

ECONOMIC ANALYSIS OF SAFE HARBOR PROVISIONS

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1. INTRODUCTION

1. A new class of website has arisen during this century that is based on users uploading materials (copyrighted and not) that other users can consume. These sites are described in several different ways, but I shall refer to them as user uploaded content (UUC) sites. The largest such site, YouTube, has well over a billion users and is the largest music streaming site in the world, as well as streaming other types of content.
2. In the 1990s, prior to the emergence of UUCs, legislators were setting up rules for businesses on the Internet and were asked to help nascent Internet Service Providers (ISPs) by weakening traditional copyright laws with respect to copyright materials that might be uploaded to ISPs. Legislation was created that included provisions to help ISPs avoid being blamed for copyright infringement undertaken by their users, and a key component in doing so was the “safe harbor” which, as the name implies, allowed ISPs to avoid copyright liability as long as the ISPs followed certain rules, the most important of which is known by the term “notice and takedown,” essentially requiring them to remove infringing works quickly after being notified of such infringement.
3. The safe harbor has become a contentious issue as music copyright owners feel that the safe harbor has allowed rich and powerful UUCs to arise while paying either nothing or what appear to be unusually small amounts to copyright owners, even though a large portion of the UUC users consume copyrighted music. UUCs argue that this is not the case at all.
4. In the following report, I examine the intended purpose of the safe harbor, the nature of the UUC market that has arisen under the auspices of the safe harbor, and the economic consequences of the safe harbor.

2. SUMMARY OF RESULTS

5. The safe harbor was a mechanism designed to provide ISPs a way to avoid copyright liability for occasional infringements by their users as long as the ISP agreed to quickly remove the infringing material when asked to do so by copyright owners (through notice and takedown provisions). The growth and usage of UUC sites, however, has caused the quantity of infringing music uploads, and the amount of infringing music consumption, to be enormously larger than anticipated by the architects of safe harbors.
6. The notice and takedown provisions have proven to be entirely inadequate for the removal of copyright infringing material. Thus, the amount of copyright infringing material available for UUC users to access on these sites is very large, meaning that UUC sites can provide their users with access to a large library of copyrighted works for which no permission was granted by copyright owners.

7. Because operators of UUC sites can provide their users access to copyright materials without paying copyright owners for those materials, economic analysis indicates that these sites should be unwilling to pay a full market price equivalent to what they would be willing to pay if they required permission of copyright owners before they could provide their users access to this material. This gives UUCs an unfair bargaining advantage when they negotiate rates for permission to use copyrighted works on their sites, which UUCs wish to have since permission still has some marginal value to them. This lower cost permission, which is the consequence of unequal bargaining power, allows UUCs to take market share away from non-UUC sites by lowering advertising intensity and/or using their financial advantage to make their sites more attractive to users in other ways.
8. The largest UUC website (YouTube) has another advantage over sites purchasing permissions of copyright owners. Because YouTube is not a stand-alone company, but is instead a part of the much larger entity, Google (Alphabet), YouTube should maximize the profits it generates for all of Google and not maximize its stand-alone profits. Because YouTube provides valuable information about its customers that Google can use when it displays advertisements to these customers all over the web, Google will prefer YouTube to generate more users than it would if it was a stand-alone company, since that will maximize their joint profits. YouTube will achieve a greater number of users by having a lower advertising intensity than its advertising based competitors.
9. The lower payments made by UUC sites gives them an advantage over non-UUC competitor web sites that rely on purchasing permission from copyright owners to host copyrighted music. Because music based UUC sites such as SoundCloud and YouTube are competitors for non-UUC sites, such as Spotify (ad-based or subscription), the competitive response by non-UUC sites would be to lower their advertising intensity (or subscription prices), lowering their revenues and copyright payments.
10. The safe harbor, therefore, because it provides the basis for the bargaining advantage of UUC sites, lowers the overall price paid to copyright owners for the use of music whether through the reduction in advertising intensity (which can be viewed as the price paid by consumers) and revenues, or the price charged to consumers for monthly subscriptions.
11. Empirical evidence supports this conclusion. The copyright payments made by UUC sites are considerably lower, per stream, than other, similar but non-UUC streaming sites. YouTube also pays out a smaller percentage of its revenues to copyright owners, and also generates less advertising per stream than other sites, as economic theory suggests.
12. YouTube claims that its Content ID system removes any damage from the safe harbor, but this claim is false. First, if the Content ID system worked as well as YouTube suggests, YouTube would have no need for a safe harbor at all. But the more directly relevant fact is that the safe harbor does not work nearly as well as YouTube claims. Imperfect Content ID does not remove UUC sites' bargaining advantage due to the safe harbor, and thus Content ID does not remove the diminished level of copyright payments due to the safe harbor.
13. The net result of the safe harbor induced advantage of UUC sites is that UUC sites make lower copyright payments than they otherwise would. This competitive advantage causes UUC sites to gain customers from permission-based sites, lowering the revenues of permission-based sites and lowering their resultant copyright payments below what they would be in a world without safe harbors.

14. Because the lower prices caused by the safe harbor affect both UUC sites and their permission based competitors, it is necessary to examine more than just the difference in copyright payments between the two types of sites when estimating the lost copyright payments caused by the safe harbor. Instead, we must compare current payments by both UUC sites and permission based sites to the higher payments that each group would have made in the absence of safe harbors, and calculate the amount of shortchanged copyright payments on that basis.

1. BACKGROUND: • MARKETS AND PROPERTY RIGHTS

15. Markets, when they function properly, improve standards of living and create efficient production, distribution, and consumption. The main focus of economics is on how markets operate, and on various possible impediments to the functioning of markets. The main tools economists use to examine the workings of individual markets are the celebrated concepts of supply and demand.
16. A key assumption underlying the efficient workings of markets is that sellers (suppliers) and buyers (demanders) of the product being sold in the market must be making voluntary decisions. Sellers should be basing their sell decisions on the costs of production and their profit maximizing calculations, and buyers should be making their purchase decisions based on the values they expect to receive from the product relative to the price of the product. Markets would not operate efficiently if, say, sellers were being coerced to make their products available at prices they would not voluntarily accept.
17. A second assumption required for markets to operate properly is that effective property rights exist over the products being produced and consumed. A farmer planting corn for sale at harvest time will be less inclined to plant corn if he knows that some of the corn will be stolen before harvest time. The more corn that the farmer expects to be stolen, the less likely he will plant any corn. Equivalently, buyers of corn will be less willing to purchase corn if there is a high probability that their purchased corn might be stolen from them after the sale. Insecure property rights, such as in these examples, tend to disrupt if not destroy, the functioning of markets.¹
18. The basic logic of markets is that consumers vote with their dollars for products that they wish to consume. Sellers compete with one another for consumer dollars and produce products they hope that consumers want. Consumer expenditures go to those producers who are best able to provide products that consumers want at attractive prices. Since producers are providing these products to earn profits, the prices they charge must at least cover all their costs, and producers would like, if possible, to earn economic profits.² The bottom line is that consumers get products they want, at reasonable prices, even if producers are only interested in maximizing profits. This is Adam Smith's "invisible hand."

¹ There are other assumptions required for markets to lead to socially efficient outcomes (e.g., no externalities for the product in the market, which means that all the costs of production or benefits of consumption are included in the market transaction) but we do not need to discuss these other assumptions here.

² Economic profits have a different meaning than the typical accounting profits discussed in the business press. Economic profits occur when revenues are greater than all costs, including opportunity costs. In other words, if economic profits are positive it means that the returns on investment are above normal, that the investors in the firm earned higher returns than they could have earned in other endeavors (the opportunity cost). The typical economic profit in a competitive market is expected to be zero although accounting profits should indicate a positive return on investment, just one that is not unusually high.

19. Note that in the idealized market described above, as found in numerous textbooks, consumers of the product pay the market price, and all their payments go to the producers. When this relationship is altered, such as when the government imposes a tax on the product, so that the payment made by consumers differs from the receipts received by the sellers (net of taxes), markets are expected to deviate from their optimal levels.³ In the example of farmers having their corn stolen, the linkage between consumer consumption and producer revenues is broken because thieves are able to consume or sell the product (corn) without paying the producer. Markets do not function properly when that linkage between buyers and sellers is broken.
20. A different type of problem that can disrupt the functioning of markets is what I have elsewhere called ‘parasitic’ products.⁴ Imagine a set of burglar tools (or ransomware hacking software) that make it easy for burglars to steal items from people’s homes (or lock up computers) but serve absolutely no other purpose. Burglars would be willing to pay for such tools (and hackers for the software). If demand for the tools were sufficiently high, producers of these tools would break even or make economic profit. The burglar tool market would provide net value (known as surplus to economists) to burglars and the makers of the tools, but the impact on society would be negative because the value to the burglars comes entirely from the activity of stealing the property of others, an activity with no productive purpose on its own. Burglar tools reduce the overall production of socially valuable items, as potential victims, hoping to reduce the number of break-ins, use resources to defend themselves against possible theft. Those resources are diverted from more productive uses, which would not have been necessary if there were no burglar tools.⁵
21. The parasitic technology is destructive because it breaks the transaction between the sellers of the goods that wind up being stolen and the buyers of those goods. If the goods are stolen from the sellers, then the sellers will have less incentive to produce the goods. If the goods are stolen from the buyers after the transaction, then the buyers will be unwilling to purchase items in markets that are subject to theft. Burglar tools are a direct attack on property rights, and thus make markets less efficient. In the extreme case where many thefts occurred all the time (e.g., corrupt police and courts) the entire economy might essentially grind to a halt, as we see in some less developed economies. Making the same point in another way, farmers will not plant crops in the spring if they understand that, due to theft, they would be unable to harvest the crops in the fall.
22. It is generally understood that disrupting the functioning of markets in this way is harmful to society, which is why successful societies have laws (and social norms) against theft, robbery, and selling stolen goods.
23. Like parasites, which live off the host while harming the host, parasitic products siphon away resources from the productive economy, thus decreasing output in the productive economy.⁶ Note that the gain to the parasite might be much less than the loss to the host, so this is not just a transfer from the host to the parasite.⁷ The parasitic activity I discussed in my earlier writings was filesharing, otherwise known as piracy. Websites such as Limewire, or the original Napster, did

³ The field of “public finance” is focused on the question of how the government can generate revenues in ways that are least harmful to the efficiency of the economy.

⁴ Liebowitz, Stan J., “Parasitic Technologies and Non-Creative Destruction” IP Central, March 2006, available at <https://ssrn.com/abstract=1026328>. All links referenced in this report were accessed between July and December of 2017.

⁵ This can also be thought of as what economists call a negative “externality” where the participants in this “market” ignore the full costs of this product on others outside the market to whom this product causes damage (as is true for the archetypical externality, air pollution). A difference between these two externalities is that the typical externality involves a product that has positive net value to society but also a negative byproduct whereas the parasitic technology has a negative net value.

⁶ Defenders of piracy often point out that the lower prices caused by piracy benefit consumers as long as *the number of songs produced does not fall*. The economic purpose of paying creators, however, is to encourage production, so the assumption that the creation of songs is unrelated to payments is contrary to our understanding of supply curves being upward sloping (not vertical), which is assumed in almost all other markets.

⁷ For example, if the burglar “fences” the stolen items, they will usually generate far less revenues than a legitimate sale of the item, so the burglar receives less than those who are burgled lose. Society loses as well, since resources are now “wastefully” spent to protect against burglary.

not purchase the rights to the music they offered to listeners, and did not pay creators, but instead they allowed users to download songs from other users, while the websites generated advertising revenues. Those websites did not host the songs themselves, but merely links to songs available from individual users, which had the dual purpose of keeping their hosting costs down while providing a possible defense against legal liability for copyright infringement.

24. The songs available on pirate websites were substitutes for authorized versions. Because the pirated versions were free, it was to be expected that many music listeners would switch to the zero priced songs instead of purchasing the songs through normal market mechanisms. This intuition is supported by the typical findings of economics studies examining the reason that record sales fell so dramatically after the arrival of Napster in 1999.⁸ Those studies revealed that piracy was the main cause of the enormous sales decline that took place.
25. What does this discussion of parasitic technologies have to do with safe harbors? As Ashcroft and Barker (2014) have noted, safe harbors can and have had the unanticipated effect of creating parasitic websites, as I explain below.⁹

2. WHAT IS A “SAFE HARBOR”

26. The Internet makes it possible for individuals to broadcast to the world their opinions, their histories, their creations, and to copy other people’s histories, opinions, and creations. The mechanism for doing so was initially based upon individuals using their accounts with Internet Service Providers (ISPs) which allows those individuals to interact with one another, although these ISP have often been replaced by Apps in recent years.
27. During the 1990s, when the Digital Millennium Copyright Act (DMCA) in the U.S., the E-Commerce Directive in Europe, and similar legislation in other countries were being envisioned, there was a concern about how ISPs would be expected to handle copyright violations that might occur if some of their users posted content that they did not have the legal right to post (i.e., did not have the copyright). ISPs and their allies argued that it was unreasonable for them to be liable for copyright violations over which they had little or no control, since they presumably couldn’t prevent each of their potentially millions of users from posting such material on their web pages.

⁸ Although economic studies reach various conclusions about the impact of piracy, most studies found that piracy decreased sales, and the average result was that piracy was responsible for the entire very large decline in sales that took place worldwide. See Liebowitz “How much of the Decline in Sound Recording Sales is due to File-Sharing?” *Journal of Cultural Economics*, 40(1), Feb 2016, pp. 13-28. Although defenders of piracy often point to an influential 2007 study by Oberholzer-Gee and Strumpf [“The Effect of File Sharing on Record Sales: An Empirical Analysis” *Journal of Political Economy* 115 (1): 1–42] which found no impact of piracy, that study has been shown to be flawed both in its logic and because it made several important errors in its empirical analysis (see Liebowitz [“Responding to Oberholzer-Gee & Strumpf’s Attempt to Defend Their Piracy Paper” *Econ Journal Watch*, May 2017, 14(2) 174-195, <https://econjwatch.org/articles/responding-to-oberholzer-gee-and-strumpf-s-attempted-defense-of-their-piracy-paper>], [“Why The Oberholzer-Gee/Strumpf File-Sharing Article Is Not Credible” *Econ Journal Watch*, 13(3) September 2016, pp 373-396, <https://econjwatch.org/articles/why-the-oberholzer-gee-strumpf-article-on-file-sharing-is-not-credible>], and Oberholzer-Gee and Strumpf [“The Effect of File Sharing on Record Sales Revisited, *Information Economics and Policy*, 2016, 37:61–66]).

⁹ Robert Ashcroft and George Barker “Is copyright law fit for purpose in the Internet era? An economic and legal perspective” 2014 (https://prsformusic.com/-/media/files/prs-for-music/corporate/is_copyright_law_fit_for_purpose_in_the_internet_era.pdf).

- 28.** Instead, ISPs argued that they were as against copyright violations as anyone else, and would be willing to remove offending pages when asked to do so by copyright owners. This was a convincing, although likely incorrect argument, and implementing this argument led to the rule that is currently known as a safe harbor, now found in the DMCA in the U.S., Article 14 of the E-commerce Directive in Europe, and in law in other countries as well. The safe harbor¹⁰ absolves the ISP of copyright infringement if it follows a certain set of rules.
- 29.** The reason that this was likely an incorrect conclusion is that it appears to be relatively easy for technology companies to create an algorithm that can prevent infringing works from being put up in the first place, although it is more difficult to create an algorithm that finds virtually all infringing works. By requiring copyright owners to find infringements, instead of having ISPs trying to prevent infringements (which would have been the case if ISPs had been made liable for infringement) the law acted as if copyright owners were the parties with the lowest cost of finding infringements, which if true, would make it efficient for content owners to be the ones checking for infringement. In fact, at the time the DMCA was put into law, the costs are likely to have been lower for ISPs,¹¹ and they almost certainly are lower for ISPs now, given the ability of websites to use automated filters to find infringing works, as sites such as Google and Sound Cloud do with their content ID systems. One problem with Content ID systems is that the incentives under current legal regimes is for ISPs is to have Content ID systems that are only moderately good at finding infringing works, but not excellent (see Section V.C below).
- 30.** The intent of the safe harbor was to allow copyright owners to have infringing works removed (taken down) without the ISP being liable for the damages caused by copyright infringement. If the infringing work would be taken down in, say, a day or two, it seemed likely that any harm caused to the copyright owner by the infringement would be small. We can think of this as ‘piecemeal’ infringement, which could be solved by piecemeal detection and enforcement.
- 31.** The idea of a safe harbor seemed very reasonable in the mid to late 1990s, when email and web surfing (with little audio or video content) were the main activities of individuals using ISPs on dial-up telephone lines. Most content consumed by users was created by curators such as AOL or Prodigy, in systems that were described as “walled gardens.”¹² There was little indication then that millions or billions of people were going to upload massive amounts of audio and video content.
- 32.** Although allowing ISPs to respond to takedown requests instead of requiring them to affirmatively look for copyright infringements may have seemed reasonable at the time, safe harbors have evolved to be very different in practice from what was envisioned at the time the DMCA was implemented. In particular, no one seemed to have envisioned the possibility of entire websites where the main activity consisted of individuals uploading exceedingly large amounts of copyrighted material with the hope that other users, of whom there are hundreds of millions, would download or stream this material.
- 33.** Nevertheless, a business model has evolved where Internet sites encourage users to upload works, many of which infringe copyrights, with audiences sometimes in the hundreds of millions, or billions. Those audiences are primed and ready to download or stream infringing works once they appear on the site, and those users are also primed and ready to upload copyrighted works for others to download. This is infringement on a mass-production scale, not piecemeal infringement.

¹⁰ There are actually four safe harbors in the DMCA, but we are interested in the safe harbor related to “information residing on systems or networks at the direction of users” which is the harbor protecting UUC sites such as YouTube and SoundCloud, where users upload copyrighted works.

¹¹ As early as 2001, only a few years after the DMCA was passed, Napster was offering to filter out infringing songs from its site, in the face of legal liability for copyright infringement. See “Napster, LoudEye strike digital fingerprinting deal,” Jun 7, 2001, Macworld (<https://www.macworld.com/article/1017876/napster.html>). It was unable to perfectly filter out all infringing files, however.

¹² AOL (American Online), Prodigy, and CompuServe were three of the largest ISPs in the U.S. during the 1990s.

34. One simple question that might be asked is why so many users were and are primed to upload copyrighted material to sites such as YouTube (or, as we will see, Grooveshark). Although the answer requires some speculation on our part, many individuals who enjoy listening to music (or watching movies and television) have become accustomed to using pirate websites that relied on some users to make music in their collections available to other (sharing) so that these other users could download music. On these pirate sites, users were exposed to the etiquette of making songs available to other users if they wanted to be able to download songs. Some websites explicitly asked downloaders to also upload files, and some websites threatened to remove a user's ability to download if they did not also upload, or make available, as well. Thus, it has become second nature for many users to upload music on sites where they are getting music (or video) for free, which would include sites such as YouTube or SoundCloud.
35. The immense audience ready to upload and download any (unauthorized) copyrighted work is the fly in the ointment that was not anticipated by the creators of the DMCA. It is the size of the active, attentive audience, the ingredients required for the mass production of infringement, that makes the takedown provisions of the safe harbor unworkable as a mechanism to protect copyright owners. To understand why this is so, it is useful to examine how takedown notices work in the safe harbor world.

3. REMOVING INFRINGING WORKS IN A SAFE HARBOR ENVIRONMENT

36. After a copyright owner has reported a copyright violation to a site such as YouTube, and asked for a takedown, the law requires the website to expeditiously remove the offending audio or video work and offer the purported infringer the option to appeal the takedown. In the words of the DMCA (which will be the example I use when referring to these laws) the operator is protected by the safe harbor if:

upon notification of claimed infringement as described in paragraph (3), responds expeditiously to remove, or disable access to, the material that is claimed to be infringing or to be the subject of infringing activity.¹³

This “expeditious removal” applies to the ISP’s who respond to takedown requests from infringed copyright owners. Note that there is no definition of exactly what constitutes expeditious removal.

37. The purported violator can have the material reinstated by submitting a counter-notification (appeal) claiming that the uploaded work does not infringe copyright.¹⁴ If a counter-notification is submitted, the copyright owner has ten days to demonstrate that they have begun copyright infringement court proceedings, otherwise the copyrighted material in question will be put back on the website.

¹³ Subsection (c) (1)(A)(iii) of 17 U.S. Code 512.

¹⁴ This process is explained at YouTube’s website at this <https://support.google.com/youtube/answer/2807684>.

38. The major record labels suggest that the requirement that they need to bring lawsuits after a counter notification is unreasonably costly, given that there are potentially thousands of these lawsuits.¹⁵ Although it is difficult to judge whether these claims are correct, it seems far more likely to be true that individual copyright owners would be unable to take on the expense of bringing a lawsuit, although the DMCA provides them no other choice if they want to keep their works off a UUC site. Uploaders with few assets have little reason to fear these potential lawsuits since they have nothing to lose if sued, and the likelihood of having a lawsuit brought against them is low.
39. For an ISP to qualify for the safe harbor it must meet several other requirements. One of the requirements found in the DMCA is that the ISP must have a form of punishing repeat infringers, described as:

a policy that provides for the termination in appropriate circumstances of subscribers and account holders of the service provider's system or network who are repeat infringers.¹⁶

YouTube, SoundCloud, and other sites try to meet this obligation by applying “strikes” to users who post works that are removed by takedown requests. The law does not specify how many strikes should lead to termination, but SoundCloud allows only one strike, and should a second strike occur, termination takes place. The more lenient YouTube allows two strikes in a three-month period whereupon a third strike brings termination. Whereas strikes on SoundCloud never expire, with users being terminated upon a second infringing upload, the more lenient YouTube takes a weaker stand against infringement by having strikes expire after three months if users take a four-minute online course about copyright, meaning that its users can upload up to eight detected infringing works each year without having their accounts terminated. Users who file counter-notifications have the ‘strikes’ removed from their records, unless the copyright owner files a lawsuit.

A. Notice and Takedown is only capable of handling piecemeal infringement

40. The takedown system can only fulfill its purpose when copyright infringements are far and few between. It takes time for copyright owners to discover infringing works and it takes time for their takedown request to be acted on by UUC sites.¹⁷ UUC sites have the option of determining the meaning of “expeditiously” and thus can greatly influence how many copyright infringing uploads remain available for download on their system. Remember, it is the unauthorized downloading or streaming, of copyrighted materials that directly harms copyright owners, not the upload by itself.
41. As a hypothetical example, if it were to take 12 hours for the copyright owner to find the offending file and have it removed by the UUC site, then it would merely take two new uploaded copies (separated by 12 hours) per day of an infringing work for the work to be constantly available for downloading by others. This implies that 730 uploads per year could keep a particular infringing work virtually always available during that year. Yet, popular works seem to

¹⁵ “The potentially significant cost of federal court litigation over any given single posting is a powerful (but unjust) deterrent to enforcement of UMG’s intellectual property rights. But the alternative is likewise unattractive: burdening the federal court system with thousands of additional lawsuits.” See page 37 of “Comments of Universal Music Group”, United States Copyright Office Library of Congress, Notice of Inquiry, Section 512 Study: Notice and Request for Public Comment, Docket No. 2015-7

¹⁶ Subsection (i)(1)(A) of 17 U.S. Code 512.

¹⁷ Some sites, such as YouTube and SoundCloud allow certain copyright owners to directly take down infringing works, so in these cases the only delay is one of finding the infringing works.

be uploaded by an order of magnitude above the rate of two per day.¹⁸ Any website with sufficiently many users uploading copyrighted materials in large enough numbers could, if it desired, ensure that infringing popular songs or videos be taken down slowly enough to keep them almost continuously available, while still appearing to remove them in a manner that seemed consistent with the takedown provisions of the DMCA, since there are no specific time limits.

42. Thus, we should not expect the notice and takedown provisions of the safe harbor, as implemented by UUCs, to be able to protect copyright owners of popular songs from having to compete with readily available infringing copies of their works unless the number of files being uploaded only averaged one or two per week or month. This type of “piecemeal” infringement seems to be what the creators of the safe harbor laws had in mind when they created the legislation. Unfortunately for the copyright owners, the type of infringement that occurs in web sites populated by hundreds of millions of users who are apparently eager to upload creative works is not this type of piecemeal infringement but instead is infringement on a far more massive scale.

B. We currently have Mass-Produced infringement

43. UUC sites such as YouTube and SoundCloud were created to allow their users to upload audio and video files, and those users have done so in amazingly large numbers. To gauge the number of uploaded works it is useful to examine YouTube’s reporting on the number of consumption minutes of video files (including music videos)¹⁹ uploaded every day or hour. In May of 2017, a Google executive reported that, on average, video files uploaded to YouTube each minute provided more than 400 hours of listening or viewing.²⁰ If video files averaged 5 minutes each, this would be the equivalent of over 6 million files uploaded per day. Even if a majority of the files did not violate copyright, it becomes easy to understand how unauthorized copies of popular copyrighted works would remain almost continuously available for download even if YouTube responded to takedown notices in less than a day.
44. The videos that large numbers of people want to watch or listen to, however, tend to be videos with copyrighted content. Equally important to the fact that many individuals want to consume copyrighted material is the fact that many individuals upload copyright material. For popular works, there is a torrent of uploads, as the statistics on infringing works make clear.
45. Google does not release data on takedown requests made of YouTube but Boyden (2013) reported that the Motion Picture Association of America (MPAA) sent takedown requests for over 13 million files to website operators (including YouTube) over a six-month period in 2013 and 12 million notices to search engines.²¹ Boyden also reported that the RIAA sent a similar number of takedown requests.
46. Using more recent bits and pieces of information that Google makes available, we can try to infer how many infringing files are uploaded to YouTube in a year. Google stated in 2016 that “The Content ID team²² has resolved millions of invalid claims [presumably uploads that should not have been blocked by Content ID] in the last year alone.”²³ Taking the plural usage of

¹⁸ As reported below (see footnote 54) a single popular song can average well over 1000 uploads per day for months at a time.

¹⁹ Many of these “videos” have no actual video component but instead show, say, a still cover of a music album while the music plays.

²⁰ This statistic comes from “Improving our brand safety controls,” web blog by Ronan Harris of Google, on Google’s blog (<https://www.blog.google/topics/google-europe/improving-our-brand-safety-controls/>).

²¹ The Failure of the DMCA Notice and Takedown System: A Twenty-First Century Problem, Bruce Boyden December 2013, Center for The Protection Of Intellectual Property, George Mason (<https://cpip.gmu.edu/2013/12/05/the-failure-of-the-dmca-notice-and-takedown-system-2/>).

²² Content ID, which is an algorithm to take down infringing works without the copyright owner manually asking for them to be taken down, will be discussed at length in Section V.A.

²³ Found in an illustration labeled “YouTube by the Numbers” which appears in a Google public policy blog by Katherine Oyama dated July 13, 2016 (<https://www.blog.google/topics/public-policy/continuing-to-create-value-while/>).

'millions' in the above quote to mean at least 2 million disputes resolved in favor of the uploader, and YouTube's statement that they only considered one fourth of these claims valid, a minimum value for the number of Content ID disputes was 8 million per year.

47. Since Google also tells us that "fewer than 1% of the [Content ID] claims are disputed,"²⁴ the clear implication is that the minimum estimate of files (claims) that Content ID tagged as copyright infringing was more than 800 million per year, on YouTube alone, of which 600 million were considered to be infringing.²⁵ This is a staggeringly large number of infringing files, and given how it was calculated it is an underestimate due to the likelihood that "millions" means more than two million and "fewer than 1%" could mean considerably less than 1%.²⁶
48. The enormous size of this copyright infringement is generally backed up by statements from UMG that the number of files (both from Content ID and UMG's efforts) thought to infringe UMG's copyrights on YouTube, was 100,000 per day.²⁷ This works out to 36.5 million per year. Quadruple that value for the other two major labels plus independent labels and the total rises to about 150 million. Double that value for infringement claims from the movie industry. Then add in copyright owners from the television and adult video industry, and the number of files that might be thought to be infringing could easily be near a billion.

C. Drinking water from a firehose

49. With so many infringing files, it becomes easy to see how reliance on the notice and takedown system can lead to popular songs being made almost continuously available for download. New material would be put up faster than copyright owners could possibly have it taken down, due in part to the delay between when the infringement is made, when it is noticed, and the actual takedown. The delay would lead, and has led, to popular copyrighted works being almost continuously available for download on any UUC sites that had tens of millions, or hundreds of millions, or billions, of users.
50. This is an instance where a very large number of users can easily overwhelm the takedown system which was not created with the intent of being able to handle massive amounts of copyright violations. This is an instance where a crowd of individually inconsequential individuals is more powerful than seemingly powerful organizations, such as a record company or movie studio, and certainly more powerful than individual copyright owners.
51. It has long been recognized that when it comes to people, there is power in numbers. It is this power in numbers which lies behind the ideas of crowdsourcing and crowdfunding, where a large number of small computers or small individual lenders can have a larger impact than supercomputers or large banks.²⁸ These latter examples are instances where crowds can be used for productive activities. Crowds can also engage in unproductive activity, however, at which point they are usually referred to as "mobs." In the digital realm, hackers who try to bring down websites through denial of service attacks use many small computers to bring down large servers. The evidence from filesharing made clear that millions of individuals were happy to steal music in spite of potential legal jeopardy from music industry lawsuits, presumably because their large numbers made the odds of any individual being sued very small.

²⁴ Found on page 28 of "How YouTube Fights Piracy" (<https://drive.google.com/file/d/0BwxyRPFduTN2TmpGajJ6TnRLaDA/view>).

²⁵ It is impossible that much human analysis could be used in separating the infringing from the noninfringing works since there are 200 million of these works. If it were to take 10 minutes to adjudicate each claim, and adjudicators worked 8 hours a day, 52 weeks a year, this would require over 16,000 people working full-time as adjudicators. Although Google does not break out employment figures for YouTube, Glassdoor estimates that it has between 1,000 and 5,000 employees, most of whom seem to have other types of jobs (see https://www.glassdoor.com/Overview/Working-at-YouTube-EL_IE40803.11,18.htm).

²⁶ In paragraph 87, Google is quoted as saying that the value is 99.5%.

²⁷ This value can be found on page 19 of "Comments of Universal Music Group," page 17, United States Copyright Office Library of Congress, Notice of Inquiry, Section 512 Study: Notice and Request for Public Comment, Docket No. 2015-7.

²⁸ The value of otherwise unused spare capacity in personal computers to scientific endeavors looking for additional capacity is discussed in the New York Times "Donate Your Computer's Spare Time to Science" by J. D. Biersdorfer October. 19, 2016, found <https://www.nytimes.com/2016/10/20/technology/personaltech/donate-your-computers-spare-time-to-science.html>.

- 52.** If the crowd can be used to overload the DMCA takedown system, copyright infringement can occur on a massive scale. The ISP or website gets to determine how quickly they respond to takedown provisions, as long as they can claim that the response is “expeditious” as that term is normally understood.²⁹ Because takedown times of less than a day or two appear to be considered “expeditious”, such a website can ensure that copyright infringement is continuous and ongoing in a way that allows them to provide a legal method for their users to bypass the normal market for copyrighted goods, and in so doing break the linkage between supply and demand that would otherwise help keep markets efficient.
- 53.** The takedown system under these circumstances fits the idiom of someone trying to drink water from a firehouse. The capacity to deal with the rush of water, or uploads in this case, is overwhelmed. That is because the safe harbor was never intended to handle sites like YouTube.
- 54.** To demonstrate that these claims are not merely hypothetical, it is useful to examine an actual instance of an UUC site that used the safe harbor to create a business model where (1) it made money because copyrighted works were available to users; (2) the works were available because they could not be taken down fast enough; (3) the UUC hid behind the safe harbor to avoid copyright prosecution.

4. A PARASITIC WEBSITE THAT RELIED ON SAFE HARBORS

- 55.** The high-speed Internet connections that became common after the turn of the century allowed some websites to provide a profusion of copyrighted works available at no cost to users. Starting with Napster, the most obvious examples of these sites were piracy sites such as the Pirate Bay and Limewire, among numerous others. These sites generally did not attempt to take advantage of the safe harbor but instead tried to avoid copyright infringement liability by arguing that they did not store the actual content, but instead merely connected the computers of different users together so the downloader (sharee) could acquire a copyrighted work from the uploader (sharer).³⁰ Some of these websites have been shut down, but piracy is still a common activity.
- 56.** But there was another way that these sites could have tried to avoid copyright liability, although it might not have been immediately apparent. Piracy sites made it clear that the Internet could be used to bring uploaders and downloaders together to avoid paying for works in the legitimate market. It is only a short step from that understanding to realizing that the safe harbor, which was intended to be a form of protection against copyright liability for innocent ISPs, could be used as a mechanism for encouraging massive copyright infringement without breaking the law. That the creators of the safe harbor never intended it to be used as a mechanism to protect massive copyright infringement would be irrelevant.

²⁹ Sony reports that an IFPI study of takedown speed for 2016 revealed that 20% of files were not taken down until more than 48 hours, for sites with user generated content and the share of content not taken down in that time was larger for other types of sites. Google boasts that it has an average response time of 6 hours for search takedown requests. See Additional Comments of Sony Music Entertainment, page 17, United States Copyright Office Library of Congress, Notice of Inquiry, Section 512 Study: Notice and Request for Public Comment, Docket No. 2015-7 and “How Google Fights Piracy”

³⁰ By not hosting the copyrighted material themselves they also saved money in not having to purchase expensive storage space and bandwidth.

57. The way in which the safe harbor can be used to avoid copyright liability, even though copyright infringement is encouraged, is to rely, first, on the vast number of individuals happy to upload copyrighted works, and second, on the fact that the term “expeditious removal” is vague and slow, compared to speeds in the digital realm. Nor is this just a hypothetical possibility.
58. Grooveshark proves to be a cautionary tale that best exposes the inadequacy of safe harbors to the task of safeguarding copyright owners from a form of voracious piracy. Grooveshark was a website that used the DMCA safe harbor to shield itself from copyright obligations. It was, for all practical purposes, no different than a pure piracy site, most of which claimed that they were interested in helping and promoting artists and their work, typical boilerplate language that all most all pirate sites used to one extent or another. The rules under which the safe harbor of the DMCA operates allowed Grooveshark to avoid paying for the content that was the basis for their revenues, just as they allow sites like YouTube or SoundCloud to avoid paying fair market prices for the content which they host, as I explain in Section VI below.
59. Grooveshark, which claimed to have 35 million users, was a seemingly legitimate entity whose creators were listed as 2008 finalists in Business Week’s “Best Young American Entrepreneurs,”³¹ were considered two of Forbes Magazine’s 2011 top “30 under 30 important influencers” in music,³² and had received over \$4 million in venture capital seed money.³³ Although Grooveshark tinkered with several business models in its formative period, it settled on one that consisted of running advertising while its users streamed songs from the library of songs uploaded to its servers by its users.
60. Grooveshark’s business model relied not just on using the safe harbor to escape copyright liability, but also to have users stream the music as opposed to downloading it, which provided several additional advantages. First, users would need to spend more time on the site while they listened to the music, which would be advantageous for advertising revenues. Second, no permanent copy would be made on the users’ devices, avoiding direct claims of copyright infringement.
61. An important point to note about Grooveshark is that, with its tens of millions of users, it was able to provide a large library of songs to streaming patrons in spite of notice and takedown requests by the industry. The takedown provisions of the DMCA were entirely inadequate in stopping Grooveshark from running a business requiring a sufficient library of songs to attract tens of millions of users, although it did not obtain copyright permission for those songs. Grooveshark would have had an even easier time maintaining a full library of songs if it had had an audience over thirty times larger, as does YouTube.
62. Grooveshark claimed to want to pay copyright owners, and in 2009 even reached a royalty agreement with one of the then major record labels, EMI. Here is some of the verbiage used by Grooveshark:

We respect the ownership rights of the major labels and publishers, and our core mission has always been to compete with piracy by offering a service that is genuinely better than what illegal networks offer, while also ensuring fair payment to copyright holders. ³⁴

³¹ The link is here (https://web.archive.org/web/20080912220353/http://images.businessweek.com/ss/08/09/0908_2008_entrepreneurs/15.htm). Business Week is now Bloomberg Business Week.

³² Most of the others on the Forbes list were recording artists.

The list can be found here (https://www.forbes.com/special-report/2011/30-under30-12/30-under-30-12_music.html).

³³ Information on venture funding can be found here (<https://www.cbinsights.com/company/grooveshark>).

³⁴ This quote can be found here (http://www.mi2n.com/press.php3?press_nb=120825).

Despite this verbiage, three years later EMI sued Grooveshark, claiming that Grooveshark had “made not a single royalty payment to EMI, nor provided a single accounting statement.”³⁵ It is worth noting Grooveshark’s claim that if it did not exist, its users would have gone to “illegal” pirate sites which paid nothing. Similar statements are made by current UUC sites, such as YouTube.³⁶

63. Emails from Grooveshark’s Chairman in 2009, Sina Simantob (made available in discovery during UMG’s lawsuit against Grooveshark), made it clear that Grooveshark intended to avoid any payments to copyright owners, at least until it had amassed 100 million users:

The only thing that I want to add is this: we are achieving all this growth without paying a dime to any of the labels... We bet the company on the fact that it is easier to ask for forgiveness than it is to ask for permission...In our case we use the label’s songs till we get a 100 [million] uniques [users], by which time we can tell the labels who is listening to their music, where, and then turn around and charge them for the very data we got from them, ensuring that what we pay them in total for streaming is less than what they pay us for data mining. Let’s keep this quite [sic] for as long as we can.³⁷

It should be understood that avoiding “asking for permission” is a euphemism for taking or stealing the product. Grooveshark could avoid purchasing most rights thanks to the safe harbor, hoping that at some later point it would be able to acquire rights without paying much for them. In Section VI below, I explain how the safe harbor allows sites to receive below market prices if they do decide to “ask for permission” (purchase the rights).

64. The author of the C/Net article containing the above quote wondered whether the embarrassing emails would have had any impact on Grooveshark’s business model:

But it is unclear here how Simantob’s apparent acknowledgement that Grooveshark intended to build a business on unlicensed music will affect Universal’s case. Nowhere in the e-mails included in Universal Music’s exhibits does Simantob mention piracy or illegal file sharing. Grooveshark says it is protected by the Digital Millennium Copyright Act’s safe harbor, which protects online service providers from liability for copyright violations committed by users.

The author of the C/Net article was correct to question whether those emails, by themselves, would cause legal problems for Grooveshark. The plan of using the safe harbor to either not pay at all for copyrighted works, or to pay only a small amount, is viable under the DMCA, and Grooveshark was not the only, nor the first company, to use this model.

65. Grooveshark gives credit to another entity for devising this business model.

One of Grooveshark’s founders stated: “we model ourselves on YouTube.”³⁸

³⁵ See New York Times “New LawsUIT Means All Major Labels Are Suing Grooveshark” by Ben Sisario January 5, 2012, available here (<https://mediadecoder.blogs.nytimes.com/2012/01/05/new-lawsuit-means-all-major-labels-are-suing-grooveshark/>). The article notes: “Grooveshark says its service is legal under the Digital Millennium Copyright Act, a federal law that protects Internet companies that host third-party material if they comply with take-down notices from copyright holders.”

³⁶ For example, see “Continuing to create value while fighting piracy: an update” a Google policy post by Katherine Oyama, Senior Policy Counsel for Google on Jul 13, 2016, found here (<https://www.blog.google/topics/public-policy/continuing-to-create-value-while/>).

³⁷ These quotes are found in C/Net News “How we built a music service without, um, paying for music” by Greg Sandoval, November 28, 2011 (<https://www.cnet.com/news/grooveshark-email-how-we-built-a-music-service-without-um-paying-for-music/>).

³⁸ Mashable “Grooveshark Circumvents Mobile Bans by Launching an HTML5 Player” by Joann Pan Sep 05, 2012. (<http://mashable.com/2012/09/05/grooveshark-html5-player/#cpOA2qJanuqB>).

66. Grooveshark proved to be a bad actor, no different than other piracy networks such as Limewire. The sound recording companies eventually were able to defeat Grooveshark in court and put it out of business, but only because they demonstrated that Grooveshark executives and employees sometimes uploaded music themselves immediately after responding to a takedown notice (unwilling to wait for their users to upload the song). Evidence from the trial indicates that Grooveshark lied about this activity and that Grooveshark then attempted to hide evidence from the court during the lawsuit.³⁹
67. There can be little doubt that Grooveshark used the DMCA safe harbor as the basis of a business model so that it could avoid copyright payments. Despite Grooveshark's statements to the contrary, it did not have a good faith interest in respecting the ownership rights of the copyright holders. It wanted to make money specifically by evading copyright liability, which the safe harbor allowed them to do until they were caught not even following the rules of the safe harbor. Surely, it was not the intent of the framers of the DMCA to provide the foundations of a business model that allows firms to achieve competitive advantage through the avoidance of copyright payments for the very works that generated revenues under that business model. Yet, that is exactly what the DMCA allows. The safe harbor allows a business model where the selling of access to music is the product but where the owner pays nothing for the rights to the music.
68. We should note that SoundCloud did not become a quasi-permission site until 2014. Facebook is in the process of becoming a quasi-permission site as I write this in late 2017. It is also important to note that other UUC sites do not attempt to license the copyrighted works they make available to users.
69. Thus, the UUC sites have a competitive advantage over the old-fashioned sites that actually ask for permission from copyright holders to use their works. UUC sites also do not need to pay market prices for the rights to works because the safe harbor provides them a playing field tilted in their favor because they can provide the works to their users without acquiring permission. Basic economic theory would predict that this will have the effect, in the long run, of driving the non-UUC sites out of business (unless the non-UUC sites are also given this lower rate), since the extra cost of paying free-market prices for copyright permissions would be a tremendous handicap.⁴⁰ This is described in more detail in section VI below.

5. AUTOMATIC TAKEDOWN (CONTENT ID) SYSTEMS

70. Some major UUC sites have algorithms intended to prevent infringing works from being uploaded, although many sites do not. These algorithms are not required by law and are entirely voluntary. While we should applaud such algorithms, copyright owners cannot count on them due to the fact that UUC sites can do what they want with their algorithms, including shutting them down, weakening them, or limiting their use. We discuss this in more detail below.

³⁹ Grooveshark's defense worked for several years and it was only after the record companies found evidence that Grooveshark employees had uploaded songs to fill holes in their libraries, instead of waiting for a user to upload those songs, that they were able to put Grooveshark out of business. See New York Times "Judge Rules Against Grooveshark in Copyright Infringement Case" by Ben Sisario Sept. 29, 2014. (https://www.nytimes.com/2014/09/30/business/media/judge-rules-against-grooveshark-in-copyright-infringement-case.html?partner=rss&emc=rss&_r=0)

⁴⁰ Assuming no differences in efficiency between permission and quasi-permission UUC-sites, the only way that non-UUC firms can survive in the long run is if their copyright payments are no higher than the UUC-sites, meaning that no firms pay free-market prices for copyright.

71. YouTube’s algorithm, called Content ID, is described on their site:

Videos uploaded to YouTube are scanned against a database of files that have been submitted to us by content owners. Copyright owners get to decide what happens when content in a video on YouTube matches a work they own. When this happens, the video gets a Content ID claim.

Copyright owners can choose different actions to take on material that matches theirs:

Block a whole video from being viewed.

Monetize the video by running ads against it; in some cases sharing revenue with the uploader.⁴¹

The database of files that Content ID uses as an input comes from copyright owners providing information about their works to YouTube. YouTube appears to have been working on such an algorithm from almost its very inception.⁴²

72. YouTube does not make their Content ID program available to all copyright owners. Instead, copyright holders must meet certain, unclear, criteria. YouTube states “Content ID acceptance is based on an evaluation of each applicant’s actual need for the tools...Content ID applicants may be rejected if other tools better suit their needs.”⁴³ It seems likely that individual creators such as composers and lyricists will have a more difficult time accessing the Content ID system than large corporations. Copyright owners not affiliated with major recording labels are liable to have no monetization of their works and no reliable method of preventing their works from being consumed on YouTube without any payment.

73. It is also clear, since the Content ID program is voluntary on YouTube’s part, that copyright owners cannot count on Content ID to be fully used for their works unless YouTube finds it worthwhile to do so. Nothing prevents YouTube from crippling particular Content ID searches, or failing to use it at all. Thus, it can be a tool for YouTube to provide it an advantage in its negotiations with copyright owners.

74. The Content ID system, as created by YouTube, has some features that would seem to indicate YouTube’s ambivalence about reducing copyright infringement. For example, in paragraph 39 above, the DMCA requirement for UUC sites to terminate repeat copyright infringers was discussed. Nevertheless, when it comes to Content ID, a mechanism not required by the DMCA, YouTube does not provide any strikes for repeat ‘infringers’ no matter how many times they attempt to upload infringing works, although this would surely violate the spirit of the DMCA. Since Content ID is used to eliminate the vast majority of known infringing works (99.5% according to YouTube—see paragraph 87), the vast majority of repeat infringers will not suffer strikes even if they continuously upload infringing material.

A. Content ID, as currently implemented, is not a solution.

75. UUC sites do not need to pay market prices for copyright permissions because the safe harbor allows them to make copyrighted works available to their users without receiving such permission. These artificially low payments negotiated by UUC sites, sometimes called “value grab” by the record labels, a “transfer of value” (ToV) by performing rights organizations, and a “value gap” by others, will be explained in Section VI. Naturally, UUC sites deny any such advantage in negotiating with copyright owners.

⁴¹ Found here, (<https://support.google.com/youtube/answer/2797370?hl=en>).

⁴² Over a decade ago a Viacom spokesman accused YouTube of not being willing to use its filtering technology unless Viacom made a deal to license it works to YouTube, at presumably below market rates. See New York Times, “Viacom Tells YouTube: Hands Off” by Geraldine Fabrikant and Saul Hansell Feb. February 3, 2007, (<http://www.nytimes.com/2007/02/03/technology/03tube.html>).

⁴³ The quote is found here, (<https://support.google.com/youtube/answer/1311402>).

76. For example, Google denies any such “value grab”:

Those pressing the “value grab” argument also assert that the royalty rates in these licenses are too low, allegedly because the DMCA’s notice-and-takedown process makes it too difficult for record labels to withdraw their works from YouTube in the face of users re-uploading those works. This claim, however, ignores Content ID, which has been in existence since 2008 and which record labels (and many other copyright owners) use every day to monetize their works on YouTube. Thanks to Content ID, record labels do not have to rely solely on the DMCA’s notice-and-takedown process on YouTube—they can remove any or all user-uploads of their works from the platform on an automated and ongoing basis.⁴⁴ [my emphasis]

Google claims that “any or all” user uploads can be removed by record labels and “many other” copyright owners.

77. If Content ID were completely accurate at preventing infringing works from being uploaded, Google could be correct that the existence of Content ID would eliminate the possibility of a value grab. But there would need to be some additional requirements imposed on Content ID before the value grab would be alleviated. First, YouTube would need to guarantee that Content ID be made available to all copyright owners without restrictions or limitations, so that Google could not, at will, remove Content ID usage from any particular copyright owner. Also, YouTube would need to be required to not weaken Content ID’s ability to detect and remove offending works. For an example of such activity by YouTube, Sony reports that

Many “channels” on YouTube are not scanned by ContentID [sic], including ones operated by YouTube content partners and channels programmed by persons affiliated with “multi-channel networks”⁴⁵

Obviously, if a hypothetical Content ID could perfectly remove infringing works, it would need to operate on all the files on the YouTube site. Without these conditions, YouTube could still make any or all copyright owners rely on the safe harbor takedown provisions, reducing the bargaining position of copyright owners, just as the proponents of the value grab have suggested, tilting the playing field in favor of itself.

B. If Content ID was best at removing infringing works, the safe harbor would be unnecessary

78. An important, and heretofore unnoticed implication of a near-perfect Content ID system, however, is that the need for a safe harbor is eliminated when Content ID works as well as Google suggests it does. Google’s assessment of the effectiveness of its Content ID seems to imply that there are virtually no copyright infringements. If Content ID removed “any and all” infringing content, then Google would not need to pay any copyright damages under a traditional copyright regime with no safe harbor, since copyright owners would be unable to detect infringement. The entire justification for the safe harbor would disappear.

79. Content ID would not even need to be almost perfect to remove the need for a safe harbor. It would merely need to be the best detection system available, in which case copyright owners would be unable to find any infringement and thus would be unable to sue YouTube for copyright damages. Thus, even if Content ID were imperfect, with infringement taking place, YouTube would not need the protection of the safe harbor, as long as Content ID was the best system for detecting infringement.

⁴⁴ See Comments of Google Inc, page 6, United States Copyright Office Library of Congress, Notice of Inquiry, Section 512 Study: Notice and Request for Public Comment, Docket No. 2015-7

⁴⁵ See Additional Comments of Sony Music Entertainment, page 4, United States Copyright Office Library of Congress, Notice of Inquiry, Section 512 Study: Notice and Request for Public Comment, Docket No. 2015-7.

80. The point of the safe harbor, after all, was to protect ISPs who were not thought capable of finding and reacting every time one of their users uploaded a file that infringed copyright. But this concern—that it would be unreasonable to expect ISPs to police and monitor their users copyright violations—loses its relevance when ISPs, such as YouTube, can run a program that monitors what is being uploaded better than anyone else can.
81. Further, unlike the mid 1990s when nascent ISPs could claim to be terrified of the more powerful copyright industries bringing lawsuits, the leading ISPs now dwarf the leading copyright owners in terms of revenues and profits.
82. Although copyright owners should have a duty to provide YouTube with information about their copyrighted works before they could claim copyright infringement, once such information were provided, normal copyright law, *without the safe harbor*, would provide the proper incentives for YouTube to make sure that its Content ID worked better than any alternative. Although this may not have been the obvious solution when the DMCA was being drafted, it should be clear at this time that the safe harbor is merely an antiquated methodology for dealing with copyright infringement that has been made obsolete by improvements in technology.

C. *UUC sites have no incentive to produce the best Content ID system*

83. One of the main impediments to this solution, however, is Google's incentive, which is to make YouTube's voluntary filtering system only accurate enough to silence critics of its treatment of copyright holders, as opposed to actually eliminating infringing files. YouTube (and Google) does not benefit from creating a filtering system that would level a playing field that was otherwise tilted in its favor. It would be naïve to believe that Google would voluntarily act in a manner that was harmful to itself.
84. If Google wants to claim to be going above and beyond the requirements of the DMCA, it is merely necessary for it to provide a Content ID system that works moderately well, since any such system is voluntary. In fact, it would be surprising if Content ID worked as well as Google could make it, since such a Content ID system would weaken YouTube's bargaining position with the copyright holders with whom it does business. If Content ID worked as Google suggests, meaning almost perfectly, copyright owners who thought they were being underpaid by YouTube would remove their material from YouTube since YouTube's users would no longer have access to those copyrighted works, as Google claims in the above quote. As we shall soon see, however, the current Content ID system is insufficiently accurate to remove YouTube's superior bargaining position, which is why YouTube is fighting to keep the safe harbor which it would not need with a more accurate Content ID system.
85. In spite of Google's claims to the contrary, a large enough number of infringing works make it past the current Content ID system that the negative consequences for copyright owners remain as described earlier in this report in the context of a system without Content ID, as I now demonstrate.

D. *Imperfections with current Content ID*

86. Unfortunately, Content ID has not been nearly as foolproof in eliminating infringing uploads as Google claims. Because of the very large number of infringing uploaded works, Content ID would need to be extremely precise if it were to be able to reduce the impact of infringing content to de minimus levels.

87. Google touts Content ID:

Looking at the music industry specifically, 99.5% of reported sound recording copyright claims are automated through Content ID—meaning that Content ID automatically identifies the work and applies the copyright owner’s preferred action without the need for intervention by the copyright owner in all but 0.5% of cases. ⁴⁶

These statistics give the impressions that Content ID is an impressively accurate system. But note that this quote does not claim that 99.5% of all infringements are found by Content ID, but instead merely that Content ID finds 99.5% of *files found to be infringing*. But this leaves out the infringing files that are not found, which is an unknown quantity.

88. We have already seen (paragraph 48 above) that there appear to be in the vicinity of a billion files uploaded to YouTube thought to be infringing, per year, and perhaps 150 million infringing music files. Note that these are not the complete set of infringing files, but only the files found by Content ID and copyright owners asking for take-downs.

89. But we do not know how many infringing files both Content ID and copyright owners fail to discover. Content ID finds 99.5% of known infringing files. But this means that at least 0.5% of infringing files get past Content ID, since those are the files that copyright owners find and take down. But copyright owners are unlikely to catch every infringing file that makes it past Content ID. Let’s say that copyright owners, using their own detection algorithms, are able to catch one half of the infringing materials that were undetected by Content ID (although it might be much less). That would mean that Content ID catches 99% of all infringing files.⁴⁷ That might sound like an effective filtering system, but it would still leave a large number of files available to users. The 1% of undetected infringing files are equivalent to 1,500,000 files per year (with the estimated 150 million infringing files) that would then be available for streaming if Content ID were the only system being relied upon for detecting copyright infringement. And the number might be much larger if copyright owners fail to detect as many as half of infringing files missed by Content ID and if infringing files from other years remain on the system.

90. By way of comparison, radio stations tend to have weekly playlists of less than 300 songs,⁴⁸ Amazon Prime has about 2 million songs on its streaming service and Pandora is reported to have about 1.5 million.⁴⁹ If the infringing files on YouTube are to be few enough to limit the harm from infringing streamed music to minimal levels, the number of undetected infringing files would need to be much lower than what Content ID is currently capable of detecting. Thus, even this level of ‘success’ in detecting infringement would be insufficient to prevent UUC sites from having an unfair negotiating advantage when bargaining with copyright owners.

91. This result is not a surprise, given that YouTube does not have an incentive to produce a voluntary system that works much better than this. The current safe harbor does not provide an incentive for YouTube to improve Content ID, but copyright law without the safe harbor is one system that does provide the proper incentive to YouTube (Google) to improve Content ID.

⁴⁶ Found on page 26 of “How YouTube Fights Piracy” (<https://drive.google.com/file/d/0BwxyRPFduTN2TmpGajJ6TnRLaDA/view>).

⁴⁷ Mathematically, I am treating the original sample, which has now grown to 100.5% of itself, as if it is still 100%, which would lead to a trivial arithmetic error.

⁴⁸ See this article, (<http://blog.nuvooodoo.com/2016/02/10/how-big-is-your-playlist-do-your-listeners-know-that>).

⁴⁹ The Amazon figure comes from its advertising where it boasts: “you can stream over 2 million songs ad-free” which can be found here, (https://www.amazon.com/gp/dmusic/promotions/PrimeMusic?tag=mh0b20&hvadid=77721760432965&hvqmt=p&hvbmt=bb&hvdev=c&ref=pd_sl_52x3zvqz1k_b). The Pandora library is described in this article, (<https://www.npr.org/2014/11/26/366339553/pandoras-new-deal-different-pay-different-play>).

6. HOW THE SAFE HARBOR ERODES THE BARGAINING POSITION OF COPYRIGHT OWNERS

92. Given that UUC sites can supply their users with free music without requiring permission from copyright owners, it might seem that UUC sites have little reason to pay anything to copyright holders. But purchasing the rights from copyright owners still provides some advantages to these sites. First, the criticism that they face from copyright holders might tarnish their reputations. Paying for copyrights would seem to eliminate this potentially bad publicity.⁵⁰ Second, being portrayed as economic leeches has potential political implications, particularly the possibility that the safe harbor might be statutorily weakened or removed, which would eliminate the business model they have chosen. Third, these websites might wish to directly sell subscriptions or downloads for the copyrighted works and the permission of the copyright holders appears to be required for these types of websites (if for no other reason than to be able to guarantee having the works that users want). Relatedly, purchasing permissions will give them an assured library, whereas the UUC model is likely to provide an incomplete library.
93. For all these reasons, UUC sites have an incentive to pay something to copyright owners for the rights (permissions) to stream the music. But their willingness to pay is less than it would be if they could not operate without the permission of the copyright holders, as is the case for true permission based sites streaming music, such as Spotify or Apple Music. As discussed earlier, property rights are required for markets to function properly and a characteristic of property rights is that the seller knows that the buyer cannot acquire the seller's property (to provide later access to users) unless the buyer pays for it.
94. In the case of a UUC site, however, the copyright seller is confronted with an uneven playing field because the seller's property rights have been abridged by the safe harbor. The seller knows that the UUC site cannot be effectively stopped from providing a large number of copyrighted products to its users. Although the copyright owner can impose costs on the UUC site through take-down requests, creating take-down requests is also costly for the copyright owner, perhaps more so than to the UUC site, and both parties know this.
95. The UUC site owner can offer a deal that a rational copyright owner 'can't refuse,' to use the terminology found in the "Godfather." The UUC site owner can say "I can stream your material and generate revenues without your permission, and you get nothing. But if you give me permission to stream your material, I will pay you something, which is better than nothing. Take my something, or get paid nothing." The only reason the UUC site makes this offer is because there are some advantages to having permission, but the amount that the UUC site owner would pay for the copyright owner's permission cannot be as much as it would pay if it were not able to stream the music without permission.

⁵⁰ But if the copyright owners complain about the level of payments, as was the case when Warner's Chief Executive Steve Cooper put out a memo complaining about negotiating what he thought were unfair prices with YouTube due to the safe harbor, the payments might not provide much good publicity. See Washington Post "Why musicians are so angry at the world's most popular music streaming service" by Todd C. Frankel, July 14, 2017 - (https://www.washingtonpost.com/business/economy/why-musicians-are-so-angry-at-the-worlds-most-popular-music-streaming-service/2017/07/14/bf1a6db0-67ee-11e7-8eb5-cbccc2e7bfbf_story.html?utm_term=.fdfd14599c0c).

96. Thus, it is not a surprise that some copyright owners have reached agreements with some UUC owners. But the prices found in these agreements should be expected to be considerably lower than what they would be if the copyright owners actually had effective property rights over the copyrighted materials (i.e., could effectively remove their material from the website). We refer to UUC sites that purchase rights to music, such as YouTube and SoundCloud, as quasi-permission sites because, although they do acquire permission, they do so from an unnaturally advantageous bargaining position.
97. Economic theory is quite unambiguous in this case. Under normal bargaining, the buyer's willingness to pay (known as "demand" by economists) reflects the buyer's value of the item in the market relative to the potential buyer not having that item. In the case of UUC sites, their willingness to pay for rights to the music reflects merely the value from having a more complete library and avoiding bad publicity, but, crucially, does not reflect the value of the product compared to the alternative of not having the product at all. The UUC sites do not consider the absence of a song as the alternative to paying for it because the combination of inadequate safe harbor protection and their large audiences make it likely that they will be able to have the song available to their users even if they do not purchase the permission to use the song.
98. The willingness to pay for copyright permission when the product will be available for sale anyway (as is the case for UUC sites) will always be lower than the willingness to pay when the alternative is the complete absence of the availability of the product to sell. This means that the demand for copyrighted permission on the part of UUC sites operating under the safe harbor will be necessarily lower than the demand would have been if there were no safe harbor. Lower demand means lower revenues and lower prices in the market, holding all other factors constant. These lower copyright payments for UUC sites provide them a cost advantage over permission-based music streaming sites, other factors being held constant.
99. This artificially low negotiated payment by UUC sites to copyright owners, caused by the UUC sites' safe harbor induced bargaining position, is the cause of the already mentioned "value grab" or "transfer of value" (ToV). Regardless of its name, the safe harbor tilts the playing field against the copyright owners because it allows UUC sites access to copyrighted materials without needing permission from copyright owners.

A. The safe harbor's cascading harm to the copyright owners

100. Markets for entertainment products are complex because there are multiple substitute settings that can be used for selling a single artistic work to different portions of the overall audience. For example, when a major movie is produced, it is typically released to movie theaters first, because the per person payment (net of costs) by movie theater patrons is higher than other types of movie consumption (book publishers try to achieve similar results by putting out hard cover versions of some titles before the paperback editions). After playing in theaters, the movies are sold through 'on demand' cable and satellite outlets where consumers pay prices similar to but not quite as high as those in movie theaters. Next, the movies are shown on cable and satellite "pay" networks for which consumers pay a separate monthly fee. Finally, movies are made available on advertising based channels, because advertising payments provide the lowest per capita monetization of the product. This process of moving the product from high monetization venues to low monetization venues is known as "windowing."

101. There is a reason that movies are not made available simultaneously on all platforms—the various platforms are substitutes for one-another. Not perfect substitutes, but substitutes nonetheless. The movie producers know that if they provide their movies to all the venues at once, the lower monetization outlets such as advertising-based networks, will siphon off some viewers from the high monetization outlets. The movie producers, naturally, do not want to have sales cannibalized in this manner, since this would lower overall revenues and profits.⁵¹
102. Music sales do not go through the same type of windowing, but it is nevertheless true that various methods that music listeners use to obtain music are substitutes for one another. Pirated songs, for example, are good substitutes for purchased songs (with lawbreaking and spoofing being factors reducing the degree of substitutability) which is why piracy has been harmful to sound recording sales (see footnote 8). Subscription services are likely to be considered substitutes for sales of songs (digital or physical) by many consumers. Most importantly for understanding the current competition in music markets, free advertising-based streaming is a substitute for subscription-based streaming, with two factors making the two markets somewhat less good substitutes for one another: the annoyance of advertising and possible differences in the libraries of music available to consumers in the two types of streaming.
103. Under normal circumstances, when the producer of a product is the only entity who can sell that specific product, she decides in which venues to sell the product. That is what we would expect for music copyright owners as well. They could choose to sell CDs, or digital downloads, or to use streaming services, in whatever combination of markets they think makes good business sense. If selling the copyrighted work in a particular market does not seem to make good business sense, the copyright owner would choose to not make her works available in that market.
104. As an example of this, Taylor Swift apparently believed that selling her music on ad supported streaming services was harmful to her finances and thus she tried to remove her songs from the ad supported market in 2014. She didn't want her songs attracting listeners to the ad supported market who might otherwise have joined a subscription market with the effect of cannibalizing high subscription revenues with low advertising revenues.^{52, 53}
105. Copyright owners, like any property owners, are supposed to be able to keep their property from being sold in markets in which they do not wish to participate. At least that is the way markets are supposed to work. The safe harbor was not intended to overturn this basic right, but it has. This can be illustrated by a different example of Ms. Swift's business decisions. Her

⁵¹ The reader should note that movies tend to be viewed only once, so that a viewing in a low-price venue often will strongly discourage a later viewing at a high-priced venue. Music listeners, on the other hand, listen to the same song or album multiple times, so that a single listen does not prevent later listening to the same song. Thus, music does not have the same type of windowing issues.

Nevertheless, particular songs tend to have periods of peak popularity and some artists believe that they should keep their songs off of low revenue per capita venues, such as advertising based streaming during this period. I happen to think those artists are correct.

⁵² A single individual artist is not likely to convince very many consumers to switch from advertising based streams to subscription streams, but if most leading artists were to take their recent music off advertising based sites, the impact would be far larger.

⁵³ Media reports indicate that there has been considerable debate about the wisdom of putting the same music on advertising-based streaming services as subscription based streaming. By withholding the newer music from advertising-based streaming, the two sources of music become lesser substitutes for one another. This became a news story when Taylor Swift wanted to remove her music from Spotify's advertising-based product but not Spotify's subscription based service (Spotify wouldn't agree to this request, so at that time she removed her music from both tiers). See this story (<https://qz.com/310630/why-one-of-the-biggest-names-in-streaming-music-says-taylor-swift-is-a-hero/>). The point is that industry insiders seem to understand that the free-tier is a low revenue substitute for the more remunerative paid tier. See this story (<https://www.digitalmusicnews.com/2016/02/19/sony-music-industry-future-hollywood-windowing/>). Without positing a conclusion, we note that the most direct potential harm to music sellers from advertising based streaming is that advertising-based streaming cannibalizes the more lucrative subscription based streaming, although the number of users of a free service who would have used a paid service in the absence of the free service, the key parameter that would determine whether advertising-based streams are worthwhile for copyright owners or the streaming company, is not known.

record company had agreed to use extra resources to try to block copies of her 2014 album “1989” from being freely available from websites that did not pay for permission to make it available. Under normal circumstances, and except for the safe harbor, this would be the norm for law abiding entities. However, in spite of considerable extra resources devoted to keeping her album off of sites that did not purchase permission to provide the album to users, her album was nevertheless available on non-permission sites.⁵⁴

106. The availability on UUC sites of music for which there was no permission granted, throws a monkey-wrench into the business decisions of copyright owners. The availability of their music is not under the control of copyright owners because the takedown and notice regime is incapable of handling the deluge of infringements found on UUC sites. This distorts the entire set of markets that depend on this music.
107. Because the safe harbor eliminates the ability of copyright owners to control monetization of their music by UUC sites,⁵⁵ those sites are a substitute for copyright permission-based sites such as Spotify or Apple Music. Streaming sites acquiring permission for copyrighted works, therefore, are forced to compete with UUC sites that have much of the same music (and sometimes considerably more music⁵⁶) and yet have abnormally low costs because they did not need to pay market prices for permission.
108. The cost advantage of UUC sites would be expected to cause the most intense competitive harm to advertising based full permission sites such as ad-Spotify because the leading UUC sites, relying as they do on advertising based revenues, are closer substitutes for the advertising (free) component of permission services such as Spotify than they are for the subscription based services. The competition between UUC sites and permission based advertising services would be expected to lead to lower revenues and smaller audiences for permission based sites.
109. Permission based sites are also likely to reduce their advertising intensity to compete with UUC sites. That is because the number of ads and their obtrusiveness (which I will refer to as advertising intensity) is a tool that advertising based sites use to compete with one another for users. The lower costs of UUC sites would allow them to reduce their advertising intensity below that of permission based sites so as to increase their customer base.⁵⁷ YouTube has an addition sui generis advantage in this regard over most other sites, in that it generates profits for Google even if it does not generate profits on its own, which will be discussed in more detail below.

⁵⁴ UMG stated “A staff of UMG employees devoted essentially 100% of their time between November 2014 and February 2015 to manually search for infringements of “1989”...These efforts were supplemented by approximately a dozen employees working for IFPI who devoted a significant portion of their work days to the same task...UMG or its agents have had to send over 66,000 DMCA takedown notices...in addition to nearly 114,000 blocks that were automatically put in place through YouTube’s Content ID system...and nearly 30,000 additional blocks or takedowns that UMG or its agents manually placed through online interfaces that YouTube and SoundCloud make available to copyright owners...notwithstanding UMG’s and [her label] Big Machine’s considerable efforts, infringement was still accomplished on a massive scale.” See page 6-7 of “Comments of Universal Music Group”, United States Copyright Office Library of Congress, Notice of Inquiry, Section 512 Study: Notice and Request for Public Comment, Docket No. 2015-7

⁵⁵ YouTube has argued that the copyright owners can choose to monetize their songs, or not, because Content ID algorithms allow the copyright owner to remove any songs they wish from the site. But those algorithms are not sufficiently accurate to be able to keep their songs off the sites. And even if they were accurate enough, the UUC site is under no legal obligation to use its algorithms to fully protect any set of copyrighted works.

⁵⁶ The libraries of music owned by the audiences of UUC sites are collectively larger than the libraries that the record companies keep. Digital copies of televised performances, of concerts, of recordings that are out of print, are often only available in someone’s collection, and this gives sites like YouTube a wider selection of musical performances than can be found on sites such as Spotify. This is another case of the crowd of small individuals overwhelming the large corporation.

⁵⁷ In a “long run” timeframe, we would expect lower cost firms producing the same product as higher cost firms to drive the higher cost firms out of business. The long run could be quite long, however, as illustrated by Keynes joke, that in the long run we are all dead.

110. Thus, there are two sources of negative impacts of UUC sites on the revenues to copyright owners. The first, which is a static effect, is the lower direct payment to copyright owners by UUC sites because these sites do not need permission of the copyright owners to provide access to their works and if they get permission they pay below market rates. Second, and of a size that could be larger than the first, is a dynamic effect which is the reduction in revenues from the unfair competition that UUC sites impose on permission based sites, lowering their audiences and revenues, and by necessity, reducing the payments that they make to copyright owners.⁵⁸
111. The harm the UUC sites would cause the subscription services is likely to be proportionally less severe, since UUC sites' advertising-based services are less substitutable for subscription services (than for permission based ad services), although as we saw in paragraph 104, the degree of substitutability between free and subscription based services is a matter of dispute within the industry.⁵⁹ We should also recognize that if ad-based sites reduce the advertising intensity, they become better substitutes for subscription services, cutting into the audiences and revenues of subscription services.
112. SoundCloud and YouTube began when the primary form of music consumption was the purchase (or pirating) of musical files. Subscription based streaming was a market of little significance and ad supported streaming was even smaller (with respect to revenue generation).⁶⁰ UUC sites were not as enormous as they are now, nor were they very good substitutes for file downloads, so the impact of UUC sites on industry revenues was relatively small, particularly compared to piracy.⁶¹
113. UUC sites have grown to be enormous. Because they pay below market rates when they ask for quasi-permission, their payments to copyright owners are below what they would have been without the safe harbor. This is the factor that has been so far recognized as the "value grab."
114. But the relatively close substitutes for UUC sites, permission-based streaming sites, have also grown to become an increasingly important source of revenue to the music industry (accounting for over 40% of U.S. industry revenue in 2016). The reduced copyright payments due to the competition of these sites with UUC sites is another source of harm to copyright owners. Also, the now very large UUC sites have a relatively larger negative impact on less good substitutes (forms of music consumption other than permission based streaming). Thus, there are additional sources of harm to copyright owners caused by the advantage that safe harbors provide to UUC sites, and these sources of harm are usually ignored in discussions of safe harbors. We will return to this issue in Section VIII.

⁵⁸ Note that these two factors are not always noticed. A March 2017 report by Beard, Ford and Stern titled "Safe Harbors and the Evolution of Music Retailing" tries to estimate the impact of the safe harbor on sound recording revenues but limits itself to estimating the first effect only, which it estimates at between \$650 million and \$1 billion. A rather facile 2013 examination by MIDiA Research seems not to understand either of these factors and concludes that the safe harbor is no longer a problem because the most heavily used UUC sites utilize quasi-permissions.

⁵⁹ There is another factor at work as well, which is the fact that streaming services are relatively new and during the transition to this new method of providing music, a form of free sampling might be expected to be used to introduce potential consumers to the benefits of streaming. The ad based component can be thought of as a free sample (although the subscription service could have a direct free sample). This factor, however, would only last until streaming had lost its novelty.

⁶⁰ In the U.S., RIAA statistics indicate that subscriptions made up less than 2% of revenues in 2006 and ad supported revenues were too small for the RIAA to bother measuring.

⁶¹ Although stream ripping software is capable of turning streamed music into files that are then good substitutes for purchased downloads.

7. SOME SPECIAL FACTORS IN THE CASE OF YOUTUBE

115. YouTube was created in 2005 by three employees of PayPal. In 2006, it was purchased by Google for \$1.65 billion.⁶² YouTube has some special characteristics that require a sui generis analysis different from almost all other streaming sites. The unusual characteristic of YouTube is that the viewing of content by users generates two sources of value to the owner of the site, Google.
116. By any metric, YouTube is enormous. YouTube viewers worldwide watch and listen to a billion hours of videos per day. By way of comparison, that is about ten times the viewing of Netflix. It is also reported that in early 2017 YouTube achieved over two billion unique users over a ninety-day period.⁶³ It is well known that a large proportion of YouTube's billions of users stream music.
117. Music is one of the most popular categories of videos on YouTube. YouTube is larger than any other music streaming site. Tech Times claimed that in 2015, YouTube was responsible for 57% of all music streams worldwide.⁶⁴ YouTube appears to be somewhat less dominant in the U.S. and other English-speaking countries, and somewhat less dominant in very recent years. Edison Research claims that in 2017 YouTube was the largest digital source used to keep music savvy listeners up to date with music in the U.S., although Pandora was 75% as influential and Spotify was half as influential.⁶⁵ BuzzAngle reports that in the first half of 2017 YouTube was responsible for 36% of all on-demand music streams in the U.S., although the number of users of these various sites is not broken down.⁶⁶ For the major English speaking countries at the end of 2016, MIDiA reports that YouTube's user penetration among weekly "active" users was the highest, at 26% (with Spotify second at 16%).⁶⁷
118. YouTube's size makes it something of an outlier. What makes YouTube unique, however, is that YouTube provides its owner, Google, with two separate sources of value: one source of value is the direct revenues generated by advertisements placed in YouTube videos; the other, more novel source of value, is the information provided by tracking the user's choice of audiovisual materials on the YouTube web site.⁶⁸ Google/Alphabet is one of the largest companies in the world, and it relies on advertising for virtually all of its revenues.⁶⁹ The information about individuals revealed by their YouTube usage is of value to Google because advertisers want to know as much about their audiences as possible so that the advertising can be as effective as possible. The information about users revealed by YouTube allows Google to refine the advertisements that it places on many sites throughout the Internet.

⁶² See New York Times "Google to Acquire YouTube for \$1.65 Billion" by Andrew Ross Sorkin and Jeremy W. Peters October. 9, 2006, <http://www.nytimes.com/2006/10/09/business/09cnd-deal.html>

⁶³ Both statistics come from: Wall Street Journal "YouTube Tops 1 Billion Hours of Video a Day, on Pace to Eclipse TV" by Jack Nicas, Feb. 27, 2017. The article (<https://www.wsj.com/articles/youtube-tops-1-billion-hours-of-video-a-day-on-pace-to-eclipse-tv-1488220851?mod=e2fb>) compares worldwide YouTube viewing with American television viewing, which is a fairly meaningless comparison that provided a misleading headline for the article.

⁶⁴ Tech Times "YouTube - Not Spotify, Pandora Or Apple Music - Is The Number One Music Streaming Service Worldwide: Here's Why" 8 July 2015, by James Geddes <http://www.techtimes.com/articles/66603/20150708/youtube-not-spotify-pandora-or-apple-music-is-the-number-one-music-streaming-service-worldwide-here-s-why.htm>

⁶⁵ Edison Research, The Infinite Dial, page 33, 2017 (<http://www.edisonresearch.com/wp-content/uploads/2017/03/The-Infinite-Dial-2017.pdf>)

⁶⁶ If, as seems likely, subscription users download more songs per capita than do users of free services, then there could be more users on advertising services even though there are more files downloaded from subscription services according to BuzzAngle. <http://www.buzzanglemusic.com/wp-content/uploads/BuzzAngle-Music-2017-Mid-Year-U.S.-Report.pdf>

⁶⁷ These values can be found at this link (<https://www.midiaresearch.com/blog/whos-leading-the-streaming-music-pack/>)

⁶⁸ This additional revenue generation would be similar to a magazine which sold its subscriber list to vendors of the products discussed in the magazine. In that case, the payments made to the inputs of the magazine, such as the writers and editors, would be expected to be based, in part, on the revenues generated by sales of the subscriber list just as they are based on the advertising revenue and subscription revenue.

⁶⁹ For example, see this article (<https://qz.com/970765/alphabet-goog-q1-2017-earnings/>).

A. YouTube, because it is not a stand-alone company, probably does not maximize its stand-alone profits.

119. Before Google can determine the most effective ads to show users on its partners' websites, it needs to obtain information about those users. Google increases the effectiveness of its advertising by using information about individuals that it derives from the behavior of those users on its web pages, including what they discuss in their emails, what they look for on the web, where they travel, and so forth. Here is Google's explanation, from its "Advertising" web page:

Working with our partners, we may use cookies for a number of purposes, such as... to show ads that are likely to be more relevant (such as ads based on websites you have visited)...Sometimes you might also see an ad on the web that's based on your app activity or activity on Google services.⁷⁰

A somewhat more informative explanation can be found in an earlier version of that page:

"As you browse websites that have partnered with us or Google sites using the DoubleClick cookie, such as YouTube, Google may place the DoubleClick cookie in your browser to understand the types of pages visited...Based on this information ...Google...uses these categories to show interest-based ads. For example, if you frequently visit travel websites, Google may show more ads related to travel... Google can also use the types of pages that you have visited or content that you have viewed to infer your gender and the age category you belong to.⁷¹

120. The music and video tastes of individuals can reveal a great deal about their likely age, education, tastes, income, and so forth, and this can be very valuable to Google, independent of any revenues that YouTube might generate on its own. Google can better tailor its advertisements throughout its various non-YouTube webpages as well as through its partners' websites for whom Google helps to place advertisements.

121. There are also some YouTube users who do not use the main Google sites, preferring, perhaps, other search engines (e.g., Bing), other programs, or other ecosystems such as those associated with Apple or Microsoft. In those instances, YouTube serves an especially useful function for Google by introducing the cookies into the browsers used by these individuals when they use the very popular YouTube website.

122. Thus, there is good reason to believe that the information about users provided by YouTube might have significant value for Google's placement of advertising. Using Alexa's metrics of website popularity, YouTube is number 2, second only to Google's number 1 but ahead of Facebook's number 3.⁷² YouTube provides a great deal of information about users (that can be used by Google in its advertising on its other properties) both because of its extremely large audience and also because of the quality of information about the tastes and age of those audience members, revealed by their choices in music consumption.

⁷⁰ This information can be found here, <https://www.google.com/policies/technologies/ads/>

⁷¹ This comes from a 2012 version of Google's policies, found here, <http://web.archive.org/web/20120115123521/http://www.google.com/privacy/ads/>.

⁷² These value come from the Alexa website (<https://www.alexa.com/topsites>).

123. YouTube's advertising revenues from music, although they are not routinely broken out separately by Google, are clearly dwarfed by Google's advertising revenues according to the limited information that YouTube has made available. YouTube apparently generated about \$2 billion in music advertising revenues in 2016, while Google generated about \$80 billion in advertising revenues.⁷³ The value of Google's non-YouTube advertising that might be enhanced by YouTube's information about the music usage of its users is, therefore, highly leveraged, at approximately a 40 to 1 ratio.
124. This great leverage implies that if the information about the musical preferences of YouTube's users enhanced the revenues generated by Google's advertising sale by only 2.5%, the additional dollar value of that information to Google would be equivalent to the complete advertising revenues directly generated by music on YouTube. Given these circumstances, Google might very well find that its best use for YouTube is to use it for generating information that helps generate revenues elsewhere for Google, as opposed to maximizing its standalone revenue.
125. Nevertheless, YouTube faces a tradeoff between generating its own revenues and providing informational value to Google. YouTube would maximize its stand-alone profits if it required that its users experience the profit maximizing amount and intrusiveness of advertising. But increased advertising intensity lowers the number of YouTube users, reducing the information about those users to Google. Because of this tradeoff, it is likely that YouTube would reduce advertising below its standalone profit maximizing level, in order to increase the amount of information generated for Google by YouTube's larger resulting audience.
126. In the most extreme case, it could be optimal for YouTube to forgo direct advertising revenue altogether and focus only on generating information about their users to benefit Google (just as Google, by way of analogy, forgoes Android operating system revenues by giving it away in order to maximize advertising and app profits that flow from Android usage). This tradeoff implies, therefore, that any entity, such as a performing rights society, that is paid solely on the basis of YouTube revenues, as opposed to YouTube's full value which includes the value of information that it provides to Google, will likely be shortchanged.
127. YouTube's fair market payments (relative to direct revenues) would be expected to be higher than other, self-contained, streaming services. This has several important implications. For the purposes of this report, it implies that the copyright payments that YouTube would be expected to make per stream, would be *higher* than the payments made by other streaming services. It also implies that other organizations, such as performing rights societies, which often receive percentages of revenue on the assumption that those revenues reflect the value of the underlying content, including music, should have their copyrights valued using revenues above and beyond those found in YouTube's advertising alone.
128. Note as well that YouTube's advertising revenues are likely to understate the value of the source material for two interrelated reasons. First, advertising revenues are likely to understate actual because YouTube does not maximize stand-alone profits. Google wants YouTube to have a larger audience than would be achieved by maximizing YouTube's stand-alone profits. Second, the informational value of YouTube's audience to Google, does not show up in any of YouTube's revenues. Nevertheless, that extra value would be a consideration in any fair, market-based transactions between copyright owners and YouTube.⁷⁴

⁷³ YouTube announced that it had paid \$1 billion to music rights holders in 2016 (see its December 2016 blog entry- <https://youtube.googleblog.com/2016/12/a-billion-reasons-to-celebrate-music-on.html>, implying that YouTube generated about \$2 billion in advertising on music videos before its 44%/55% split with rightsholders. Google's advertising revenues are reported here, https://abc.xyz/investor/pdf/2016_google_annual_report.pdf.

⁷⁴ Note that this analysis holds for any advertising based company that has a large component unrelated to copyrighted music, as would be the case for Facebook if it were to decide to stream music.

B. Evidence that YouTube does not maximize its stand-alone profits

129. I have described how Google might maximize overall revenue and profits by intentionally failing to maximize advertising revenues (and stand-alone profits) from YouTube. An important question naturally arises: is there any empirical support for this belief? An answer can be gleaned by examining whether YouTube treats its advertising in a manner similar to other web-based music streaming sites that also generate revenue from advertising.
130. Note that in spite of its enormous size, YouTube claims that profitability is not its primary focus. In October of 2016 Susan Wojcicki, CEO of YouTube stated, “We are still in investment mode” and with regard to profitability “There’s no timetable.”⁷⁵ Although it is possible that YouTube is really still in investment mode, it seems more likely that part of the reason that it has not yet achieved the stand-alone profitability that analysts seem to expect is because it is maximizing joint profitability with Google, and that leads to lower advertising revenues and lower stand-alone profitability than would otherwise be the case. Google might be very happy with the overall economic profit being generated by YouTube for Google, even if stand-alone profits are negative.
131. YouTube has also introduced “skippable” ads that allow users to cancel ads shortly after they begin. I am not aware of other music streaming sites that do this. The Wall Street Journal reported:

Revenue accelerated in part due to skippable ads YouTube introduced in 2010. Viewers like them because they can skip ads they don’t want to watch; advertisers like them because they pay only when viewers do watch. ⁷⁶

Skippable ads will generate more revenues than having no advertising at all, but they do not seem to be the type of advertising that generate the most revenue.⁷⁷ It is understandable why users would like such skippable advertisements since they are less intrusive and can be easily removed after about 5 seconds. Such advertising is much friendlier to users, and YouTube seems to want to keep these users aboard even if some of these users (those who choose to skip ads) do not generate much or any direct advertising revenue to YouTube. YouTube plans to make all ads of 30 seconds or more skippable beginning in 2018.⁷⁸

132. YouTube, due to it being a site for videos, also has an option for very non-intrusive video advertising. Sometimes YouTube runs small video advertising banners which are easily dismissed by clicking the “x” in the upper right corner. Beside the ease in removing these advertisements, these ads do not contain sound and thus do not interfere with audio consumption. Other music sites that might show a banner ad on the web or app page generally do not allow those ads to be fully removed. YouTube’s ads, again, seem focused on keeping their audience while forfeiting some revenue.

⁷⁵ Here is the link, (<https://finance.yahoo.com/news/youtube-ceo-says-no-timetable-232313041.html>).

⁷⁶ Wall Street Journal, “YouTube: 1 Billion Viewers, No Profit” by Rolfe Winkler Feb. 25, 2015, <https://www.wsj.com/articles/viewers-dont-add-up-to-profit-for-youtube-1424897967>.

⁷⁷ Advertisers usually want users to see the entire advertisement and be engaged by the medium when they see the ad, which is why television ads are more frequent during the climatic scenes in dramas.

⁷⁸ See this story, <http://www.campaignlive.co.uk/article/youtube-stop-30-second-unskippable-ads/1424541>

133. YouTube, like many other streaming services, can be run from browsers. However, unlike most other streaming services, YouTube can only be run from browsers on Windows and Mac PCs as there is no YouTube app in the Windows or Mac stores, although YouTube could easily create such apps, as Spotify has. The reason this is important is that browsers can be easily set to block advertisements, which destroys the monetization of music streams. Sites that try to maximize monetization prefer that customers use their apps, which are less susceptible to ad blockers. But not YouTube. Not only does YouTube fail to minimize ad blockers by not providing apps for PCs, YouTube does not even attempt to prevent (banner) ads for ad blocking software during the playing of videos on YouTube, which allow users to install ad blocking software with a single click. YouTube’s seeming indifference to whether YouTube viewing is monetized is consistent with the economic analysis showing that direct advertising revenue might not be its most important contribution to Google.⁷⁹

8. THE HARM CAUSED BY SAFE HARBORS

134. Much of the momentum for the value gap discussion derives from the fact that when the payments for streams are examined, YouTube and SoundCloud appear to underpay copyright holders relative to the payments made by other streaming services. There are various sources of evidence about these payments.

135. Digital Music News reported in 2017 on two analyses about payments that were being made to artists from streaming services.⁸⁰ One claim, based on RIAA’s analysis of payments to copyright owners, compared three services and concluded that the comparison showed YouTube as a last place outlier. The amount paid to copyright owners for 1000 streams is shown below:

- Apple Music: Slightly over \$12.
- Spotify: About \$7.50.
- YouTube: Around \$1.50.

A second examination by Information is Beautiful (for signed artists) provided the following statistics showing the same position for YouTube:

- | | |
|----------------|----------|
| • Napster | \$19. |
| • Tidal | \$12.50. |
| • Apple Music: | \$7.50 |
| • Google Play | \$6.8 |
| • Deezer | \$6.4 |
| • Spotify | \$4.4 |
| • YouTube | \$0.70 |

⁷⁹ For details and examples of the ad blocker ads, see this story on Digital Music News September 6, 2017, <https://www.digitalmusicnews.com/2017/09/06/youtube-video-ad-blockers/>.

⁸⁰ Digital Music News, “What Streaming Music Services Pay (Updated for 2017)” July 24, 2017, <https://www.digitalmusicnews.com/2017/07/24/what-streaming-music-services-pay-updated-for-2017/#comments>.

136. What these estimates, as well as many others, have in common is that YouTube and Sound Cloud⁸¹ are outliers at the bottom, with the higher paying services sometimes paying ten times the amount per stream.⁸² Admittedly, subscription and ad-supported services should not be compared to one another but instead we should compare likes-to-likes: ad-based with ad-based and subscription with subscription. In addition, revenues should only be compared for the same countries in the same year. Nevertheless, even with these imperfect data observations, YouTube (which I will use to represent all UUC sites for the rest of this section) seems to have strikingly lower payments to copyright owners.
137. The payout rate per stream is the product of two factors. First, there is the amount of advertising or subscription revenue generated for streams of music, the monetization of the audience. Second, there is the share of the revenues that the service pays back to the copyright holder. The two factors multiplied together generate the total copyright payouts and dividing this product by the number of streams gives us the per stream statistics we are discussing.
138. We have already noted several reasons to expect that YouTube's monetization of its audience would be lower than permission-based services. YouTube and other services protected by the safe harbor have lower costs than permission-based services such as Spotify, and this advantage is likely to cause them to lower advertising monetization in order to increase their market shares, as discussed in paragraph 108. As seen in section VII.B, Google has good reasons to want YouTube to not maximize advertising revenues, so that Google can have a larger audience from which it can derive information that Google uses in its own advertising endeavors.
139. This view is supported by the fact that YouTube has skippable ads and does not charge advertisers for ads that users skip. Allowing users to skip ads will lead to lower monetization than would otherwise be the case and other sites such as ad-based Spotify do not allow users to skip ads. YouTube's monetization should get worse in 2018 when YouTube will make all ads of a 30 second duration or above, skippable.
140. The weakened bargaining position the safe harbor imposes on copyright owners is also likely to lead to them receiving a smaller percentage of revenues. It is, therefore, not surprising to find that Apple and Spotify each claim that they pay 70% of their revenues in copyright royalties whereas YouTube pays only 55%.^{83, 84} If these numbers are correct, then the share YouTube pays out is only 79% [55%/70%] of the share paid out by Spotify and Apple. The safe harbor is the most natural explanation for the lower payout rate of YouTube.
141. Last August, YouTube spokesman Lyor Cohen defended YouTube's payments in a blogpost and claimed, without providing raw numbers, that YouTube paid out \$3.00 per thousand streams in the U.S., which, he said was "more than other ad supported services."⁸⁵ This claim appears to be at variance with the numbers above.

⁸¹ It appears that SoundCloud did not begin to pay artists until 2014 (see <https://www.musicbusinessworldwide.com/how-much-does-sound-cloud-owe-the-music-business/> and <https://vulcanpost.com/18374/soundcloud-advertisements/>) or pay composers until 2015 (see <http://www.techtimes.com/articles/118411/20151221/soundcloud-will-now-pay-royalties-signing-licensing-deal-prs.htm>), so that calculating payments per stream would have been either impossible or misleading prior to that time.

This 2016 story (<https://www.digitalmusicnews.com/2016/09/15/streaming-music-earn-1-dollar/>) claims that SoundCloud's recent payments are almost identical to YouTube's.

⁸² I exclude Pandora from this list, although it was included in the article, because it uses a statutory form of payment in the U.S. that it is allowed to choose since it does not allow the user to pick individual tracks, unlike the other services. Even so, it paid out about twice the rate of what YouTube paid out.

⁸³ The figures come from Apple's Robert Kondrk and Spotify's Jonathan Prince, as quoted in ReCode, "Here's What Happens to Your \$10 After You Pay for a Month of Apple Music" by Peter Kafka June 15, 2015 (<https://www.recode.net/2015/6/15/11563558/heres-what-happens-to-your-10-after-you-pay-for-a-month-of-apple-music>). YouTube's payments are based on Google's standard advertising split.

⁸⁴ It is not clear whether these figures include payments to composers and publishers, or are based only on labels and makers.

⁸⁵ The blogpost can be found here (<https://youtube.googleblog.com/2017/08/five-observations-from-my-time-at.html>).

142. Cohen's claim about YouTube's payout was recently discussed by Jason Peterson of GoDigital Media Group, who pointed out that Cohen's number was not actually the value of an average YouTube stream, but instead the advertising value for a stream that happened to be accompanied by a viewed advertisement. Peterson claimed, the actual value for a typical American YouTube stream, averaging the monetization across all streams, was a much lower level, \$1.20 per thousand streams.⁸⁶
143. Peterson also claimed that Spotify's payments for 1000 streams were \$2.11 for its ad-supported service. If Peterson's numbers are correct, then making the appropriate comparison, between ad-supported Spotify and ad-supported YouTube, in the same (U.S.) market, YouTube's payments to artists were barely more than half (57%) [\$1.20/\$2.11] of the level that Spotify paid to artists. These numbers appear to be an apples-to-apples comparison.
144. YouTube's 79% relative payout rate compared to Spotify is nevertheless a higher percentage than the 57% value that represent the actual dollars going to the average copyright owner of a YouTube stream versus the payment going to Spotify ad-supported streams. Thus, it appears that YouTube not only pays a smaller share of its advertising revenue to copyright owners than do its competitors, but it also fails to generate as much revenue per stream as its competitors. Both of these results are consistent with the economic incentives of YouTube discussed in Section VII above.
145. Given that YouTube can rely on the safe harbor to avoid paying market rates, it should not be a surprise that it makes below fair market payments to copyright owners, since that is what economic theory would predict, at least until a long-run equilibrium were achieved where UUC sites either have eliminated other advertising based sites or other permission based sites have eliminated their disadvantage from not using the safe harbor.

A. How to Measure the Static Safe Harbor Damage to Copyright Owners

146. One question that we would like to answer is "how much have UUC sites reduced the payment to creators." That is a difficult question to answer for the simple reason that we do not know what the payments would have been in a world without safe harbors. Although I will not attempt to answer that question here, I will discuss the data we would want and how we would use that data to answer such a question.
147. Although the first streaming site (Rhapsody/Napster) began in 2002, permission based streaming sites were still in their infancy when YouTube began in 2006, so each of these two types of sites grew up under the influence of the other. We cannot, therefore, compare data prior to and then after the existence of UUC sites in the hope of examining the impact of UUC sites.
148. Measured by the number of users, UUC sites are by far the largest streaming sites in existence, (even SoundCloud, which is in decline, has more users than Spotify or Pandora).⁸⁷ The typical \$10/month fee charged by subscription streaming sites came about while those sites were competing with UUC sites such as YouTube, so we do not know whether the \$10 monthly price chosen by Spotify and most other subscription services would have been the chosen price in

⁸⁶ This information is taken from Peterson's discussion here, <https://www.godigitalmg.com/wp-content/uploads/2017/09/Thought-Leadership-on-Value-Gap-v4.1.pdf>. The claim that many YouTube videos with music are not monetized is supported by Pex.com, whose CEO (Rasty Turek) notes (<https://blog.pex.com/how-big-is-music-on-youtube-5fb7cc5d3f77>) that almost two thirds of videos with music on YouTube are not claimed by Content ID. To check whether this was due to copyright owners not giving the information to Content ID, he examined one of the most popular YouTube videos (Gangnam Style) and found that it had about 20% of its 891,685 copies not being monetized although the copyright owner had set Content ID to monetize such videos.

⁸⁷ See the chart in this article, <https://www.digitalmusicnews.com/2017/08/15/soundcloud-traffic-plunge-100-million/>.

a world without competition from UUC sites. Economic theory indicates that the existence of lower priced (e.g., advertising-based) competitors should lower the profit maximizing price of the businesses that purchase full permission rights to operate. The UUC sites would also be expected to take customers away from the permission based ad-sites. By way of analogy, the introduction of Amazon into a market tends to lower prices and speed up delivery times of other retailers as they try to compete with Amazon, which is known for low prices and fast delivery. Its competitors must try to keep up or else they will lose their customers and be driven out of business.⁸⁸

149. In order to compete with UUC sites, advertising-based permission sites must provide a user experience that is not clearly inferior to that provided by YouTube. If YouTube has less intrusive or less frequent advertising, say because YouTube does not need to maximize its own profit, then YouTube's competitors will need to try to match, to some extent, YouTube's less invasive advertising.
150. A static analysis would focus only on measuring the extent to which YouTube underpays rights owners *relative to payments made to permission sites*, ignoring any impacts its underpayment has had on permission based streaming sites, whether advertising based or subscription based, and ignoring its impact on further removed markets, such as radio or download markets.
151. The required measurements involved in calculating this narrow version of the copyright under payment would be a measure of the degree to which YouTube underpays its rights holders compared to permission based ad-services, and the total amount of payments it makes. A second and less obvious element would be the premium YouTube should pay relative to other streaming sites because of the benefits received by Google. As discussed in paragraph 127, Google benefits from the information about YouTube's users, whereas other streaming services do not have this additional source of revenues.⁸⁹ This should increase YouTube's expected market payments to a premium level above the level associated solely with its revenues. Thus, when negotiating copyright payments on a level playing field, YouTube would be expected to pay a *higher amount per stream* than we would expect Spotify and other ad-based services to pay.
152. As an illustration of how these factors would be used in a calculation, assume that YouTube pays \$1 billion to all rights holders (composers, publishers, labels, makers) but that its payments per stream are half that of permission based advertising streaming sites. Assume as well that the price Google would pay, in a hypothetical market, for the value it gets from the information about YouTube users, would be half the amount of YouTube's fair market payment to rights holders for the fully monetized advertising generation capabilities of its users. In this case, the lost revenue to rights holders would be \$1 billion in underpayments for the value of its audience to advertisers, plus \$500 million for the market value of its information to Google, for a total of \$1.5 billion.

⁸⁸ But note that Amazon's cost advantages are due to real efficiencies and thus its competition improves markets. UUC sites low cost is due to a defectively protected property right and thus their lower costs, arising from shortchanging copyright owners, tend to make markets worse.

⁸⁹ Unless they can sell information to third parties about their users' musical tastes.

B. How to Measure a more complete Dynamic Estimate

- 153.** A static analysis ignores the effects of YouTube’s under-monetization on the behavior of its customers and competitors. Nevertheless, it is virtually certain that competition from YouTube over the last decade has lowered the revenues of permission sites (both ad-based and subscription), by forcing the ad-based services to lower their advertising intensity (to compete with YouTube for users), by reducing the audiences of ad-based services (because they could not fully match YouTube’s low advertising intensity), and by reducing the number of subscribers (because ad-based services showing fewer advertisements induce subscribers to switch to their services). A more complete and proper calculation of copyright losses due to the safe harbor would need to take these dynamic adjustments into account. It also would need to adjust for the likelihood that if YouTube were to raise its advertising intensity, it would lose some customers, with some switching to other streaming sites, such as Spotify ad-based or Spotify subscription, and others switching away from streaming sites altogether.
- 154.** I am going to posit that the closest substitutes for YouTube music streams are other ad-based music streaming services (which do not have the video that is often found on YouTube).⁹⁰ The next closest substitutes are subscription streaming services which differentiate themselves by having a positive monetary price and by the exclusion of ads. Further away, as a substitute, is music consumption based on ownership of individual songs, whether purchased or pirated. Additional substitutes are radio stations which broadcast over-the-air and on the Internet.
- 155.** In the static case, we examine and contrast the current payments by YouTube and Spotify’s ad-based service to gain some insight into a counter-factual possibility of what copyright payments would have been in a world where YouTube did not have a safe harbor advantage. Thus, if ad-Spotify paid \$4 per thousand streams and YouTube paid \$2, we would have concluded that the safe harbor reduced copyright payments by half (prior to any adjustment for extra YouTube payments due to its being owned by Google).
- 156.** In the dynamic case, we understand that the current Spotify prices have been influenced by YouTube, and that we want to determine the difference between the current payments and what the payments by both vendors would have been in the absence of a safe harbor. If we were able to determine, for example, that in the absence of a safe harbor, ad-Spotify would have paid \$5 per thousand streams and YouTube would have paid \$6.00 (YouTube pays more because of its informational value to Google), then the lost copyright revenues would be much larger than the static estimate. The lost copyright payments from YouTube would no longer be \$2 per thousand streams ($\$4 - \2), but \$4.00 per thousand streams ($\$6.00 - \2). There would also be the lost revenue for ad-Spotify equal to \$1 per thousand streams ($\$5 - \4). The difference in copyright payments in the two cases would be the measure of the lost copyright revenue due to the safe harbor for ad-based music streams.

⁹⁰ Note that many YouTube “videos,” particularly those uploaded by users, merely contain a picture of the album cover, not a video per se.

- 157.** But the dynamic case is not limited to ad-based streaming. YouTube’s under-monetization of its audience lowers the revenues of other substitutes, such as subscription based services. After all, in the extreme case of no ads in ad-based Spotify, there would be no reason for anyone to sign up for subscription Spotify. Similarly, there is evidence that listeners are substituting YouTube for broadcast radio.⁹¹ If, as seems likely, YouTube underpays copyright and under-monetizes audiences relative to broadcast radio, then there would be a decline in copyright payments as listeners switch from radio to YouTube, and we would want to include that impact in the dynamic estimate of copyright losses due to the safe harbor.
- 158.** Although we are not in a position to estimate these dynamic impacts of the safe harbor, it is clear that they would be considerably larger than a simple static estimate.

⁹¹ For example, in data from Edison Research (the “Infinite Dial”; here <https://www.slideshare.net/secret/I5hauCBF13BDTG>, here <http://www.edisonresearch.com/wp-content/uploads/2014/03/The-Infinite-Dial-2014-from-Edison-Research-and-Triton-Digital.pdf> and here <http://www.arbitron.com/downloads/InfiniteDial2013.pdf>) discussing where American consumers learn about new music, 72% mentioned AM/FM radio and 77% said YouTube in 2013. By 2017, radio had fallen to 50% while YouTube had increased to 80%. When the question turned to source used “most often” for keeping up-to-date with music, the decline is more dramatic, with radio falling to 8% in 2017 from 35% in 2014 and YouTube rising to 19% from 10% (the first year for reporting answers to this question was 2014).

9. CONCLUSIONS

- 159.** The safe harbor component of copyright legislation enacted at the end of the 20th century has had a profound and unintended impact on copyright owners in this century. The safe harbor was enacted to protect fledgling Internet service providers from being held liable whenever one of their millions of users occasionally uploaded a work that infringed copyright. Such infringements were thought likely to be small in number, and not particularly harmful to copyright owners, because the potential audience for the infringed work was thought to be small. It was also thought that having the ISPs remove the infringing material in a matter of hours or days through notice and takedown provisions, would be sufficient to protect copyright owners from any but trivial harm.
- 160.** UUC sites, which were not even contemplated when the safe harbor was put into law, have contributed to the consumption of user uploaded music and video files to be orders of magnitude larger than was envisioned at the time of the enactment of the safe harbor provisions of the law. Users of these sites are measured in the billions. This has led to a massive number of copyright-infringing uploads and downloads that is far beyond the ability of notice and takedown to control. Thus, the provisions of the safe harbor leave copious amounts of infringing materials available for other users to download.
- 161.** Because UUC sites do not need copyright permissions to make a large number of infringing works available to users of their sites, they have an advantageous bargaining position vis-à-vis copyright owners. This bargaining advantage also allows UUC sites to have a competitive advantage over permission based sites as the two sets of sites compete with one another.
- 162.** YouTube argues that the safe harbor cannot provide it any bargaining advantage or competitive advantage because copyright owners can use its Content ID system to remove their works, with the supposed effect of eliminating those copyrighted works from YouTube's users. This claim is wrong because Content ID is not anywhere accurate enough to remove all works, and Content ID's defects leave enough works on YouTube to provide a large enough library of infringing works to generate considerable streaming revenue from its users. YouTube also fails to notice that if Content ID were accurate enough, the arguments in favor of a safe harbor would disappear.
- 163.** Because the lower prices caused by the safe harbor affect both UUC sites and their permission based competitors, it is necessary to examine more than just the difference in copyright payments between the two types of sites when estimating the lost copyright payments caused by the safe harbor. Instead, we must compare current payments by both UUC sites and permission based sites to the higher payments that each group would have made in the absence of safe harbors and calculate the amount of shortchanged copyright payments on that basis.
- 164.** The net result of the safe harbor induced advantage of UUC sites is that UUC sites make lower copyright payments than they otherwise would because they either do not need to get copyright permission or if they do negotiate for permission they do so on a playing field tilted in their favor by the safe harbor. Additionally, permission based sites make lower copyright payments because their revenues and audiences are diminished by competition from UUC sites. The reduced copyright payments caused by the safe harbor would appear to be very substantial.

ABOUT THE AUTHOR

Stan Liebowitz is the Ashbel Smith Professor of Managerial Economics, and the Director of the Center for Property Rights and Innovation at the University of Texas at Dallas. He received his undergraduate degree from Johns Hopkins and a doctorate in Economics from UCLA. He has written numerous academic books and articles on the subjects of intellectual property, networks, and new technologies. He has consulted internationally on these subjects for both private parties and various governments.

He has published articles specifically related to copyright and new technologies in academic outlets such as the *American Economic Review*, the *Journal of Political Economy*, the *Journal of Law and Economics*, the *Review of Economics and Statistics*, the *Harvard Journal of Law and Technology*, as well as many other journals. His articles have generated over 10,000 citations on Google Scholar and have been cited by the U.S. Supreme Court.

His first book, *Winners, Losers, and Microsoft: Competition and Antitrust in High Technology* (written with Steve Margolis) and published by the Independent Institute, received many positive reviews including in the *Wall Street Journal*, the *Economist*, and *Wired Magazine*. His second book, "Rethinking the Network Economy" was published by Amacom Press in 2002 and was picked as one of the top 30 business books in 2003 by Soundview Executive Books. Both books, although intended for a general audience, have had considerable influence on academic researchers.

In 2002 he was asked to give the inaugural keynote address at what has become the annual conference of the Society for Economic Research on Copyright Issues. In 2006 he was elected president of that organization. In June of 2012 he was asked to give the keynote address to the Society of Cultural Economics. He is also on the Editorial and Advisory Boards for several intellectual property and technology focused journals and organizations.

NOTES

A series of horizontal dotted lines for taking notes.

