the objective is that the person with access to the work on the new medium return it to the originator, equivalent to traditional rental or lending, transferring the work back to the original material object when done doubles the bandwidth consumed, thereby making such practice inefficient. Fourth, even where a copyright owner (rather than the owner of the copy) seeks to emulate traditional rental with so-called “digital rentals” or “limited downloads” by

authorizing a time-limited reproduction that self-destructs after a period of time, doing so requires a copyright aberration, and potential liability for copyright misuse or under anti-monopoly law, because there is no exclusive right, under the Copyright Act, to limit the life of an authorized reproduction or to prevent the repeated private performance of a work from a lawfully made copy.

Further, it can be difficult for the owner of a lawfully made digital copy or phonorecord to transfer works, particularly copyrighted works (for example, audio or video content such as sound recordings or motion pictures), from one medium to another. For example, because copyright law generally prohibits a consumer from reproducing a copyrighted work into another copy, copy protection may be built into a digital recording. This means that if someone bought a CD containing sound recordings or a DVD containing a movie, the purchaser of that copy or phonorecord may be restricted, such as due to embedded copy protection or other technological protection measures, from copying that sound recording, motion picture, image or literary work to a different and potentially more convenient and easily accessed storage such as flash memory or a computer hard drive. Such a copying process, using current technology, invariably implicates the copyright owner's exclusive right to reproduce the work into copies and phonorecords unless one of the Act's limitations or exceptions applies.

To achieve the desired vigorous dissemination of art and knowledge, the substitution of one material object in which a work is fixed, for another material object bearing the fixation must, in the case of any given copy, be efficient, and at minimal cost.

Currently, it is not uncommon for consumers to just copy the work to a storage drive, also known as "ripping" the work onto another medium, but they may be breaking copyright law in the process, often without realizing it or under the mistaken belief that private, non-commercial copying is permissible. Even making a back up copy of a hard drive where the hard drive has other copyrighted work on it may go against the Copyright Act in some cases. More careful or risk-averse consumers may simply forego the convenience of having the work on different storage than the originally purchased media. The prospects of having to purchase another copy of the work just to be able to enjoy it from a different tangible medium serves no copyright purpose, is met with resistance, and spurs demand for devices or technologies that simply facilitate infringing reproductions.

One approach that has been implemented by copyright holders seeks to mimic the effect of temporarily transferring ownership or possession of a digital medium (a DVD) to persons who, without access to a DVD player, could watch the movie nonetheless. It provides for a licensed so-called "limited download" which is, in fact, a licensed reproduction of the work onto the consumer's hard drive, but where the copyright owner (or its licensee) retains control over how many times (or for how long) the work can be performed privately before it is rendered inaccessible. The difficulty here is that this solution involves a non-statutory extension of the copyright monopoly to activity – private performances – that has never been part of the copyright. Plus, it may involve the copyright owner's destruction of the copy owned by the owner of the computer hard drive; again, extending the copyright owner's control beyond the limits of

the exclusive rights authorized by law (which does not give the copyright owner any right to destroy lawfully made copies owned by others).

Another approach, attempted by a non-copyright owner who owned the DVD copies, provided for a long-distance "virtual" possession (i.e., possession as a right, but not in fact) and remote playback over the Internet through a personal computer. In this scenario, the viewer likely does not retain a copy, obviating the concern over reproduction. However, when done without the copyright holder's permission, in at least one instance a federal court held that such approach infringed the exclusive right to perform the work publicly. Both approaches also fail to meet the legislative intent that copyright owners not retain any control over the redistribution of lawfully made copies owned by others.

In summary, when someone gains ownership of a material object in which a work has been lawfully fixed, the law grants a right to redistribute that work by transferring ownership or possession of the material object in which it is fixed, but not the right to reproduce it onto a different material object without the copyright owner's permission. Under present copyright law, the owner of the lawful copy of a work is entitled to transfer ownership or possession of that copy to another, but if the laws of physics make such transfer a practical impossibility, the owner of the copy is still prohibited from reproducing the work onto another medium to achieve the Copyright Act's desired result of broad dissemination. Any attempt, no matter how technologically easy, to reproduce the work to an alternative or additional medium may be an infringement of the copyright holder's rights, even if the original copy is deleted immediately thereafter.

No known previous attempts have been made to comprehensively solve this problem. With respect to sound recordings, U.S. Patent No. 8,627,500 intended to effect the equivalent of resale of copies (called "phonorecords" in the case of sound recordings) that had been reproduced onto computer hard drives, but the process involved reproducing the work into additional copies before the unwanted copies were deleted, and the company practicing the patented invention was found guilty of copyright infringement.

DESCRIPTION OF THE FIGURES

FIG. 1 depicts a flow chart of a general description of how a media player works.

FIG. 2 depicts a flow chart of a general description of a process of moving a video work from one medium such as a DVD or hard drive to another medium such as a different a hard drive.

FIG. 3 depicts a flow chart of a general description of a process of moving a video work from one medium such as a DVD or hard drive to another medium such as a different a hard drive, with encryption.

FIG. 4 depicts a flow chart of a general description of how a person might receive a digital video that was sent by another person or entity.

FIG. 5 depicts a flow chart of a general description of how a person might return a digital video to the original sender.

FIG. 6 depicts a flow chart of a general description of how a person might begin receiving a work that was sent by another, begin playing it before having received it all, and begin returning it without having played it all.

FIG. 7 depicts a first state of content being transferred from a host and a client.

FIG. 8 depicts a second state of content being transferred from a host and a client.

FIG. 9 depicts a third state of content being transferred from a host and a client.

NON-REPRODUCTIVE SUBSTITUTION OF THE MATERIAL OBJECT IN WHICH A WORK IS EMBODIED

The present invention is directed to a system and method for transferring digital content from a first medium to a second medium while preventing reproduction of the work by assuring that a the digital content is never persistent (never fixed) in more than one medium (material object).

The present invention provides a benefit of the owner of a lawful copy or phonorecord to transfer a copyrighted work fixed in one material object (media) to another material object of their choosing without violating copyright law by reproducing the work into additional copies or phonorecords.

An objective of the present invention is to provide an efficient method for transferring a digital embodiment of a work, such as a media file on a DVD, from a source medium to a destination medium, without infringing a copyright owner's reproduction right in the process. In the method of the present invention, fleeting memory, referred to herein as volatile memory, is used to temporarily store some or all of the content in the same manner as a playback device such as a DVD player might utilize it. The volatile memory may be located at the source medium, the destination medium, some other location, or all three. The file may be transferred at once or in

chunks, with the data in volatile memory removed as the transfer occurs. In the method of the present invention, no more than one persistent version exists at any time and, accordingly, the method prevents reproduction into another copy. As the file comprising the work is transferred to the destination medium, the original embodiment in the source medium is rendered unusable (which is to say, the work is "de-fixed" in that the work can no longer be perceived or reproduced from it), either through erasure or some other known means, before the content is persisted on the destination storage device. The process of the present invention further utilizes encryption and decryption as needed, so as to minimize data being transferred such as when returning the content, yet sufficiently robust to enforce the single fixation requirement to the same degree as in the case of a physical transfer of the material object, such that if the destination medium where the work is eventually fixed is lost or destroyed, the copy of the work can never be recovered, including from the source media.

For reference, we describe how media players typically play back copyrighted works from pre-recorded media. In the example shown in FIG. 1, a motion picture pre-recorded onto a DVD is being played. A similar technique is used for playing a CD, Blu-ray disc, or other such pre-recorded media. A segment of the content is read from the media and placed into volatile memory where it may be necessary to have it decrypted. Even though the segment resides concurrently both on the pre-recorded media and also for a brief moment in volatile memory, the portion in volatile memory is not a "copy" as that term is defined in the copyright Act. The fleeting presence in volatile memory is a necessary step in the process of playing the motion picture from the DVD and, in any event, such volatile memory's fleeting content is a state too unstable and transitory for

the work to be considered "fixed" in a tangible medium from which it can be perceived or reproduced. The segment is typically decrypted, converted into the appropriate format that matches the output device, played, and then erased from volatile memory. In the case of a CD, the output device might be a stereo system; in the case of a DVD or Blu-ray video, the output device might be a TV or monitor.

One embodiment of the method of the present invention is shown in FIG. 2. The method of the present invention includes a controller and a reading device, such as a DVD or CD reader. The controller directs the reading device to read some portion (also referred to herein as a "chunk") of the digital content from the "source medium" (e.g., CD or DVD or other medium) and place the read portion in volatile memory. After the data have been placed in volatile memory, the controller destroys or directs a device to destroy that portion of the digital content on the source medium so that the work can no longer be perceived or reproduced from it. The destruction can take any of several known forms, such as erasure, a physical action to preclude optic reading, or some other known action.

The method of the present invention further includes the steps of writing that portion digitally to persistent storage fixed in a destination medium, and finally clearing the volatile memory. This process is repeated until the entire work has been removed from the source medium and transferred digitally to persistent storage on the destination medium without involving the presence of any further copies or other reproduction. The portion that is read and removed each time could be any subset of the digital content.

In at least one embodiment, destruction can occur after the entire file is transferred.

In at least some cases, the process described above could be more complex, such that data are delivered to a first volatile memory (perhaps associated with the source). Upon being written to the first volatile memory, the data are erased from the source medium as described above. The data are then transported to a second volatile memory, such as one associated with the destination. Upon being written to the second volatile memory, the data are erased from the first volatile memory. The data are then transported to the destination and then erased from the second volatile memory.

In the special case where the subset is the entire media, the process is complete after a single iteration. An alternative embodiment in this case would involve reading the entire digital content of the source medium into volatile memory, using any known method to destroy the original copy or phonorecord, either by destroying the material object in which the work is embodied, such as but not limited to using a shredder (physical or electronic), or by otherwise preventing the work from being able to be perceived or reproduced from the original material object, such as by use of an etcher, and then writing the entire contents from volatile memory to be fixed in persistent storage.

In either case, at no time will there exist more than one persistent fixation of the work in a tangible medium from which it can be perceived or reproduced for more than a period of transitory duration.

The need to decrypt from the original medium may be situation dependent. In at least some cases, the process of decrypting is commonly achieved when the file is read into volatile memory. In some cases, the original data may not be encrypted and it may never be necessary to decrypt it at all.

Another embodiment would be to transfer content agnostically – that is, if the content is encoded in some way, not to decode before transfer. In such cases, any encryption or other technological protection measure would be transferred to the new medium along with the transferred work. However, in at least some circumstances, it may be necessary to decrypt the content to facilitate transfer.

ENCRYPTION

For various purposes, it can be useful to save the data in an encrypted fashion. In order to accomplish this, we introduce an additional step in the method of the present invention after the data has been decrypted, if needed, or by choice not decrypted, from the source medium and split into chunks. For each chunk, a key is generated which is used to encrypt that particular chunk and is associated with that chunk.

Many processes are described in the literature for generating keys and performing encryption. Any of these that are appropriate may be used. A typical procedure might be to generate a random key, which is used as the seed to a secure pseudorandom generator (PRG), which will generate 512 byte values. Each chunk being encrypted can then be thought of as being made up of a series of 512 byte segments where each segments is then xor'd ("exclusive or") with the respective output of the PRG. So the 1^{st} segment will be xor'd with the 1^{st} output of the PRG, the 2^{nd} segment with the 2^{nd} output and so forth. To decrypt, we once again use the key as the seed of the PRG, which is used to generate the same successive values as were generated when encrypting the content, each of which is xor'd with the respective segment of the chunk being decrypted.

KEY SELECTION

It is important to choose a key that is large enough to prevent attackers from launching any kind of an attack such as one of simple brute force. If we choose a key of 512 bytes, which translates to 4096 bits, current literature suggests that if attackers had a quadrillion CPUs at their disposal, it would take them over 10^{100} years to launch a successful attack. What makes it even more difficult in this case is that each chunk has its own random key so the successful decryption of a key only gives access to a single chunk.

TYPES OF MEDIA INVOLVED IN SUBSTITUTION

Thus far, the description relates to substitution of an embodiment of a work from a "hard" medium, such as a DVD, to a "soft" medium, such as a hard disc storage device. Another embodiment of the present invention incorporates transfer of digital content from one soft storage device to a different soft storage device, where a soft storage device is one which has readily replaceable content, such as but not limited to a computer hard drive or a flash drive. For example, rather than transferring a first material object (such as a DVD or hard drive) from one person to another, the embodiment of an individual work in the first material object is transferred (leaving behind no fixation of the work) in the method of the present invention to become written and stored in a material object in the possession of another, without reproducing the work into another copy or phonorecord.

CHUNKING

Using volatile memory, which is to say, a state in which the work is not "fixed" in a tangible medium because it is too fleeting for the work to be perceived or reproduced from it, the data comprising the work embodied in the first material object is broken up into sections, or "chunks", and each chunk may be encrypted with a key. A chunk is some portion of the data representing a portion of the digital content, and could be as small as a few bytes or as large as is manageable for this purpose. A chunk may be (but does not need to be) distinguishable in that it may relate to a distinguishable section of the work, such as a scene from a movie or a song on an album, or might be a defined quantity of data. Although the present invention is applicable to any work of authorship that has been digitally fixed, an illustration using the example of an audiovisual work (a "video") is shown in FIG. 3. As in the earlier embodiment, the transferring content is erased (or otherwise inaccessible) concurrent with the writing on the destination medium.

VOLATILE MEMORY

A core component of the method of the present invention is use of volatile memory. Volatile memory is characterized as memory which does not naturally retain its contents such as Dynamic Random Access Memory (DRAM) which needs power and requires constant refreshing in order for its content to be retained. By its nature, volatile memory is fleeting. It is particularly fleeting in this scenario in that the content placed in volatile memory is cleared upon transfer to the destination medium.

In the context of the method of the present invention, the volatile memory may be resident in one or more locations including a location co-located with or related to the source medium, co-located with or related to the destination medium, or some other location.

When volatile memory is discussed below as being in a particular location, it is done so in an exemplary manner only and, in at least some embodiments, the volatile memory might be physically located elsewhere, as described above.

TRANSFERRING DATA ACROSS A NETWORK

Before transferring content from a host to a client across a network, the content may be segmented into multiple chunks with each chunk being encrypted with its own unique key.

When we wish to transfer content across a network, each encrypted chunk along with its respective key is read into volatile memory on the host where the chunk is decrypted, converted into the destination format and sent along with its respective key to volatile memory in the client. Once the chunk and its key are received by the client's volatile memory, the key associated with the chunk that was sent is first erased from the host's persistent storage, and then both the key and the data for each chunk are stored on the client's persistent storage. By erasing the key on the host associated with an encrypted chunk, that chunk becomes unreadable on the host. At that point, the chunk and its key are erased from the host's volatile memory. Even if the bits comprising the chunks which are encrypted continue to reside in the host's persistent storage, because the keys are no longer known to the host, those chunks are unplayable on the host, and

the work of authorship associated with them is no longer fixed (as that term is defined in the U.S. Copyright Act) in the host because the work can neither be perceived nor reproduced from the host. The chunks and keys are also erased from the client's volatile memory.

All chunks are sent across a network in this way. Chunks may be sent serially, in parallel or staggered. From the moment that the chunk and key together are persisted on a destination (client, in the above example) device (i.e., fixed in a tangible medium of expression at the destination), it is no longer accessible (no longer fixed) on the origin (host, in the above example) device, such that the work is never fixed in two material objects at once. At any given point during the transfer, at most only one fixation of the work is maintained; although it might be partially split between the origin and destination devices. At the point at which the complete work is fixed in the client, no portion of it is any longer fixed in the origin.

RETURNING DIGITAL MEDIA ACROSS A NETWORK

Once the digital content becomes resident in the destination device, it can once again be transferred to a different device, including back to the origin device (assuming, of course, that the origin device remains writable). This may be advantageous in that it can serve as a loan, returnable to the origin.

When the destination (client) wishes to return that single copy of the work back to the origin (host) for each chunk, the controller reads its associated key, or directs the reading of the key, into its volatile memory, the key is sent back to the host and the persistent copy of the key and the associated chunk are erased (or becomes otherwise

unreadable). The host (the new recipient) will then save the key back into its persistent storage at which point the keys are erased from the volatile memory of the client as well as the host. At the point at which the work is once again fixed in the host, no portion of it is any longer fixed or readable in the client. See FIG. 5 as an example.

Once this has been completed for all chunks, only the host can access the work, because the material object in which the work is fixed has been substituted back. In this way, only one persistent accessible copy – only one fixation of the work in a material object – is maintained at all times, even as the tangible medium in which the work is embodied changes. By only sending the key, the amount of data that is returned to the host is significantly reduced.

One utilitarian aspect of this feature is the voluntary return of the copy from client to host, initiated by the owner of the client. Another embodiment is the automated return of the copy (after a specific period of time, or after a specific number of private performances, for example) initiated by the client as specified by the owner of the host. Such aspects are particularly beneficial in loan situations.

SECONDARY DISSEMINATION ACROSS A NETWORK

The present invention is ideally suited to preserving the benefits of secondary markets for lawfully made copies and phonorecords.

The first sale doctrine, as codified in 17 U.S.C. § 109, ensures that those unable to acquire lawfully made copies of copyrighted works at the initial retail price can nevertheless gain access to the works through secondary markets such as resales, rental, gifts and lending of those initial copies. Rather than return the copy to the host,

the embodiment of an individual work in the material object owned by the client (now host2) is transferred to the material object owned by another (now client2), without reproducing the work into another copy or phonorecord. Rather than returning the key to the original host, host2 transfers the copy to client2 in the same manner as the host transferred it to the client. The process could also continue to other clients (client3, client4, etc.) whenever the client has no obligation to return the copy of the work to its host, and is free to become a secondary host, just as, for centuries, people have been free to pass along their copy to someone else. As in the original transfer, the use of robust encryption guarantees that only one copy or phonorecord of the work will exist (thereby protecting the reproduction right), while still protecting the original public policy against allowing the copyright owner to control secondary transfers.

Yet another embodiment is when a host passes its copy of a work onto a client as previously described and once the client has completed its use of the copy, rather than sending it back to the original host, the original host directs the client to send it to another client who has requested that copy of the work. At this point, the original client becomes a host (host2), which sends the content to the new client (client2). This process can continue to multiple clients (client3, client4, etc.) until either no more requests are made for that copy of the work, at which point the client that currently has the copy of the work returns it to the original host, or one of the clients "loses" the copy (e.g., the client media is destroyed), at which point the copy is irretrievably lost.

CONCURRENTLY RECEIVING, PLAYING AND RETURNING MEDIA ACROSS A NETWORK

Another portion of the method of the present invention that is particularly useful is the ability to begin receiving, and then begin playing (i.e., privately performing the work) before all of the work has been received, and later begin returning the work before it has all been played, across a network, while maintaining only a single copy of the work at any given time. At any given point during the transfer, only one fixation is maintained; although it might be partially split between the host and client in a manner akin to handing someone the sports section of the newspaper while continuing to read the business section. See FIG. 6.

In this case, the host first identifies the next set of chunks that need to be sent to the client. FIG. 7 shows the state of the host and the client's digital storage and volatile memory after the chunks have been identified. In the host's digital storage, the first two chunks have been sent and those chunks are no longer playable or reproducible from the host. The next two chunks (3rd and 4th) are the ones identified to be sent next and are shown as boxed in the "Host Digital Storage" element. The client has already received the 1st and 2nd chunks and may play them. The grey highlighted area indicates that the client is waiting for the 3rd and 4th chunks.

Those sets of chunks along with their keys are then read into the host's volatile memory. The chunks are decrypted and converted into the format required for playback on the client. The chunks and their keys are sent to the client, after which the keys are erased from the host's digital storage and then written to the client's digital storage. The chunks and their keys are then erased from the host's volatile memory.

This process has resulted in a new set of chunks and their keys (3rd and 4th) being sent to the client's volatile memory with the keys being erased in the host's digital

storage and written to the client's digital storage. The state of the host and client's digital storage and volatile memory appear in FIG. 8.

Those chunks (3rd and 4th) are only playable on the client. Even though the encrypted chunks exist on the host, because their keys are erased, the work is undecipherable and hence unplayable and un-reproducible from them.

Simultaneously, on the client, the next set of chunks is played. In this case, it will be the 1st and 2nd chunks, which were sent previously and are ready to be played once their turn arrives. Once they are played, the keys are returned to the host and kept in volatile memory there. After the chunks and their keys are erased from the client's digital storage, the keys are returned to the host's digital storage, rendering the associated chunks playable once again on the host. All traces of those chunks and keys are then erased from both the client and the host's volatile memory. The state of the host and client's digital storage and volatile memory is shown in FIG. 9.

The boxed areas show the keys that have been removed from the client and placed back on the host.

Throughout this process, only one fixation of the copyrighted content is maintained even though the embodiment of the work might be split between the host and client (in the same way that two different people may hold separate sections of a newspaper) and may also be kept, unfixed, in volatile memory for a short period of time in the same way a common media player (like a CD player or DVD player) might use volatile memory to render the work.

SUMMARY

In these examples, we have been using video digital content as an example. These processes could be applied equally well to any other digital content, copyrighted or otherwise, whether it be video, audio, images, text, or anything else. In the case of audio, the chunks would be audio chunks; in the case of images, the chunks would be image chunks and so forth.

The present invention provides a method for a person to transfer that person's unique "copy" or "phonorecord" (as those terms are defined in the Copyright Act) over a network without violating copyright law. Most particularly, in the method of the present invention, at most one persistent version of a digital file is ever available. The present invention also allows the content to be returned quickly, minimizing the amount of data transferred. The digital file of an individual work sharing a common medium with many unrelated works can thus be sold or given away, or can be lent or rented and returned easily, without violating copyright law because the work is never reproduced into another copy or phonorecord. Just as the owner of a lawfully made copy that solely occupies a single material object is entitled to dispose of that copy without the consent of the copyright holder, the owner of a copy that occupies space on a material object shared by multiple works is also able to dispose of that single copy without having to transfer possession of the copies of all of the other works sharing space on the material object.

Although the widest applicability may be with respect to dissemination of individual copies of copyrighted works without reproduction, the invention also has the advantage of preventing reproduction of works regardless of the copyright status, such as where the protection of un-copyrighted trade secrets requires that the number of

available copies be controlled even as the location of the copy is shifted from one place to another. The present invention could also be applicable in instances where the equivalent of an "evaluation copy" must be made available to someone while, by securing the automatic return of the copy, the risk that such copy will not be returned is minimized. Finally, the invention could be useful in carrying over to the digital format the added scarcity value visual artists derive from offering limited edition numbered prints, as this invention could allow "print 17/100," for example, to uniquely persist, despite being sold to another, because the buyer is assured that the seller did not retain a copy.

Sample claim

A method for a computer process to transfer a digital content file from a first medium to a second medium without making a multiplication of copies of the work, comprising the steps of:

identifying an encryption key for at least a portion of said file;

determining the presence of any encryption in a digital media file and decrypting the file as needed;

delivering at least a portion of said file to a volatile memory;

destroying said encryption key on said first medium;

delivering at least a portion of said file to a second medium;

destroying the delivered portion of said file on said volatile memory;

repeating the delivering and destroying steps until the entire digital content file is resident in said second medium, and no other.

How A Media Player Works

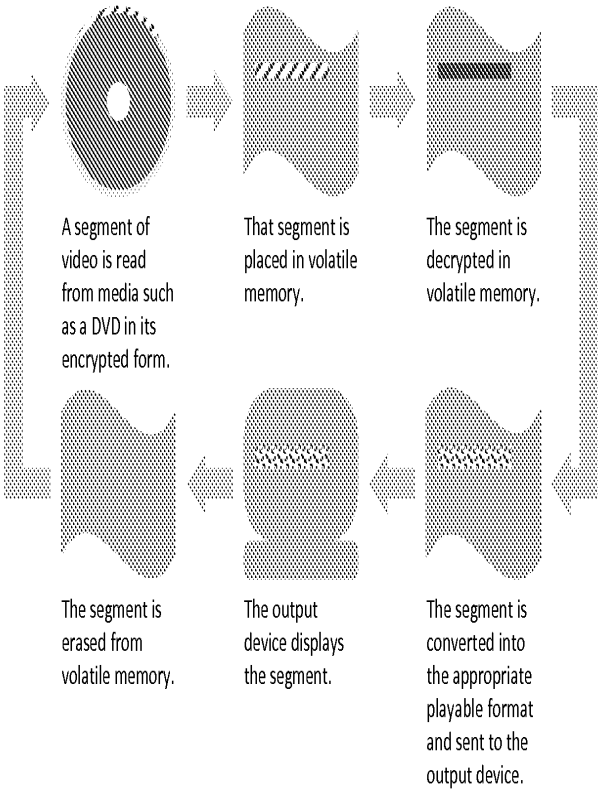

FIG. 1

Moving Video Data To Digital Storage

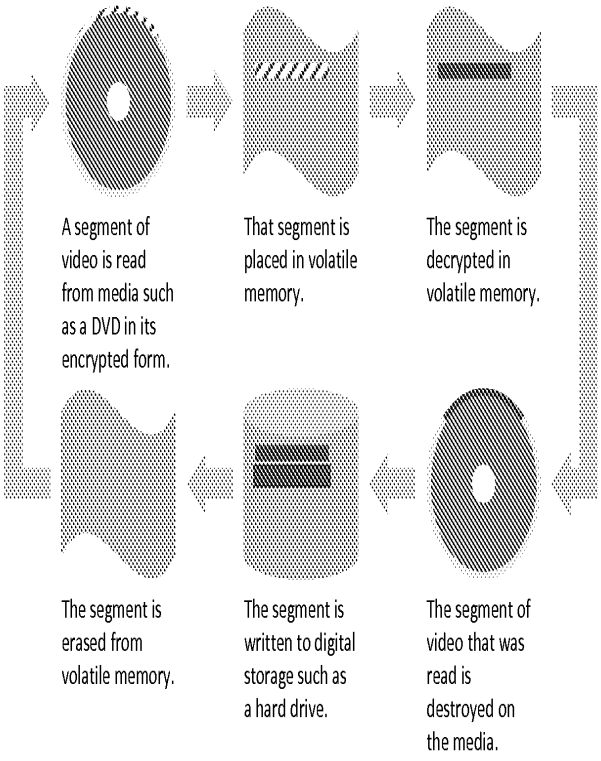

FIG. 2

Moving Video Data To Digital Storage With Encryption

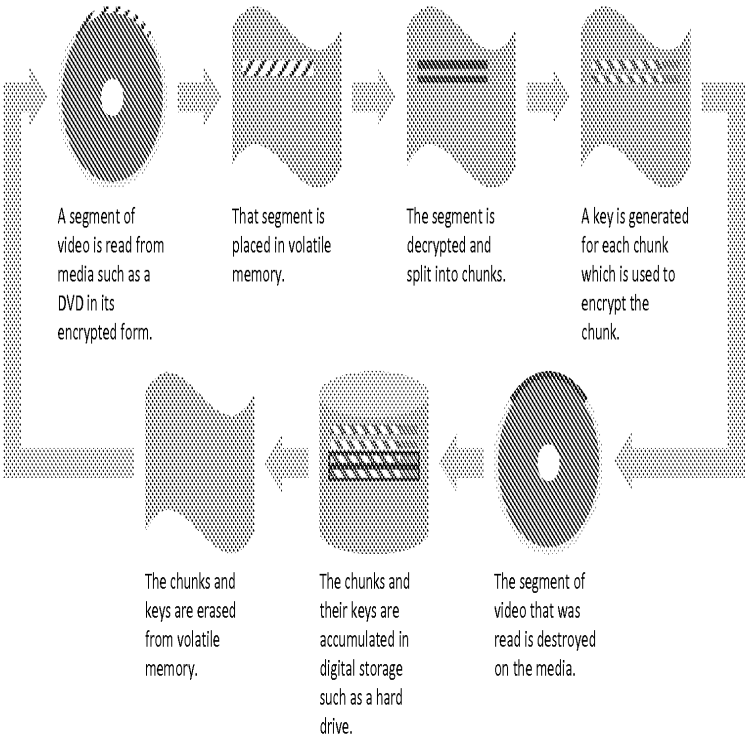

FIG. 3

Sending A Digital Video

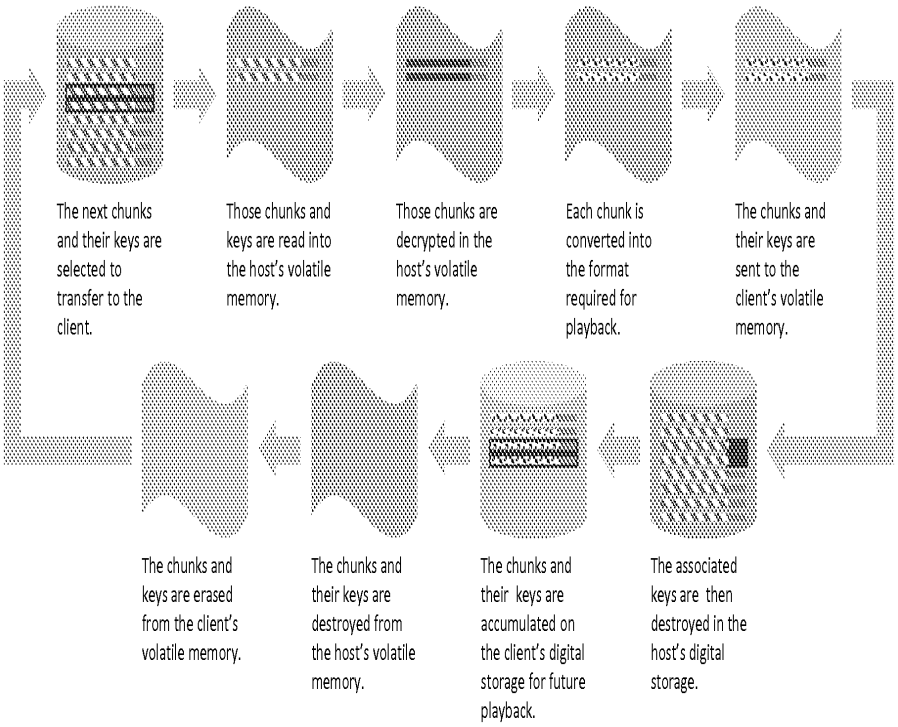

FIG. 4

Returning A Digital Video

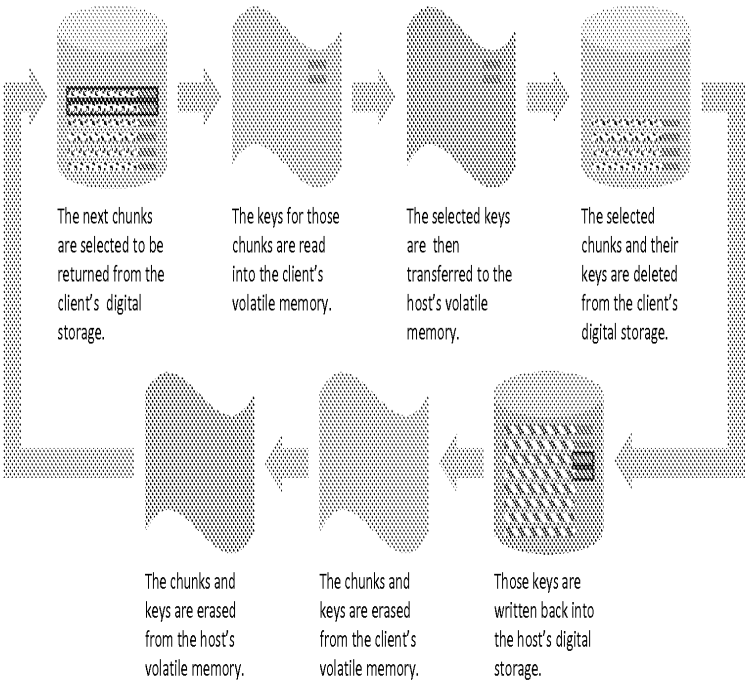

FIG. 5

Concurrently Receiving, Playing and Returning Media

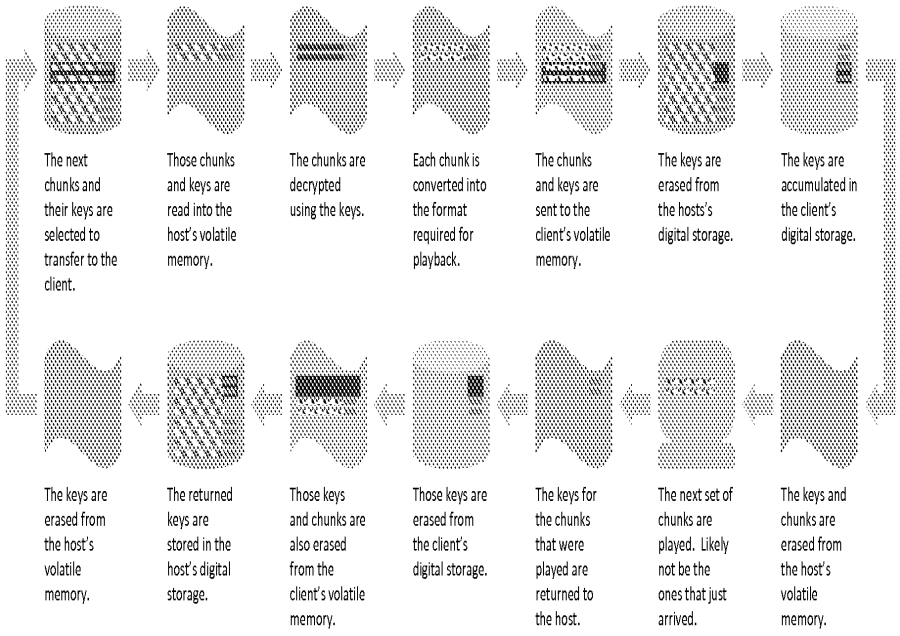

FIG. 6

State of Host and Client 1

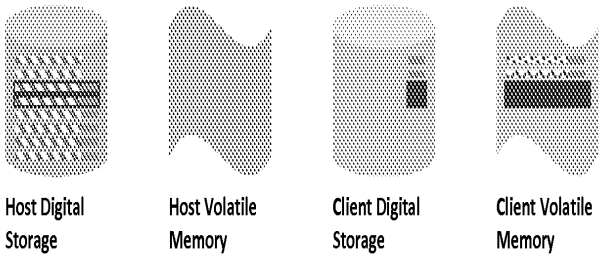

FIG. 7

State of Host and Client 2

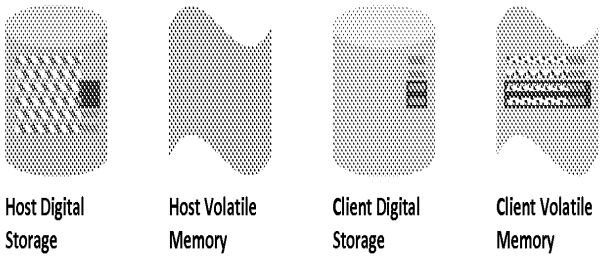

FIG. 8

State of Host and Client 3

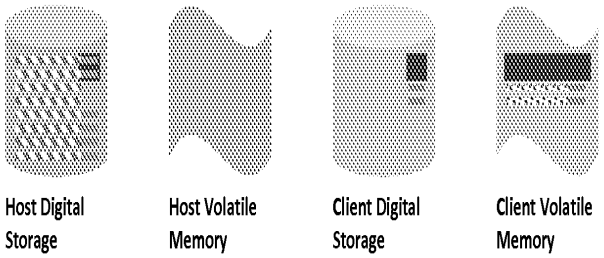

FIG. 9

Electronic Acknowledgement Receipt

EFS ID:	22099037
Application Number:	62149238
International Application Number:	
Confirmation Number:	1091
Title of Invention:	METHOD FOR NON-REPRODUCTIVE SUBSTITUTION OF THE MATERIAL OBJECT IN WHICH A WORK IS EMBODIED
First Named Inventor/Applicant Name:	Johann George
Customer Number:	22440
Filer:	Barry Robert Lewin/LEWIS BROWN
Filer Authorized By:	Barry Robert Lewin
Attorney Docket Number:	8645/002
Receipt Date:	17-APR-2015
Filing Date:	
Time Stamp:	17:05:07
Application Type:	Provisional

Payment information:

Submitted with Payment	yes
Payment Type	Electronic Funds Transfer
Payment was successfully received in RAM	$130
RAM confirmation Number	3852
Deposit Account	
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: