Introduction

To this day, every DRM system with economic significance has been “cracked”. Especially DRM systems without dedicated hardware have been vulnerable. (Barak et all 2001). A common claim has also been that DRM systems and electronic commerce requires supportive legislation. (see for example: McCullagh 2002)

Two major legislative acts that outlaw circumvention tools and acts to some extent are Digital Millennium Copyright Right Act (DMCA) in the United States and EU copyright directive (EUCD) within the European Union. They are both based on the international WIPO Copyright Treaty signed in 1996.

However, there is little if no evidence that this legislative approach would have any impact on the business of media companies. Instead, it has created a resourceful and uncontrollable opposition with at least some support from the general public. Global advocacy networks use methods in many ways similar to guerrillas: disrupted indoctrinated organization attacks on exposed targets, where the defence is at its weakest (Tse-Tung). They use different tools ranging from legal challenges to distributing circumvention tools on the Internet. The network also relies on more traditional activist methods such as leaflets and demonstrations to attract media attention.

Abstract

Organized transnational political and technological activism - here referred to as transnational advocacy networks – has an increasingly strong role in giving images of how one should behave and what to consume. This article analyses transnational advocacy networks that oppose digital rights management (DRM) systems and related regulations. We suggest the potential impact of this activity to the consumption of content products. We start with defining and describing the most relevant advocacy networks. We provide the characterization of existing organizations and their work both the United States and Europe. Then, we discuss four case studies where media companies have experimented with different strategies against DRM circumvention initiated and endorsed by transnational advocacy networks. Our argument is that because of the economics of copying on the Internet it is not a sound strategy to use legal actions to remove any circumventing information from the Internet. Any circumvention information published on the Internet will be mirrored out of the reach of legal enforcement mechanisms. So far, the only working strategy seems to be to implement a DRM-system, which can be updated without user intervention after the security is breached. This might be also the most efficient way to control the impact of transnational advocacy networks opposing DRM systems.

Ville Oksanen
(ville.oksanen@hiit.fi)

is Visiting Scholar (J.L.M.) at the University of California at Berkeley, California, at School of Information Management Systems.

Mikko Välimäki
(mikko.valimaki@hiit.fi)

is researcher (J.L.M) at the Helsinki Institute for Information Technology. The authors are currently working on a Mobile-IPR project, which studies digital rights management in mobile environment.
connected grass roots activism: anonymous gatherings may be arranged with no time or place constraints in mailing lists and chat rooms.

Still, there are also more established parties taking part in the opposition. Especially the academia has been notoriously active in the United States. In addition, certain companies have increasingly teamed up with DRM-opposition to protect their commercial interests. There exists a few organizations specialized into this area. Figure 1 illustrates the current situation.

Margaret E. Keck and Kathryn Sikkink have developed a theoretical basis in their book Activists Beyond Borders (1998) for somewhat loosely connected groups sharing certain common goals. They call them transnational advocacy networks. Keck and Sikkink go through three modern versions of this kind of network: human rights advocacy network in Latin Africa, Environmental advocacy networks and networks on violence against women. All of those function in similar terms (although mostly without the Internet) to the anti-DRM movement.

Non-governmental organizations

The organizations working against DRM can be classified under two categories: (1) organizations founded for electronic civil liberties, and (2) organizations with more diverse goals. For example in the United States, Electronic Frontier Foundation (http://www.eff.org) belongs to the first category while Free Software Foundation (http://www.fsf.org/) belongs to the second. These two organizations are currently the most visible ones. Of course, these organizations are not alone. In the Europe various national groups from civil liberties organizations to different library associations and members of the academia have also participated in the DRM opposition.

Electronic Frontier Foundation

Electronic Frontier Foundation (EFF) is without a question the most visible cyber-rights organization. EFF was founded in 1990 as a response to a threat to bulletin board systems. Mitch Kapor, John Perry Barlow, and John Gilmore formed the organization to work on civil liberties issues raised by new technologies (About EFF).
EFF is currently involved in all major DRM-related court cases in the United States (Active EFF Legal Cases and Efforts). EFF has also an experienced and capable legal team, although it has not brought too much success in DRM-related cases. EFF has close relationship to certain law faculties in the US universities. The most recent outcome of university cooperation is the Chilling Effects Clearinghouse (http://www.chillingeffects.org), which is a joint project of the Electronic Frontier Foundation and Harvard, Stanford, Berkeley, and University of San Francisco law school clinics.

EFF is not totally against copyright and in so far recognizes the need to compensate authors. EFF still opposes categorically digital rights management and the laws, which back it up. Their argument is that DRM systems cannot ever accommodate the full range of fair use and consequently the public is better off without DRM even if it means that there will be some unauthorized copying (Lohmann 2002).

**Free Software Foundation**

Free Software Foundation (FSF, http://www.fsf.org) is best known for its GNU-products and GPL-license. The organization is also opposing DRM systems. The priority has been given to questions related to software, but the organization has also supported drafting GNU-compatible content distribution terms. FSF’s attitudes are in many cases more radical to those of EFF. The organization’s chairman and main ideologist Richard M. Stallman frequently speaks on the fears of expanding copyright law (GNU and Free Software Speakers). Mr. Stallman believes that the society would function well without copyright and only a very limited protection against commercial use might be acceptable (Stallman 2001).

FSF’s role in the opposition to DRM-systems has been two-fold. First, the organization has been using its’ communication channels to spread information about different anti-DRM-related events. FSF has also has also built a network of activists within the United States (Digital Speech Project). Second, FSF supports software projects, which aim at DRM-free standards. For example, the organization has helped creating Ogg Vorbis audio format, which does not support any DRM-systems and is free from copyright or patent claims.

**Situation in Europe**

European activity is more unorganized and low-profile. With relation to recent discussions in international politics this is understandable as the US participants have been pushing problems to be solved while Europeans emphasize due process and open discussions (Kagan). Also practical issues such as language barriers and cultural differences explain why there are no strong European-wide formal organizations.

As recently as in June 2002 some of the most active electronic civil liberties organizations from seven different countries within the European Union founded a common organization titled European Digital Rights (EDRi, http://www.edri.org/). This organization is supposed to coordinate also European-wide DRM-opposing activities (Valimäki 2002).

On the national level the picture is mixed. A few countries have very active organizations while many have none. The main national organizations presented here are the Campaign for Digital Rights (Great Britain), Electronisk Forpost Norge (Norway) and Electronic Frontier Finland.

The Campaign for Digital Rights started with the Dmitri Sklyarov case in the fall 2001 but it soon expanded its scope to cover other DRM-related questions. The group has decided not to become any formal legal entity, because that would make it easy target for legal attacks. The group has been featured in The Economist, Financial Times, Wired, New Scientist and also BBC’s Newsnight program. The number of active participants has never exceeded fifty persons. The campaigning is coordinated with a mailing list and chat room meetings.

Electronisk Forpost Norge and Electronic Frontier Finland are both inspired by the model of EFF. They are well featured in the national media. Both organizations have for example opposed the DRM regulation in connection with the national implementations of EU Copyright Directive.

**Media**

Media support is essential in order to reach the decision makers. As Manual Castells points out, political decision makers must in large part act according to the rules stated by “public opinion” created by mainstream media. However, while media support is essential it is still not enough to guarantee a desired political action. (Castells 1997, pp. 309-317). So grass roots activism does not exclude media politics but rather depends on it. For example, court cases and related activism with individual DRM-victims (Dmitry Sklyarov, Jon Johansen) have created a momentum for new activist networks to enter and leverage media politics.

The most important news-source for transnational advocacy networks opposing DRM has been website Slashdot (http://www.slashdot.org/). It was founded in 1998 and quickly became the central news-source and discussion area for technically orientated people who are also interested in the social and political implications of technological development. Slashdot does not only offer a channel for communication but also pushes a pro-civil liberties and anti-DRM editorial line. The site has covered all DRM-related court cases extensively and it has been a first hand reference in those cases. Other impor-
tant news-sources have been for example Wired magazine and website TheRegister in Europe.

Academic opposition

The opposition to DRM has a strong support inside academia especially in the United States. Arguably DRM poses a direct threat to the classical academic values like free exchange of information (Stallman 2001). Another more direct problem is that the new DRM regulations (DMCA, EUCD) have created a sphere of legal uncertainty around certain research areas like cryptography and steganographia.

The epicentre of academic activism can be found at the University of California at Berkeley and Stanford University. Both universities have a law faculty with publicly known professors such as Pamela Samuelson (Berkeley) and Lawrence Lessig (Stanford). Both universities are also known for their research on information economics and strong computer science departments, which have direct connections to Silicon Valley. Also Harvard has been an active participant mainly because of the Berkman Center for Internet & Society, which has helped the co-ordination of anti-DRM court cases with its OpenLaw project.

The academic activism is not limited to United States; also European scholars are active in the field. For example, Ross Anderson, the Professor of Computer Science in Cambridge, has published critical FAQs and online memos about the Microsoft’s Palladium system and the creation of Trusted Computing Platform Alliance (both projects aim at creating a truly secure DRM) (Anderson 2002).

Hackers

It is not surprising that hackers have been in the frontline of the fight against DRM-systems. Steven Levy describes in his book Hackers (1984) the attitudes of hackers towards the locking of information:

To a hacker a closed door is an insult, and locked door an outrage. Just as information should be clearly and elegantly transported within computer, and just as software should be freely disseminated, hackers believe people should be allowed access the files or tools which might promote the hacker quest to find out and improve the way the world works.

A typical DRM-system is therefore by its nature a challenge to hackers. In spite of the new regulations there are many hackers who prefer their own ideology to society’s norms. This group will continue to break DRM-systems even if its side-effect is the breaking of the law.

While hackers do not work in a formal organization, the hacker movement has also become more politically active during the recent years. (See: Thomas 2002 for the background). Hackers not only break DRM-systems but also knowingly produce tools, which would prevent any kind of censorship to counter the threat these systems pose to the free flow of information. The hackers call this form of activism as “hacktivism” (Flagan 2002). Because of their necessary technical skills hackers form a very powerful force inside the anti-DRM movement.

Grass roots

Grass roots activism is central to any campaign work. Also, its role with the anti-DRM advocacy networks has been significant. Grass roots activism is also organized on cheap and efficient Internet communications. Sometimes it also acts in public. In case of the arrest of Dmitry Sklyarov, the pickets, which forced Adobe to back down, were mainly arranged by activists – EFF even tried to suppress the pickets because it wanted to negotiate with Adobe first (EFF Gets Meeting With Adobe). Grass roots activists are also very important because only they can reach the non-technical general public and explain the relatively difficult issues.

Companies

Corporate support has lately become more and more important in the anti-DRM-movement. The fight between Silicon Valley and Hollywood has heated after the movie studios launched a new attack to get legislation, which would mandate DRM in all digital devices (Clark & Vaida 2002). Even though the likelihood is little that this bill titled currently as “Consumer Broadband and Digital Television Promotion Act” will ever pass, it presents a severe risk to technology companies and consumer electronic manufacturers. It has also argued that the media companies’ motive behind the law is to get a better negotiation position in different standardization processes like The Broadcast Protection Discussion Group, which will decide the future of digital TV.

The support from technology companies, however, is only partial. For example Philips has on the one hand taken a stance not to use DRM in com-
pact discs and sells a CD-player, which can copy these copy-protected CDs. On the other hand the company is at the same time using its patents to block the importation of DRM-free DVD-player into Europe.

Anti-globalisation movement

Finally, the anti-globalisation movement is a potential network for anti-DRM activities. For example, Naomi Klein covers briefly intellectual property rights in her book No Logo, which some considered as the “bible” of anti-globalisation movement. (Klein 1996 pp. 175-182). To be sure, she makes many errors in her presentation (like mixing copyright, trademarks and libel-suits) and in general, it is clear that she did not consider them to be a serious threat at that time. The anti-globalisation movement is already fighting against drug-patents, which pose more direct problems for developing countries than copyright or digital rights management perhaps ever could.

An open question is, whether the activists taking part into the anti-globalisation networks will also start paying more attention to DRM-related issues. If this happens, it would potentially cause a more serious risk to the future of DRM than all the other grass root activities together.

The anti-DRM network has been so far wary of getting the anti-globalisation movement more involved. The reason is the current image problem, which anti-globalisation movement is facing after the violent riots in Seattle, Gothenburg and Milan (Pickett 2001). In addition, a typical anti-DRM-activist, especially from Silicon Valley, scorns on the leftist rhetoric typically used in anti-globalisation movement (Borsook 2000 p. 4-11). Nevertheless, there have been occasional attempts to get support from the anti-globalisation movement, but without notable results (Hervold 2001).

DRM cases with activist reaction

Next, we turn to four case studies where media companies have experimented with different strategies against DRM circumvention initiated and endorsed by transnational advocacy networks.

The typical process behind the creation and distribution of a circumvention tool is described in figure 2. The time-span of the process can be anything from days to months. In most cases, the process ends up in the mirroring phase, because the media company does not have resources to start legal fight. In addition, the DRM-systems do not have a global legal protection and therefore the DRM-vendor is more or less armless if the information is located in a country, which has not yet ratified the WIPO copyright treaty.

DeCSS

It is unknown who exactly first broke the CSS scrambling algorithm used as part of the DRM system in DVD-decoders. Jon Johansen, who is currently often (wrongly) referred as a first “cracker”, released the first source code to the Linux developer community in the middle of October 1999. Later the analysis of the CSS algorithm revealed serious weaknesses, which made it possible to defeat CSS without a player key using only few lines of code (Touretzky 2000).
The advocates of media companies, DVD Copy Control Association (DVD CCA) and Motion Picture Association of America (MPAA) began sending threatening letters to the owners of websites offering CSS decryption programs for download. The letters were sent indiscriminately around world, although at that time the United States was the only country, which had broad legislation prohibiting the circumvention of DRM-systems.

In the weeks following the release of DeCSS at least hundreds of websites, FTP sites and even email mirrors appeared around the world. Some of these sites did it as a way to protest MPAA, some of these distribution points were established for a single goal - spread the program as widely as possible. The theory went that even if a handful of individuals were forced to remove the code, there were far too many mirrors in far too many jurisdictions to ever force DeCSS technology out of circulation. This strategy was generally known as “Whack the Mole” (Seng 2000).

**Court cases in USA**

After it became apparent that threatening letters did not help, the media companies decided to start legal actions against the web sites, which were offering DeCSS. The first case was started in California and it was based on trade secret law. The second, more carefully prepared suit was filed in New York and it relied on the DMCA. Electronic Frontier Foundation arranged the defence in both cases. The second case has recently ended because the defendant and EFF have decided that they will not appeal to the Supreme Court (EFF Media Release). The first case is still pending.

**Jon Johansen case**

The Norwegian government indicted then-15-year-old Jon Johansen for his role in creating DeCSS-software. Johansen’s indictment came in the beginning of 2002 more than two years after the MPAA initially contacted ØKOKRIM prosecutors to request a criminal investigation of the Norwegian and his father. Per Johansen, who owned the equipment on which the DeCSS software was posted. The case is based on Norwegian Criminal Code section 145(2), which outlaws breaking into another person’s locked property to gain access to data that one is not entitled to access. The trial has now been scheduled to start in December 2002. EFF and EFN are helping Johansen.

**Adobe eBook**

The case against Russian Dmitry Sklyarov and his employer ElcomSoft was the first time the criminal provisions of DMCA were applied. Dmitry helped create the Advanced eBook Processor software for his Russian employer ElcomSoft. The software permits eBook owners to translate from Adobe’s secure eBook format into a more common Portable Document Format. Sklyarov was initially arrested in Las Vegas and charged with distributing a product designed to circumvent copyright protection measures. He was released on $50,000 bail and restricted to California. In December 2001, he was permitted to return home to Russia with his family in exchange for his testimony. The case is still pending against Elcom Soft.

Sklyarov’s case received large attention from the beginning among hackers and also the general public. Instead of suing a company or a journalist the FBI attacked an individual who was “just” an ordinary programmer. Suddenly the threat felt very real to anyone especially dealing with computers and programming and this motivated people to act. The process was very closely followed by the DRM opposition. They also arranged a wide range of activities to support Dmitry around the world including a highly published picket outside the US embassy in London (Free(d) Dmitry Skyarov!). The organized outcry also forced Adobe to publicly withdraw its support for the case.

**Microsoft Media Player**

It is interesting to compare the approach Adobe took after eBook-hack to what Microsoft did after their Windows Media Audio file format (.wma file) as implemented in Windows Media Player was hacked. Instead of trying to suppress the information Microsoft just let the discussion die and most likely will update the DRM-system sometime in the future without making any noise about it. The hack was originally posted to the newsgroup sci.cript with a long manifesto why DRM-systems are harmful by an anonymous poster calling him / herself as Beale Screamer (Beatle Screamer on sci.cript).

<table>
<thead>
<tr>
<th>Case</th>
<th>Legal base</th>
<th>Case started</th>
<th>Plaintiff</th>
<th>Defendant</th>
<th>Current state</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA DVD Case</td>
<td>Trade Secret law</td>
<td>27.12.1999</td>
<td>DVD-CCA</td>
<td>521 individuals</td>
<td>Pending in the California Supreme Court Defendant</td>
</tr>
<tr>
<td>NY DVD Case</td>
<td>DMCA</td>
<td>14.1.2000</td>
<td>MPAA</td>
<td>Eric Corley/2600 Magazine</td>
<td>Defendant lost the appeal in 2nd Circuit Court of Appeals</td>
</tr>
</tbody>
</table>
Sony AIBO

The AIBO-case has also some very unique characteristics. First of all Sony was trying to use the anti-circumvention provisions of DMCA to stop consumers hacking their AIBO robot dogs. Second, in this case the grass roots support forced Sony to back down.

The case started as Sony sent a letter to the anonymous owner of Aibopet.com warning that the information available from this web site contravened both copyright and the US Digital Millennium Copyright Act by enabling the circumvention of the encryption guarding the code stored in memory sticks. As a result, the site owner removed the contested material from the site except for links to other sites that have organized protests against Sony. The case was covered in popular media including the New Scientist, Los Angeles Times, Wired, ZDNet and Slashdot. Sony apparently realized at this point that it was alienating its most fanatical customers and made a deal with the owner of Aibopet.com, which allowed him to continue his work.

Conclusions

Keck and Sikkink measure the success of the networks with the five stages of effectiveness:

1. issue attention, agenda setting, and information generation;
2. discursive change, or establishing prescriptive status of norms;
3. procedural changes, such as treaty ratification or cooperation within international organization;
4. changes in policies; and
5. influence on behaviour of state and non-state actors. (Keck & Sikkink p. 192)

The transnational advocacy network opposing DRM systems covers at most the stages one and two. The network has succeeded in obtaining the attention of mainstream media. It has set a clear agenda – DRM is intolerable since it makes fair use impossible and results in unfair and unstable social conditions. The network has also been very effective in collecting and sharing information. It has in large part succeeded to change the language used in the media (private copying is not stealing etc.)

However, the network has not been fully integrated in the democratic legislation processes yet and its impact can be best characterized as unorganized. For example, it hasn’t influenced the drafting of international treaties like the WIPO Copyright Treaty but rather national implementation processes of e.g. EUCD in those European countries where the network has ‘active nodes’.

As can be seen from table 3, the network can easily defy legal measures against DRM-hacks. This is partly explained by the economics of copying on the Internet. The costs of adding a mirror to another jurisdiction is minimal compared to the cost of starting litigation or prosecution. The situation is even more complicated as soon as peer-to-peer systems like FreeNet become more popular since those systems require legal attack against all nodes in order to get the information away. The “netizens” have also learned to save the potentially infringing information right after its publication in their personal computer. This all combined makes it practically impossible to remove the information from the Internet once it has been posted.

Table 3: The summary of the DRM-hacking cases

<table>
<thead>
<tr>
<th>Case:</th>
<th>DeCSS-CA</th>
<th>DeCSS-NY</th>
<th>DeCSS-No</th>
<th>EBook</th>
<th>WMA</th>
<th>AIBO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plaintiff</td>
<td>DVD-CSS</td>
<td>MPAA</td>
<td>Økokrim</td>
<td>FBI</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Defendant(s)</td>
<td>571 Individuals</td>
<td>Mr.Corley - 2600 Magazine</td>
<td>Jon Johanssen</td>
<td>Skyarav, ElcomSoft</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>DRM-System</td>
<td>CSS</td>
<td>CSS</td>
<td>CSS</td>
<td>Different Adobe’s</td>
<td>WMA DRM v.2</td>
<td>Memory Stick</td>
</tr>
<tr>
<td>Boycott-threats</td>
<td>Some</td>
<td>Some</td>
<td>Some</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Demonstrations</td>
<td>Active court participation</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Mirroring</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Little</td>
<td>No</td>
</tr>
<tr>
<td>EFF involved</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Information still available¹</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

¹Search done with Google, 5th July 2002
Another problem for media companies is that the strongest resistance correlates with single individual defendant. The dataset here is rather limited, but the outcome is nonetheless rational. This goes also very well along with the theory of framing by Keck and Sikkink, which predicts that the advocacy networks are least successful if they try to present the issues “in their general form” and most successful if it is possible to “give a face” to campaign (Keck & Sikkink 1998 pp. 204-205). Therefore, suing an individual as a warning for others is not a viable strategy.

To conclude, what options do the media companies have left if the legal path is useless? The answer has to be found from the technical side. Microsoft’s example to make the DRM-system easily upgradeable is one option, although it is not possible in all solutions since it requires an Internet connection. Another, more radical option would be to design DRM-systems to be flexible enough to satisfy most requirements of the end users – even if this means that the systems are not fully secure.

References


Hervold, K. (kieran@digitalflock.org). 03 Jan, 2002, [free-sklyarov] call out for reinforcements?, E-mail to free-sklyarov@zork.net


Pickett, N. (neale@woozle.org). 03 Jan, 2002, [free-sklyarov] Re: WTO and Sklyarov/Adobe/DMCA, E-mail to free-sklyarov@zork.net

Seng, L. (loke.kar.seng@busit.monash.edu.my). 28 Jan 2000, [myoss] whack the mole, E-mail to myoss@my-opensource.org


This Journal is available on-line at http://www.mediajournal.org

Our journal is currently available on-line in PDF format through simple to use web interface provided by Netacademy.

- Fully searchable database (by issue, by author, and by topic)
- Easy access


For any comments send an e-mail to media.editors@netacademy.org