



Institute For Policy Innovation

ISSUE BRIEF

MOUNTAINS OUT OF MOLEHILLS: HOW BELIEVING THE WORST MAKES TECHNOLOGISTS INEFFECTIVE, AND WHAT THEY CAN DO ABOUT IT

by Lee A. Hollaar, Ph.D.

Synopsis: Technologists, and particularly computer programmers, seem to fixate on unlikely scenarios while giving only lip service to the massive copyright infringement now happening. When they do look at problems, they dismiss technical solutions because they are not perfect. And they ignore how laws can support or work alongside technology, because law is unfamiliar to them. By putting problems in perspective, technologists can be particularly effective in finding approaches to the real problems in today's digital world.

Technologists (or those trying to influence technologists on a question of policy) often make mountains out of molehills, while at the same time ignoring the real mountains. And this makes those technologists ineffective during the formulation of policies that directly affect technology, the very time when their expertise would be valuable.

This is illustrated by two papers, “Unintended Consequences, Seven Years under the DMCA” from the Electronic Frontier Foundation (EFF),¹ and “Circumventing Competition: The Perverse Consequences of the Digital Millennium Copyright Act” by Timothy Lee and published by the Cato Institute.² Both continue the criticism of the DMCA before and since its enactment in 1998, attempting to rally technologists against the DMCA.

Rather than making a point-by-point commentary on the two papers, it is perhaps more worthwhile to examine what the papers reveal about their authors and the technologists who might resonate with their arguments.

THE REAL “UNINTENDED CONSEQUENCE”

The real “unintended consequence” of the EFF paper is to illustrate how little real harm the DMCA has caused. The first version of the paper,³ which covered the first three years under the DMCA, reported eighteen different episodes, relating to the Act, or six per year. (Really only seventeen, since it lists one thing twice: “Dimitry Sklyarov Arrested” and “Advanced e-Book Processor and e-Books.”) Many of these episodes are simply people appre-

hensive about the DMCA, some entail speculation about its effect, and some episodes are certainly not “unintended” since stopping things like the distribution of the DeCSS program was a goal of the DMCA.

The next year, six new episodes are noted, half of them people concerned about the DMCA even though nobody was actually threatening them. During year five, five new episodes are noted, including an ex-contractor sued for unauthorized access to a company’s computers and two students who broke open a college’s debit card reader. In years six and seven, nine new episodes are reported, or 4.5 per year, continuing the downward yearly trend despite the EFF trying to include anything even distantly related to the DMCA. At least half of those were businesses trying to use the DMCA in disputes with their competitors.

The Cato paper simply parrots some of the episodes in the EFF paper.

RAMPANT PROBLEMS IGNORED

There should be no question in anybody’s mind that there is rampant copyright infringement in the digital world.⁴ But the EFF paper ignores that inconvenient truth, and the Cato paper, while claiming to be “striking a balance,” treats this staggering problem more as paranoia on the part of entrenched copyright owners.

It is easy to understand why academics and organizations like EFF that are opposed to the DMCA want to “rabble-rouse” by painting the darkest picture they can, building their reputations in the process. But it is much harder to understand why people who must know about the widespread copyright infringement still find the stories so compelling.

A clue to why this is can be found in a paper by Jon Peha,⁵ a technologist who also worked as a Congressional staffer. He notes that technologists and policymakers exist in “two worlds, two cultures” when it comes to viewing a problem and developing a solution. In particular, he notes that “When technologists see both good and bad in a policy proposal, they tend to attack it” because they have lost sight of the big picture or ignore political constraints on solutions. It is even worse when technologists are fed a diet of only the bad, as in the EFF and Cato papers.

Computer programmers and other system developers appear particularly prone to elevating rare or hypothetical problems to prominence. It’s part of their normal activities. To develop a robust system, one has to consider conditions that will be extremely rare, and make sure that system behaves correctly. An anomaly brought to their attention, or thought up by them, is as real as something that occurs with regularity since both must be addressed in their system.

CRYSTAL BALLS ALWAYS SHOWING DOOM

In 1997, the chair of ACM’s public policy committee wrote⁶ to President Clinton asking him to veto the No Electronic Theft (NET) Act,⁷ a law that made it criminal copyright infringement if it was willful and over a statutory threshold. In it, she predicted that the bill may “restrict scientists and other professionals from making their research available on the Internet,” “criminalize the transfer of information that is currently protected under the U.S. ‘fair use’ doctrine,” and “chill free speech in universities and research labs.” President Clinton did not veto the bill, and in the almost nine years since the NET Act has been law, we have seen none of the problems that she predicted.

There is nothing unique about ACM’s letter. Other opponents of the NET Act predicted that it would result in widespread prosecutions. But charges brought under the NET Act have been few and aimed at groups like “Pirates with Attitude,” a group that had conspired to infringe the copyrights of thousands of commercial software programs.

Yet we continue to see similar predictions being made, often by the same people whose predictions have not met the test of time. When the Induce Act was introduced in June 2004, there was no shortage of predictions about how imposing liability on those who intentionally induce copyright infringement would, at the very least, “chill technology.” A year later, on June 27, 2005, the Supreme Court did what the Induce Act had proposed.⁸ Since that decision, little change has resulted except for those companies whose business plans were predicated on widespread copyright infringement of their users.

CHILLING INNOVATION

The predictions bemoan the curtailment of privacy, anonymity, free speech, or fair use, with little or no explanation that these are just shorthand

terms for complex concepts fleshed out in hundreds of court decisions, rather than absolutes that must never be touched. The buzzword *du jour* is “innovation,” which will be “chilled” by just about anything done to rein in the current widespread copyright infringement.

But not all innovation is good. There is little of value in the spam so common on the Internet today. Most people consider it a definite negative. Yet when lawyers Canter and Siegel plugged their immigration law services to virtually every Usenet newsgroup, they created a new and inexpensive way of reaching (and annoying) millions of people with dubious advertising.⁹ As people tried to stop spamming, other “innovations” came along, such as programs to generate extraneous content to avoid filters, directing messages through open mail relays, and installing malware on computers so that they wait like zombies for their master to use them to send out spam.

Kazaa was developed as a replacement for Napster after the court shut down that system. Its “innovation” was foisting the directory service onto the users, since Napster lost in court because it operated that service. Other “file sharing” systems contain “innovations” that allow them to function despite a company using a firewall to protect its internal network, resulting in sensitive material going outside the company network.

Certainly some innovation deserves chilling, if only so that legitimate innovators aren’t hurt. In an amicus brief to the Supreme Court in the *Grokster* case, the now-legal Napster indicated that having free-riding competitors makes it difficult for it to develop a system that would compensate the owners of the copyrighted songs.¹⁰ Developers need to give a little thought to the consequences of what they are doing, whether from a sense of responsibility or concern caused by some perceived chill.

But perhaps most of the chilling effects of the DMCA do not come from the legislation, but the scare stories told by its opponents. A few stories are repeated (and sometimes embellished) until they reach mythic proportions, because there are few other examples available. If somebody has the temerity to say that there might be another side to the story and one should look at the facts, the outrage is deafening.

There are unintended consequences of spreading such stories. They make the DMCA a convenient boogie man to scare people, hiding under the bed waiting to get them. And *that* will chill innovation much more than the law itself.

ONLY TECHNICAL SOLUTIONS?

Too often, technologists look only to technology to solve a problem. This should not be surprising, since that is their realm of expertise. And if there is not a perfect technical solution available, then any other solution is problematic no matter how beneficial it might be.

A scare story from Stanford University law professor Lawrence Lessig is illustrative. To address the problem of people bringing camcorders into movie theaters and recording a hit movie, later to distribute it on the Internet, the movie industry has been pushing for a system where the camcorder senses that it is recording a commercial movie and shuts down. Ignoring whether such a thing could actually work, Lessig and other critics concentrate on the rare instances where it could cause a problem and not the known bad acts it is trying to stop.

He talks about “taking a movie of your kid taking his first steps ... like a home movie of his kid taking his first steps, you are panning across the living room as he is taking his steps and in the background there is a HBO movie with one of these little signals in it that says it’s copyright infringement going on when you are filming this particular movie and then what happens is your camera shuts down and we don’t have in the law right now a clear right to break the technology in order to engage in fair use rights.”¹¹

The likelihood of that happening is dramatically less than the certainty that people are using camcorders in movie theaters and distributing what they record on the Internet. There is little thought of balance in the discussion. Again, “When technologists see both good and bad in a policy proposal, they tend to attack it.”

A LITTLE LAW CAN HELP

Technologists seldom consider how laws can actually help solve a problem. Law is not a familiar area to most of them, legislation is never written with the precision of a computer program, and the art of compromise is often uncommon for technologists.

Yet legislation, in cooperation with technology, can often provide a helpful, albeit imperfect, solution to real problems. The anticircumvention provisions of the DMCA,¹² and in particular the restrictions on trafficking in circumvention technology, provide a good example. Those provisions clearly will not stop the availability of circumvention tools for those who desire them and who are willing to put in the effort to find them. But that does not mean those provisions are a failure because they do remove circumvention devices from software or electronics stores, where their availability would be seen as an endorsement of their legitimacy, even when they contain warnings about how their use could be illegal.

What the DMCA trafficking provisions do is provide a break in what could be a cycle that could hurt new technology. Consider the DVD. When it was being developed as a replacement for movie videotapes, the movie industry had a legitimate concern that copying could be more problematic than for tapes, because with digital recording each copy is a perfect reproduction, so the quality of a copy of a copy is the same as the original.

They included an encryption system to stop copying. In due time, the protection system was cracked. If we were only looking at technologic solutions, it would be necessary for the movie industry to come up with another mechanism for their new releases. Without the DMCA, there would be no restriction on the marketing of DVD player software that included the capability of copying the decrypted movie to a hard disk.¹³

But going to a new protection mechanism would mean current DVD players would not be able to play those new releases. It is unlikely that DVD players would have reached their unprecedented popularity if purchasers saw that they would have to buy a new player every few months to see the latest movies. But because of the DMCA trafficking provisions, the tools for cracking the original protection mechanism didn't make it into mainstream distribution channels such as retail stores or as an option on software DVD players, and so the industry could continue using it and not render obsolete the millions of current DVD players.

It should be no surprise that the DMCA provisions don't stop all circumvention devices. It is hard to think of any law that completely stops its prohibited behavior. People sell bootleg copies of CDs and DVDs, as well as knockoffs of famous watches,

handbags, and clothing on the street. People still rob and kill, even though there have been laws against such behavior at least since Moses brought down the Ten Commandments. But we don't say that those laws should be repealed because they are not perfectly effective.

COURTS ARE TO BE AVOIDED?

Just as many technologists see legislation as a problem, and not something useful in developing a solution, they see courts as something to be avoided. But the time-tested solution for peacefully resolving differences in opinion is having a neutral person listen to both sides and make a decision. For legal issues, that generally means going to court, where the decision is made by a judge skilled in understanding the law and its past interpretations,¹⁴ after hearing the evidence and arguments of both sides.

Much as they might make it easier to decide things, bright-line rules are often undesirable. They can provide a roadmap for those who want to get around a law and can make the law so inflexible that it hurts legitimate activities. As an example, the requirement for considering four factors to determine whether there is "fair use" of a copyrighted work is far better than a mechanical test that says that the copying of less than a statutory percentage is fair and the copying of more is infringement. It allows the copying of an entire work if that is a necessary part of reverse engineering,¹⁵ while not permitting the copying of the heart of a work.¹⁶

As licenses and other contracts play a larger role in software development and distribution, there will be times when the parties will disagree whether, or how, something is covered by the contract, or even whether there is a contract. And the solution remains the same: Ask a neutral party, like a judge, to resolve the disagreement after hearing both sides.

But to most technologists, resorting to a court represents something to be feared, and not a peaceful way of resolving differences. Some of that is concern about the unknown, in an area as foreign and confusing to them as technology is to most people. They see litigation as burdensome and expensive. But unless there is a fundamental disagreement over the facts in a case, or one side wants to prolong the litigation for some tactical reason, there is no reason why litigation need be any more expen-

sive than is necessary to fully articulate one's position in the disagreement. In many instances, the facts are not in dispute, and the court can decide the matter on summary judgment, applying the law to the facts. There is no need for costly discovery and depositions.¹⁷

Of course, this will require the parties to develop briefs that fully give their side's position and then to discuss their points with the judge in a hearing. But it is difficult to see how a reasoned decision can be made if the parties don't provide the information that backs up their claims or refutes those of the other side, whether in a trial court or the court of public opinion.

BECOMING EFFECTIVE

If the tendency of technologists to concentrate on molehills and ignore the real mountains could simply be regarded as a quirk, it would have little harm. But what it really does is make those people ineffective in influencing legislation and thereby developing solutions, particularly for the technically-oriented legislation where they can be particularly helpful because the policymakers don't have expertise in the area.

So, what can technologists do so that they can effectively influence future legislation?

- **First**, acknowledge the existing problems and condemn them in the strongest possible language and through actions. At the time the DMCA was being drafted, Congress was well aware of the massive copyright infringement that was occurring. Opponents who ignored that behavior and concentrated on hypothetical problems lost credibility, especially when it seemed like they were being apologists for those promoting infringement.
- **Second**, understand what is being proposed and why. It is not enough just to look at the language being proposed. One also needs to understand how it fits within the context of existing law.¹⁸ For example, the DMCA prohibits two types of circumvention: circumvention to infringe and circumvention to access. The former is required by the WIPO Copyright Treaty,¹⁹ while the latter isn't and represents a substantial extension to traditional copyright. But few opponents of the DMCA addressed them separate-

ly, thereby allowing the circumvention to access provisions to ride along to passage.

- **Third**, state real concerns. Policymakers are not trying to write perfect rules, because they know that is impossible. Instead, they are trying to achieve a reasonable balance between benefits and potential problems. They give a high weight to things that can be clearly demonstrated, such as massive infringement, and little weight to things that seem highly improbable.

Finally, propose solutions to concerns in light of problems. As an example, a trade group concerned with being able to reverse engineer programs so that new programs could be written that interoperate with the protected program made a clear case for their particular problem. They put forth language that both satisfied their concerns and did not gut the anticircumvention provisions, and they got what they wanted.²⁰

When making proposals to policymakers, technologists have a special responsibility to convey that what is being suggested is not only good policy, but is technically feasible and sound. If you are proposing that digital rights management systems should never prevent a legitimate use, including "fair use," you need to be able to say how that can be done while still preventing widespread copyright infringement.

CONCLUSION

The Cato and EFF papers illustrate how critics often make mountains out of molehills, while at the same time ignoring the real mountain of rampant copyright infringement. By concentrating on rare or hypothetical problems, rather than solutions or pressing ones, technologists will be ineffective during the formulation of policies that directly affect technology, the very time when their expertise would be valuable.

ENDNOTES

1. http://www.eff.org/IP/DMCA/DMCA_unintended_v4.pdf, April 2006.
2. Cato Institute Policy Analysis 564, <http://www.cato.org/pubs/pas/pa564.pdf>, March 21, 2006.
3. Past versions are available at http://www.eff.org/IP/DMCA/?f=unintended_consequences.html.
4. As the Supreme Court noted in its unanimous opinion in *MGM v. Grokster*, "because well over 100 million copies of the software in question are known to have been downloaded, and billions of files are shared across the FastTrack and Gnutella networks each month, the probable scope of copyright infringement is staggering." 545 U.S. ____ (2005), slip opinion at
5. <http://www.supremecourt.us/opinions/04pdf/04-480.pdf>.

5. "Bridging the Divide Between Technologists and Policy-Makers," IEEE Spectrum, March 2001.
6. <http://www.acm.org/usacm/copyright/usacm-hr2265-letter.html>. The Association for Computing Machinery (ACM) is the largest and oldest professional association of computer scientists in the United States. I have been a member for more than 40 years.
7. Pub. L. No. 105-147, 111 Stat. 2678, enacted December 16, 1997.
8. The Supreme Court decision is likely more chilling than the Induce Act would have been, since while both recognized inducement liability in copyright law, the Induce Act would have been accompanied with a legislative history indicating that certain things were not intended to be considered inducement.
9. They even tried to use it as the basis for a company and wrote a book so that others could learn of their "innovation." See http://en.wikipedia.org/wiki/Canter_%26_Siegel.
10. <http://www.copyright.gov/docs/mgm/Napster.pdf>.
11. Transcript of NPR's Justice Talking, "The First Amendment in a Digital Age," page 13, available at <http://www.justicetalking.org/viewprogram.asp?progID=517>.
12. 17 U.S.C. § 1201.
13. That was certainly true at the time of the DMCA, since the Supreme Court's 1984 decision in *Sony v. Universal City Studios*, 464 U.S. 417, was felt to protect any producer of a product that had a "substantial noninfringing use" from liability. That changed with the Court's *Grokster* decision, which adopted an "intentional inducement" standard.
14. Far too often, technologists only look at a statute itself, and not the legislative history and the cases interpreting the statute, treating the statute much as they would a programming manual.
15. See *Sega v. Accolade*, 977 F.2d 1510 (Ninth Cir. 1992).
16. See *Harper & Row v. Nation*, 471 U.S. 539 (1985).
17. It may be possible for the parties to develop a "test case" of a broader issue. See, for example, *American Geophysical Union v. Texaco*, 802 F.Supp. 1, (SD NY 1992), regarding whether the copying of journal articles for a researcher's files was fair use. In that case, a single researcher and a limited number of papers were selected as representative of the issue. The litigation does not seem to have placed any real burden or apprehension on that researcher, and yet decided an important issue.
18. See, for example, Lee Hollaar, "A Bad Trade: Will Congress Unwittingly Repeal the DMCA and Violate Our Trade Treaties," <http://digital-law-online.info/papers/lah/IPI-BadTrade.pdf>.
19. The full text of the treaty, along with other information about it, can be found at <http://www.wipo.int/treaties/en/ip/wct/>.
20. See 17 U.S.C. §1201(f). The Cato paper criticizes this provision: "Although well-intentioned, the reverse engineering provision is too vague to offer meaningful protection for innovators seeking to build compatible products." (See page 8.) That is because others interested in reverse engineering to develop compatible products did not put forth a proposal like the interoperability trade group.

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