

# Theory of Deterrence and Individual Behaviour – Can Lawsuits Control File Sharing on the Internet?

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The music and movie industries have recently added individual consumers as the target of the file sharing lawsuits. It is often questioned why the industries use substantial resources to fight in the courtrooms instead of making better and more affordable products. In this article, we first analyze the reasons of the industry behavior suggesting that the court strategy may be in fact more effective, at least in the short term, than it should be based on pure economic calculations. However, the empirical evidence seems to imply that lawsuits fail to send a strong signal to individuals about the society's supposedly negative attitude towards file sharing. General deterrence from the threat of being sued does not help in the end either because people are risk seeking in the face of making a decision between a certain and probable loss. In conclusion, we argue that the court strategy cannot be used to establish any social norm with a long lasting effect on individual behavior as long as the peer pressure works towards the opposite direction.

## CONTENTS

1. INTRODUCTION .....	2
2. THE ORIGINS OF COPYRIGHT DISCUSSION ON THE INTERNET.....	3
2.1 <i>Early Postings</i> .....	3
2.2 <i>Early File Sharing Practises</i> .....	5
2.3 <i>Case Scientology – Analogy to Current Situation?</i> .....	6
3. THE ECONOMICS OF DETERRENCE AND FILE SHARING .....	8
3.1 <i>Case Content Industry v. File Sharers</i> .....	8

3.2	<i>A Simple Classical Model</i> .....	8
3.3	<i>Classical Model in Action</i> .....	10
4.	BEHAVIORAL ASPECTS.....	13
4.1	<i>The Limits of the Classical Model: A Corrected Model</i> .....	13
4.2	<i>Corrected Model in Action</i> .....	14
5.	CONCLUSION.....	18
	APPENDIX I.....	23
	APPENDIX II.....	24

## 1. Introduction

The Internet seems to have upset the music and movie industries. The level of unauthorised copying of music and movies has been staggering since the invention of the present-day peer-to-peer file sharing systems. Amid all the public debate, however, the industries continue to prosper. For example 2003 was very successful for the music industry in many countries including the New Zealand, UK, Finland and the Netherlands.<sup>1</sup> Also the movie industry has been continuously breaking sales records during the last few years with rapidly increasing DVD sales and rentals.<sup>2</sup> Nevertheless, there is evidence that file sharing on the Internet has indeed caused real economic losses to especially the music industry (e.g. Liebowiz, 2004 and Peitz and Waelbroeck, 2004).

We start this paper by noting that the discussion about copyright violations and solutions on the Internet is definitely not a novel phenomenon. The controversy between copyright users and copyright industries has existed practically as long as the Internet has existed. Only the scale has changed. We also analyze the first major “copyfight”, in which Scientology and net-activists waged a war about Scientology’s secret scriptures.

Then we dig into the question why the music and movie industries have started to wage lawsuits against individual consumers instead of making better and more affordable products. We first analyze reasons for this behaviour and form a traditional and a behavioural economic model on the deterrence effect. It is suggested that the court strategy may be in fact more effective than it should be based on economic calculations in the short run. However, our argument is that the lawsuits will fail in forming a social norm against file sharing. We also

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<sup>1</sup> Worldwide CD sales statistics can be found from <http://www.ifpi.org>

<sup>2</sup> At least in the US, DVDs present today well over 2/3 of the movie industry’s annual sales and the share of DVD is still growing. See e.g. The Economist, 2003.

discuss shortly various counter-measures the consumers have taken to minimize the risk of getting sued.

In the last part of the article the anthropological material is combined with the tools used in behavioural law and economics to produce more realistic models and analysis of individual behaviour. We use data from two cases i.e. from RIAA's action in the U.S. and a Finnish Finreactor case to verify the conclusions.

The method used in this paper can be perhaps described as microeconomic anthropology. We refer to postings from Usenet and popular web sites like Slashdot in order to form more realistic assumptions on how individuals behave.<sup>3</sup> This methodology is common in social science because it avoids certain pitfalls often found in surveys such as the tendency to try to answer "right". We readily acknowledge that there are limits in this approach but we still firmly believe that it can answer reliably to questions like "does this really happen" or "does people think this way" in limited circumstances.

## **2. The Origins of Copyright Discussion on the Internet**

### **2.1 Early Postings**

First public discussions about copyright violations on the Internet date back to the very early days of network. In the Usenet, the first of such entries can be traced back to 1982.<sup>4</sup> The discussions retrieved from the Usenet are surprisingly similar compared to the ones we have today. Only the scale back then was different – for example the term "copyright violation" was used only 59 times between May 1981 and May 1986.<sup>5</sup>

A striking example is a post made by Tim Maroney to the net.general newsgroup:

```
Newsgroups: net.general
From: unc!tim
Subject: Massive copyright violations on the net
Posted: Mon Dec 6 09:25:41 1982
```

```
It is very common for people who find some piece of prose
pleasing to post it to the net. Most commonly, these are
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<sup>3</sup> For a discussion on methodology see Rehn, 2001.

<sup>4</sup> Most likely there has been even earlier public discussions in different bulleting boards predating the birth of Usenet.

<sup>5</sup> Google's Usenet Archive starts from May 12<sup>th</sup>, 1981

reviews of books, but I have seen entire essays and such posted. Although the motivations of the people who do this are admirable, it is past time for someone to point out the following:

This is a crime. It is a crime to publish or in any way reproduce for public consumption such copyrighted materials without explicit permission. It is also a crime to rebroadcast knowingly such materials. All sites which broadcast these are guilty.

This may seem like a minor crime, since no one is making any money from it. This is a false impression. Place yourself in the position of the writer who lives from day to day on the earnings of his or her writing. These people are not, like most net contributors, people who play around with writing, people who have a neat idea and casually decide to share it with people, but professional craftsmen. To infringe on their copyrights this way is to steal from them. If you have sufficient respect for the writer that you wish to share his or her work, then have enough respect not to steal from them. Many writers would probably not object to the posting if you asked, but please do ask. Write in care of the publisher, or get a phone number from the publisher (or the phone book). Show some consideration; suppose someone were to take a piece of your commercially distributed software and post it. Thank you for reading this.

Tim Maroney  
unc!tim

Tim's post generated 14 replies to net.followup. Most of them asked for more information or agreed with his position. Mark didn't:

Newsgroups: net.followup  
From: cbosgd!mark  
Subject: Re: Massive copyright violations on the net  
Posted: Fri Dec 10 13:11:07 1982

Look, you're getting it wrong. It may be a copyright violation to post copyrighted things on USENET, but there is no way you can sue the net (or an individual site) or bring down the net. That's like making the CB radio band illegal because somebody uses profanity on the air. It's like arresting your mailman because he delivered a letter whose contents are a threat to the life of the president.

The network as a whole is not responsible for assuring that the things posted to it are free and clear. Neither is a particular site. The person responsible (that's PERSON, you

can't throw a machine in jail) is the one who posted it in the first place. S/he knew (or should have known) that by posting it, they are making 400 copies and distributing them to 10000 people. We should make people aware that they should not post copyrighted material without permission, but the network as a whole is not threatened.

Mark

Basically the main elements of any modern copyright controversy are summarized in that thread. Tim's arguments and rhetoric is quite similar to the one the copyright industries are advancing today. Mark made the same case Napster, KaZaA, Grokster, et. al. have repeated later. Only minor details such as references to the fair use doctrine and other user rights were missing. In fact, user right comments did not really exist in other forums either. Individuals seem to have simply ignored the question: for example the landmark outcome from the Sony-Betamax case was only celebrated in two short messages.

In general, copyright discussions remained relatively calm during most of the 1980s and early 1990s. The only major copyright disputes were about software. Already at that time some used the Internet as a distribution channel to unauthorized copies of different commercial software, which created anger among the first Internet activists. (Appendix I)

## **2.2 Early File Sharing Practises**

The distribution of infringing files on the Internet was mainly done via dedicated file servers. Usenet did not have yet that active role in illegal distribution because binary file attachments were frowned upon. This made the surveillance of the Internet relatively easy for organizations like Software Publishers' Association (SPA) and Business Software Alliance (BSA), because the targets were centralized. (Fryer, 1995) Similarly, the limited user base made the identification of copyright violators easier.

During the 1980s all through the early 1990s, the most popular file distribution method outside the Internet was Bulletin Board Systems (BBS). In this model, there was always one central computer where users connected via modems and uploaded files for others to download. Peer-to-peer distribution was also used, but the carrier was the old fashioned postal system. Also so-called copy-parties were common. In these events individuals got together (typically at some unsuspecting

school e.g. under the pretence of “programming contest”) to share their copied software.<sup>6</sup>

Of course, the software industry reacted to this threat. Their response was multi-pronged. At the beginning the software industry relied more on educating the users and used different copy protection schemes. This strategy was soon found to be ineffective and even counterproductive because copy protections annoyed only those users who were using legal copies. Next, the software industry started to go after infringing (corporate) users and also attacked the sources of illegally copied software with the help of authorities.

For example, in Finland there were some very high profile court cases against BBS-operators during the early nineties. These cases ended up to the highest instance, which awarded considerably high damages (basing the damage calculation on the illusionary claim that one copy equals one lost sale) considering that the Finnish jurisdiction did not recognize punitive damages. The public perception of very harsh penalties was born based on the early publicity of the cases. The practical effect was that the access to unauthorized copies became more limited.

### **2.3 Case Scientology – Analogy to Current Situation?**

The first major copyright-fight on the Internet was staged with this email:

```
From: miscaviage@flag.sea.org (David Miscaviage)
Newsgroups: alt.religion.scientology.ctl
Subject: newgroup alt.religion.scientology
Date: 17 Jul 91 08:06:31 GMT
Lines: 0
```

With that message Scott Goehring created a new group alt.religion.scientology to Usenet. Following the Usenet tradition, the post was forged i.e. the sender’s name was a misspelled version of the name of the leader of Scientology. (Goehring, 1995, Lippard and Jacobsen 1995) What followed belongs to the legends of the Usenet.

It took awhile for the management of Scientology to find the group but when it finally happened, they were ready to do basically anything to stop the threat. The problem was that the “secret documents” of Scientology were often posted to the newsgroup and that caused a clear and present danger for their business model as

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<sup>6</sup> Academic discussion about copying was also gearing up but understandably it was not about Internet, e.g. Johnson, 1985 and Liebowitz, 1985.

the members were paying literally hundreds of thousands of dollars for that very same material. Also, the widespread knowledge about the key-beliefs and general conduct of the organization was likely to prevent or at least severely harm the recruitment of new members.<sup>7</sup>

Thus, Scientology did not have many other options than to try to prevent the dissemination of this information. The task ahead was indeed difficult: the file sharing tools available at that time easily transferred the crucial text files. One could make the case that Scientology faced in many ways a similar problem to its business model as the music and movie industries are facing today.

Their solutions were also surprisingly familiar. Their first move was to attack the communication channel and delete the newsgroup. This however backfired quickly because it drew attention to an otherwise rather obscure newsgroup without bringing any concrete results. Next they tried to cancel (and replace) messages after they were posted. This approach gave some short term relief but the critics counter-reacted and started to re-post. (Lippard and Jacobsen 1995) Again, a parallel can be found to the current situation. The music industry has tried to “poison” the files on peer-to-peer –networks with non-working ones etc. (Christin et al, 2005)

The technical solutions were more or less exhausted at this point and Scientology enlisted their lawyers to the fight. They started to send warning letters to the individuals who were posting possibly infringing material. Again, there’s an evident similarity to the music industry’s strategy. (Gruenwedel, 2003) Since threats didn’t bring any results, Scientology decided to launch a full-scale legal attack. They chose to target at the same time an end user (ex-scientologist Dennis Erlich), his Internet operator (L.A. Valley College Bulletin Board System) and the up-stream provider (Netcom). This was the first time when an Internet operator was charged based on direct and indirect (vicarious) copyright violation. (Green 1996)

The outcome of the case was fortunate to the Internet. The judge cleared in *RTC v Netcom* (1995) the Internet operators from liability of the acts committed by their customers. Also, the case against Dennis Erlich was later dropped. This case paved soon way to “safe harbour” legislation, because it made it easier to Internet operators to argue in their lobbying material that adding the protection against liability would only codify the existing legal regime. As a consequence the music and movie industries have not been able to sue the operators.

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<sup>7</sup> The organization basically believes that human problems are caused by space aliens’ souls.

Scientology didn't give up so easily and sued several more individuals and their operators.<sup>8</sup> Scientology won or settled out of court most of these cases. Only Karin Spaink got a clear victory in her case in the Netherlands. (Spaink, 2004) Still, the outcome of the cases didn't stop the critical discussions and postings of the infringing documents. In effect, the critics became more careful to protect their privacy or use the possibilities offered by fair use defences in copyright law. The fight did not end, but moved to other areas like search engines, which however go out of the scope of this paper.

To conclude, the infringing files were posted so widely to the Internet, that it became impossible to hide them anymore. Also, as a consequence of the legal defeat in the Netherlands, the main document about the core beliefs is currently legally available. Still, the biggest problem for Scientology may be the negative impression they have generated among Internet activists. As a result any news about the organization is covered extensively in leading tech-blogs like Slashdot<sup>9</sup> and it is common to see these online discussions turn into Scientology-bashing.

### **3. The Economics of Deterrence and File Sharing**

#### **3.1 Case Music Industry v. File Sharers**

The history of file sharing and related court cases follows closely the story of Scientology told above. Countless papers have examined the process so far. (e.g. Fagin et al 2002 and Netanel, 2003)

In the first phase, the music industry used legal action against Internet service providers (e.g. Napster, KaZaa, Grokster). The result was only partial success: file sharing moved to distributed networks out of reach from traditional service providers, software companies and middlemen. Now, in the second phase, the industry doesn't have many options left – besides education – than to start court cases against individuals.<sup>10</sup>

#### **3.2 A Simple Classical Model**

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<sup>8</sup> These cases were all US-based and the plaintiffs were ex-scientologists.

<sup>9</sup> For example: <http://slashdot.org/yro/02/03/21/0453200.shtml?tid=99>

<sup>10</sup> In this paper, we do not consider the fact that there are many *alternative business models*, which are build on the assumption that users share files freely. See e.g. <http://www.creativecommons.com/>

The classical utilitarian theory of deterrence assumes that individuals – acting as rational decision makers – will share files if they do not fear the negative effects of (legal) punishment more than they value the benefits of sharing. (e.g. Beccaria 1764, Becker 1968). The general deterrence theory aims to reduce the success-rate of the “criminal enterprise”. Widely used control mechanisms include copyright education campaigns, indirect legal action targeted on Internet operators (secondary liability, take-down procedures etc.), and direct legal actions against file sharers themselves.

A traditional economic approach to calculate the effectiveness of the lawsuits against file sharers starts from the expected utility of a file sharer. It can be calculated by reducing the costs of file sharing (the liability risk ( $C_l$ )), other costs such as the price of broadband connection ( $C_e$ ) and the time used to install, learn and operate the software ( $C_t$ ) from the benefit (money saved by downloading e.g music ( $S_m$ )). An individual uses file sharing software if  $S_m - (C_l + C_e + C_t) > 0$ .  $C_t$  and  $C_e$  may substitute each other i.e. the individual may choose to invest more on broadband to lower the cost of  $C_t$ .

The liability risk is usually calculated by dividing the number of filed court cases by the number file sharers and multiplying that probability by the estimated fine i.e.  $C_l = (N_{\text{cases}} / N_{\text{sharers}}) * C_{\text{fine}}$ . The problem with this approach is that it looks backwards instead of estimating the risk in the future. The reason is simple,  $N_{\text{cases}}$  should actually be  $N_{\text{new cases}}$ .

In our very simplified model the plaintiff has a direct control of two variables, the number of (new) court cases and the price of the music ( $N_{\text{cases}}$  and  $S_m$ ). The estimated fine is mostly derived from the legislation but – if publicised as the case has been – the early out-of-court settlements form the base level for the calculation.

The simplified model does not take into account that  $C_l$  is different for different individuals. This is actually the only variable in the model, which is under individual’ direct control. Individuals can use different methods to lower their risks.

First, if a large number of individual file sharers decide not to share any files, then  $C_t$  increases sharply. This may turn the utility negative for some file sharers, which means that  $N_{\text{sharers}}$  will decrease. Consequently, the likelihood to get sued increases and the expected utility drops even further. Such a positive feedback loop is one of the few realistic options, which would have a real effect curbing file sharing.

Second, instead of sharing fewer songs, an individual may choose to share only those files whose copyright is not aggressively enforced. In order to do this, the individual file sharer has to have information which files are more risky.

Third, an individual may try to limit the music industry's possibilities to monitor file sharing. The bad news for music and movie industries is that this approach lowers  $C_l$  without having significant effect on  $C_t$ . The good news is that effective global file sharing networks cannot identify the file sharers easily and thus excluding the industry from "legit" users is a non-trivial task.

The last and potentially the most effective way for file sharers to lower  $C_l$  i.e. avoid lawsuits is to move to safer file sharing networks. If there are networks, which do not reveal the identity of the individual who shares the file, they should be preferable. This is true as long as there are no other drawbacks i.e. as long as  $\Delta C_l > \Delta C_t$ .

Lastly, the music and movie industries have been using one additional strategy to rise  $C_t$ . They can try to spike the network with inferior quality material forcing users to spend more time to find the hoped material or alternatively lower  $S_m$ .

### 3.3 Classical Model in Action

The classical approach is realistic to a limited extent. It has been verified with empirical research by Maffioletti and Ramello, who found that "The provisional interpretation of our experimental data suggest that lawsuits can effectively lower the rate of copying because of the raise of probability perceived by consumers of being caught and thus being punished." (Maffioletti & Ramello, 2004).

Also our own observations support the theory to the extent that individuals try to maximize their welfare by calculating the utility. In fact, most of the discussions about the Recording Industry Association of America's (RIAA) court filings included at least one this kind of calculation.<sup>11</sup>

```
Re:Overall total? (Score:2)
by AstroDrabb (534369) * on 23-06-04 5:09 (#9502458)
```

```
Those who continue to do this are probably going to
eventually get caught
```

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<sup>11</sup> Another, more detailed example can be found from Appendix II

The RIAA has sued about 3,429 people. There are at least 10,000,000 people in the USA alone that are using some type of file sharing (and that is not counting the rest of the world). so  $(3,429 / 10,000,000 = 0.0003429) * 100 = 0.03429$ . So you have a .03 percent chance of being caught by the RIAA. I don't think the RIAA has the "leg up" in this situation.

Senior Programmer  
Davenport, FL USA

The published figures about average settlements (~3000\$) is also often added to these calculations. At this point the real life starts to differ from the results of Maffioletti and Ramello. The outcome is that an individual is better off practically always by participating into file sharing. Also, the calculations lead easily to the conclusion that the more the individual downloads, the better off he or she is.

RIAA has been pointing out that it is targeting mostly individuals who share more than 1000 songs and thus sharing less lowers the likelihood to be sued:

"On Monday, September 8th, the RIAA, on behalf of its member companies, filed the 261 copyright infringement lawsuits against individuals who were illegally distributing, on average, more than 1,000 music files for millions of other peer-to-peer network users to copy for free." (RIAA 2003a)

This strategy is of course beneficial to RIAA's goals because it rises  $C_1$  due to lower number of available sources. Targeting major sharers makes the cases also appear less aggressive. However, not everyone agrees with the RIAA's strategy:

Zigging when they should zag (Score:3, Insightful)  
by Anonymous Coward on 25-06-03 21:40 (#6295717)

Well, these clowns have been fighting the wrong battles here for ages. This one is no surprise.

The strength of P2P has nothing to do with the small % of users who share huge amounts of material. It's the combination of thousands of individuals each sharing a small amount of material. Seeing tactics like this is even counterproductive because it sends the message that sharing a few files is okay; the real crime is sharing lots of files.

Even with its size, the RIAA isn't big enough to sue the litte guys who are the engine of P2P. This human-redundancy is why P2P is around to stay.

Also, the individual's risk minimization i.e. lowering the probability of getting sued is not only theoretical practice but it was (and is) extensively used. This approach was especially popular in the beginning of the lawsuits because the early subpoenas contained the names of the infringing files and from that information it was obvious that some artists were monitored more closely than others.<sup>12</sup>

The simplest form of self-defense is turning off the "show all shared files" option from the file sharing software. The more advanced option is to use specific lists of blocked addresses. Some file sharing software has this ability build-in (e.g. Emule) but it is also possible to use specific program for this purpose like Peer Guardian<sup>13</sup>, which acts like a firewall and prevents all connections from blocked addresses. In addition, some firewalls support blacklisting.<sup>14</sup>

The good news with this approach is that RIAA (and companies which sell monitoring services) can very easily check whether their IP-addresses are blocked or not and in latter case just to change to a new IP-address(range). The blacklists have to be publicly available to be useful for normal users and therefore the content industry has unavoidably the upper hand in this part of the technology race.

In the beginning the self-defense approach was used mostly in KaZaA and different Edonkey-clients and Bit-Torrent. (PEW and comScore, 2004) None of these two programs offer any advanced privacy protections and thus the benefit came from the fact that RIAA was most worried about the biggest network. After the usage of Edonkey and Bit-torrent increased, the networks started to draw attention and thus the early benefits were lost. The next step will be more anonymous networks like Freenet and Mute. The problem with these networks is that they are very hard and slow to use and hence  $C_t$  is very high. Alienw's experiences demonstrate this:

```
Re:Protect your privacy (Score:2)
by alienw (585907) on 29-04-04 6:00 (#9003908)
MUTE is a piece of shit made by a complete idiot. Have you
even tried using it? My top speed on it was 500 BYTES per
second. The retard who programmed it used a text-based
protocol that wastes an incredible amount of usable
```

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<sup>12</sup> EFF made a tool for this: <http://www.eff.org/IP/P2P/riaasubpoenas/>

<sup>13</sup> <http://www.methlabs.org/methlabs.htm>

<sup>14</sup> More info: <http://methlabs.org/forums/forumdisplay.php?f=6>

bandwidth (and there isn't that much to begin with because the protocol is inefficient). In short: good idea, incredibly bad implementation.

If you think this post needs to be modded down, try using the reply button instead.<sup>15</sup>

## 4. Behavioral Aspects

### 4.1 The Limits of the Classical Model: A Corrected Model

The classical model seems to imply that in the end the music and film industry is fighting a futile fight with its lawsuits. Situation looks even worse after behavioral aspects are taken into consideration.<sup>16</sup> However, if the music industry could argue that lawsuits actually present the position of the majority, the human tendency for conforming to the majority's perceived position could help the music and movie industries to sway individuals away from file sharing. This does not seem to be the case.

The classical economic approach relies heavily on the expected utility theory, in which individuals rationally choose between the weighted utilities of possible outcomes. Cognitive scientists have noted that (in this case) individuals tend to favour a substantial probability of larger loss to a certain limited loss. The finding contradicts the classical theory, which assumes that individuals are either risk-neutral or risk-averse. (Kahneman and Tversky, 2002)

A straightforward implication to the theory of deterrence is that even if the music and movie industries could reach a situation, in which  $C_1 \approx S_m$ , the users would still favour sharing instead of buying the music or movies.

The calculation itself needs also few refinements. To get more realistic results, the following parameters should be also taken into consideration:

- The reputational cost of violation
- The reputational benefit of violation (Sunnstein, 2003)

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<sup>15</sup> <http://yro.slashdot.org/comments.pl?sid=105737&cid=9001566>

<sup>16</sup> Though, behavioralism is not universally endorsed. For example Gregory Mitchell criticizes its premises in his article "Taking Behavioralism Too Seriously? The Unwarranted Pessimism Of The New Behavioral Analysis Of Law" (2002).

With reputational cost we mean unofficial sanctions, which are applied by the individual's peers. These can be e.g. different forms of taunting or scolding or ostracizing the individual file sharer. On the other hand, the reputational benefits may arise if the subcommunity, into which the individual belongs, is supportive towards his actions. The benefits may include getting better status in the hierarchy of the group, getting more friends or sexual partners. (e.g. Posner, 2002 and Rebellon and Manasse, 2004). These benefits are often hard to quantify but they may play a significant role in individual decision-making.

Another slightly different view is that individuals tend to be conformists i.e. they prefer to follow the behaviour of others. A partial explanation is the risk of reputational costs. Still, similar "herd behaviour" is also found in circumstances, where the individual does not have to worry about the consequences of non-conformation. If an individual can make a credible case that vast numbers of other individuals in the community have stopped doing something, it can actually be more effective than emphasizing the point that the behaviour itself is illegal, morally wrong, or that an infringer may face strong penalties. (Sunnstein)

Finally, fairness must be taken into account. Empirical evidence shows that individuals are ready to punish behaviour, which they deem unfair – even at a financial cost to themselves. This happens even if the act of punishment is anonymous i.e. there are no links to reputational factors. (Sunnstein)

## 4.2 Corrected Model in Action

**RIAA's lawsuit campaigns in the USA.** In the current environment, individual file sharers do not generally consider copyright violations on peer-to-peer networks as serious criminal activity. (Pew and ComScore, 2004a). In fact, some Internet activists see copyright just as a tool for corporate suppression, and for them infringement is more a civic duty than a crime. The following post from Slashdot illustrates this position:

```
Wow, we're on a roll today! (Score:3, Funny)
by DroopyStonx (683090) on 29-04-04 1:24 (#9001875)
```

```
An interview with fuckwad Valenti, and now more RIAA
lawsuits! Woweee!
```

```
They're sure doing a good job into scaring me... scaring me
so much that tonight, I'm gonna be downloading more than
normal!
```

```
Got Movies? [newzbin.com]
Got Music? [newzbin.com]
```

I do NOW, and so can you! Aim your middle fingers at them and grin, because this is the best weapon against 'em.

That said, we can also identify another group of individuals, who truly believe that file sharing is stealing. They don't seem to dominate the Slashdot-reading community, however. The defenders of strong copyright are commonly moderated down and other posters quite often "flame" them. In other words, they face clear reputation costs for their views.

Similarly, among active net users the actions that support file sharing are likely to lead reputation benefits. Jesse Jordan's case offers good anecdotal evidence on this. Jordan created a search engine with three of his peers for music files. He was sued by RIAA, which demanded \$900 million based on the number of files found from their search engine. Jordan was soon forced settle his case for \$12,000, which he had saved to pay his tuition at college. RIAA published the case aggressively and intended to make a warning public example from Jordan.

Instead, RIAA managed to anger active net users. They countered RIAA's action by arranging a fund-raiser, which raised enough money for Jordan to fully cover the price of his settlement. His social status got also a significant boost:

"One sixteen-year-old girl from Alabama started sending illustrated e-mails, including "a number of fetishes she was telling me about," Jordan says." (Knopper, 2003)

Nevertheless, lawsuit and other actions against individuals who share files may still strengthen the standing of strong copyright proponents in the society at large. At least RIAA claims that this is the case:

New consumer survey results from a November poll, among 802 Americans age 10 and over, show that 64 percent of those polled understand it's illegal to "make music from the computer available for others to download for free over the Internet." That's up from 37 percent in November 2002, and for certain subgroups, the new awareness numbers are even higher -- for example, 69 versus 16 percent among "regular Internet users. (RIAA, 2003b)

In other words, if RIAA is right the lawsuits seem to signal effectively that file sharing is against the copyright law. Another matter is does "against the law" translate in the minds of the people to "morally wrong thing to do". At least Maffioletti and Ramello found that even with the lawsuits most consumers (60-69%) continue to believe that sharing is not unethical.

PEW and comScore (2003), which results RIAA is referring, is based on phone interviews and comScore's passive monitoring. This may also lead to distortions because the tendency of individuals to answer what they expect the interviewer wants to hear.<sup>17</sup> For example, while Pew and comScore (2004b) conclude in April that: "The number of American Internet users who say they download music or share files online has increased slightly, but continues to sag well below peak levels", OECD's report contradicted the claim by showing that the number of users continued to grow as ever. (Figure 1)

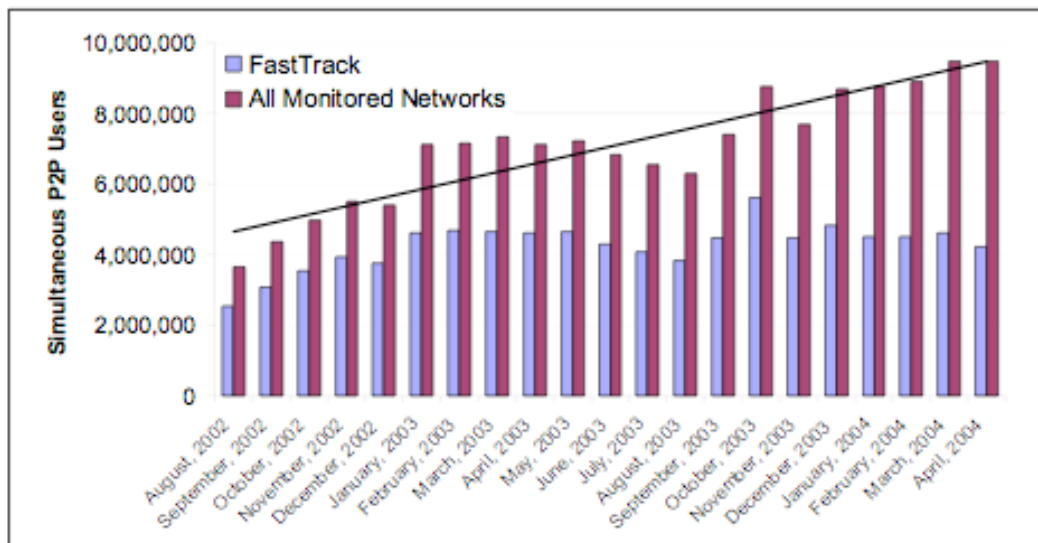


Figure 1. Peer-to-peer users between April 2002 and April 2004. Source: OECD (2004)

This is basically bad news to RIAA, because it seems to indicate that the behavioral effect they are hoping to achieve is not working as planned. There is an obvious problem with public relations if their message has to fight against dissenting views from different parties. For example an independent research firm Big Champagne continues to maintain that no real change has occurred. (Garland, 2004).

**Finreactor case in Finland.** The most popular peer-to-peer system at the end of 2004 was BitTorrent. The software is available as open source and there are no central indexes or any companies marketing or distributing the software. In effect,

<sup>17</sup> Also, the persons who sign up to passive monitoring may not present the users at large.

the music and movie industries do not have the option of shutting down the whole system by suing any company. They have, however, shut down websites, which distribute information (“Torrent links”) on how do download infringing files and sued individual users. According to the system design, every user who starts downloading from the system is also forced to share his files with other users.

One major investigation against a BitTorrent community was started in Finland in December 2004. According to a police press release, around 30 Finnish individuals were under investigation for maintaining a website called Finreactor. (Afterdawn 2004). Through Fnnreactor, around 10 000 Finnish file sharers were exchanging information on how to find infringing files from other users. Every individual who used the information with their BitTorrent software both downloaded and consequently shared thousands of infringing music and video files with each other.

The impact of the investigation was clearly seen on the traffic of Finnish Internet operators. The figure below describes the combined traffic information from major Finnish Internet operators. Finreactor was shut down on 14<sup>th</sup> December. At that day, all Internet traffic dropped sharply and within a week peaked around 30% lower than before the event.

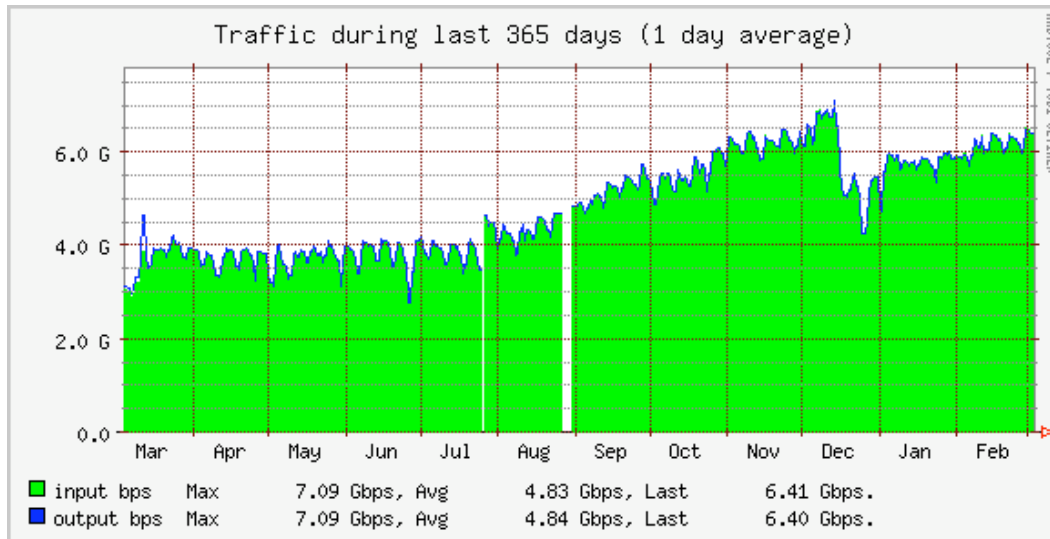


Figure 2. Combined traffic of Finnish Internet operators (source Ficix, <http://stats.lanwan.fi/ficix/>)

Even though the case was widely published in the Finnish press – including the fact that file sharing dropped sharply after the raids – the traffic figures recovered around half of the “losses” within a month. The long-term increasing trend seems to continue as individuals have subsequently switched to alternative services. The figures show only a short-term win for the music and movie industries, which is most likely caused by the fact that individuals were not able to find immediate replacement. Two months from the start of the investigation and the shutting down of the Finreactor website the traffic is only at a slightly lower level than before.

## **5. Conclusion**

We have now looked into the past and present of file sharing on the Internet. From the history it is easy to see that nothing is really new. Only the scale and scope have changed. The Scientology case clearly demonstrated that after the information has once been digitised and released to the Internet, it is impossible to get the “genie back to the bottle”. The more aggressive methods are used to stop the distribution, the stronger the resistance becomes.

We noted that the music and movie industries have gained short-term wins with their lawsuit strategy. However, we can't identify any substantial long-term impact. The sheer numbers, technological progress, and the economics of scale clearly favour file sharers. Further, we argued that many file sharers are most likely risk takers. Thus, the industry seems to be losing their proposition of establishing a stronger social norm against sharing among those who share. The industries seem to have taken the facts into consideration in their campaigning when they press that it is only a minor group of individuals who share music and movie files. What they don't mention is that this group may never disappear.

Lawsuits however fit into the industry's multi-pronged offensive strategy against file sharing, which has utilized also lobbying and technical protection measures or digital rights management (manifested in e.g. CD and DVD copy protections and copy protected file formats). The argument seems to go that the industry aims “to keep honest users honest” (or “to keep lazy users honest”). At the same time the industries admit that it is impossible to end all unauthorised copying and it would be futile to believe so.

The ultimate result of the offensive file sharing strategy has been illustrated in the somewhat famous paper about Darknet – authored by Microsoft researchers supposedly in charge of the company's trusted computing initiative – which assumes that copyright violators can be separated and the business focus can be

put on the well-behaving consumers. (Biddle et al, 2001) The Darknet paper argues as follows:

There is evidence that the darknet will continue to exist and provide low cost, high-quality service to a large group of consumers. This means that in many markets, the darknet will be a competitor to legal commerce. From the point of view of economic theory, this has profound implications for business strategy: for example, increased security may act as a disincentive to legal commerce.

In other words, as the industries push their self-protection initiatives, court cases, lobbying etc. the Darknet will only get more power. File sharing is in the end the biggest competitor to legal services. Thus, in the long term, unless legal services can offer clear added value – in the form of better user experience or guaranteed legal safety – a substantial user community will stay inclined to stay on the dark side.

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## Appendix I

From: brad@looking.UUCP (Brad Templeton)  
Newsgroups: net.followup,net.news,net.legal  
Subject: Copyright Violations - how can software people do this  
Posted: Thu Mar 22 00:00:00 1984

I am amazed to see people on the net, most of whom work in software, actually defending copyright violators. Don't you have any interest in your own welfare?

Nobody know how much microcomputer software is stolen by people who "just copy it", but I would expect that conservatively one copy is stolen for each legitimate copy sold. Microcomputer software is a billion dollar industry (at least, probably more), so we are talking about probable billions in theft. Billions that were stolen from US. If people paid for the software they steal, I know I would be a great deal richer and so would many of you. Either salaries would be higher or prices of software would be lower due to the increased volume.

We must work very hard to combat this attitude. As we enter the so-called "information age", information will become a very important form of property, and thieves will sap our money even more so than they do now. It applies to music, too. How many of you have played thief by taping a record just to save \$6 to \$10? I admit I used to, but haven't in many years.

The other day I met a kid (about 17) in a computer store:

Kid: You have a computer

Me: Yes, I have several (After all, it's how I make my living)

Kid: Do you have a Commodore 64?

Me: Yes, I have one of those

Kid: Got any games for it?

Me: I have written some games, yes.

Kid: Wanna trade?

Me: For what?

Kid: I have [some game]

Me: Did you write that?

Kid: No, I just got it.

Me: You mean you stole it?

Kid: No, I copied it. (And he really thought there was a difference)

Me: Is it for sale.

Kid: No. Well, in the stores I guess..

Me: So you are a thief.

Kid: Everybody does it...

Me: and that makes theft OK?

Kid: Everybody does it.

You've seen this kid yourself, I am sure, for he's everywhere. One little copy doesn't hurt the author, just like one little beer can doesn't ruin the park....

## Appendix II

The expected "winnings" from Downloading (Score:2, Interesting)  
by CodeBuster (516420) Alter Relationship on 29-04-04 1:37  
(#9002536)

I thought that it would be interesting if someone from the Slashdot community took it upon themselves to compute the net benefit which the downloaders accrue given that they have some probability 'P' of being selected by the RIAA for a lawsuit which they can settle for a loss of \$3000. It should be possible, in principle, to compute for a given probability 'P' of being sued by the RIAA how many songs (at \$0.99 per song as per the iTunes rate) one should be willing to risk downloading before the total 'winnings' (the money saved by NOT paying for the songs) exactly balances the expected losses from being sued by the RIAA. We will make a few assumptions in order to simplify our mathematical model...

1. Let us assume that all users on the file sharing networks are equally likely to be targeted by an RIAA lawsuit (in reality this would probably be a function of the number of songs shared, they artists and genres of the songs shared, and the amount of bandwidth devoted to sharing them out). Let this probability equal 'P'.
2. Suppose that the RIAA can sue no more than 1500 people per year (this is probably being generous).
3. Suppose that there are approximately 3.5 million users engaged in file sharing on the various networks at any given second (this is probably a lower bound and the actual number is probably much higher). Now the probability of being sued by the RIAA, assuming that all users are equally likely to be sued, is  $1000/3.5$  million or approximately 0.003% chance.

Let the expected losses (per year) from continuing to download be P multiplied by 3,000 which is the amount that it will cost to settle in the event that you are sued. Thus the expected losses to the RIAA for each year that you continue to download are only \$8.57 which means that if you were planning on downloading more than 8.65 songs per year then your expected savings over paying the \$0.99 fee per song on a service like iTunes makes it worth your while.

Now for a few caveats...I do not advocate the stealing of intellectual property music or otherwise and the above should be treated as a simple (and possibly flawed) look at the mathematics of downloading stripped of any moral pretense or consequence. However, even given the crudity of this analysis it is possible to draw a few conclusions...

1. The RIAA lawsuits will probably discourage the small time downloaders and the basically honest people from using the file sharing networks to get free music, but these users are probably in the minority anyway (most people share at about 100 songs).
2. hard core downloaders are not likely to be dissuaded unless the probability of being sued or the amount of the damages or both significantly increase.

3. The RIAA cannot sue everyone so there will always be an equilibrium whereby a user downloads and shares just enough songs not to get noticed so that his expected winnings precisely balance his expected losses.