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About Consumer and User Issues of Digital Rights Management Solutions

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Content

Editorial of INDICARE Monitor Vol. 2, No 4, 24 June 2005

By: Knud Böhle, ITAS, Karlsruhe, Germany

Abstract: The nine articles of this issue (one of them an interview) are arranged in a topical order *regulation (4)*, *business* (3) and finally *technology* (2) – knowing of course that in DRM matters all three dimensions are concurrent. Two articles appear to be especially suited to provoke and raise debate: One severely criticises the CC approach ("Creative Humbug") and the other ("Contractual balance in digital content services") investigates the far reaching implications of the long-term shift from a product paradigm to a service paradigm in digital media offerings. In the new setting, DRM systems would no longer be understood as restrictions by consumers but as part of a fair bargain.

Keywords: editorial – INDICARE

INDICARE news

The *3rd INDICARE Workshop* about "Fair DRM Use" was organized by the Institute for Information Law (IViR) and took place in Amsterdam, 28 May 2005. The findings of the workshop and the papers presented will be made available as "workshop report" next month.

The *first INDICARE survey* on "Digital Music Usage and DRM" published end of May has been downloaded more than 1,000 times in one month. An invitation to present the survey results at Jupiter's DRM Strategies Conference (cf. sources) in New York next month is another indicator that INDICARE's European consumer survey raises interest.

About this issue

Regulation and confusion

We start this issue with an INDICARE-Interview by *Nicole Dufft*. She interviewed *Till Kreutzer* of iRights.info (an information portal aiming to help consumers with copyright law in the digital world). The interview is particularly interesting because the criticism of current copyright law is not derived from sophisticated academic debate but based on complaints and lack of orientation felt by consumers. On the one hand copyright law becomes more and more relevant for consumers, on the other hand it gets more complex and more confusing. More information is one answer, the other is to rethink copyright.

Péter Benjamin Tóth, a copyright expert, who has also argued in this journal before to rethink copyright (Tódt 2005) is this time very polemic about Creative Commons, accusing CC licenses of being inflexible and unenforceable at the end of the day. In the context of an informed dialogue (i.e. INDICARE) it is not the polemic that counts, but the issue raised. What is at stake is, so to speak, the "standing" of CC licenses. CC advocates are of course invited to counter Tóth's arguments and allegations.

In the next contribution CC advocate *Ellen Euler* (Centre for Applied Legal Studies, Karlsruhe) argues that to be successful, Open Access requires open content licenses like Creative Commons Public License, Science Commons Public License or – relevant in Germany – Digital Peer Publishing License. The state and role of CCPL, DPPL, SCPL in scientific open access publishing is presented and discussed. In her view, most authors still do not make their works openly accessible simply because they are not informed – not because of shortcomings of licenses available.

The article by *Thomas Rieber-Mohn*, University of Oslo, addresses the implementation of the EUCD Article 6 in Norway. He argues that the approach taken in Norway contains innovative elements and would offer real protection of consumer rights – presumably more than in any EU member state. Isn't it amazing that a non-EU-country is going to implement the EUCD in a more consumer-friendly way than any EU member state? Let's look again after the law has passed.

Business models and emerging media markets

The "business section" of this issue is opened by *Timo Ruikka* (Nokia). In a type of foresight exercise, he presents the move from media *products* to new media *services*. In these new media services DRM has another role to play than in the old "legacy model" of book and CD purchases. Ruikka believes that these future DRM-based services (e.g. lending, rental, "disposable" consumption of works) will provide significant value to consumers. In this future setting "contractual balance" will become more relevant.

Philipp Bohn, a new colleague in the INDICARE team working for Berlecon, introduces himself as an analyst with two contributions. In his first contribution he analyses new music offerings on a subscription basis by Yahoo!, RealNetworks and Napster – not yet the future services Timo Ruikka has in mind. Bohn investigates the different business models, the features of the DRM systems applied, and the advantages and disadvantages respectively for consumers, online retailers and the music industry.

In his second article he elaborates on the hypothesis that commercialization of P2P sharing offers potential benefits for consumers and the industry alike – a topic first dealt with in the INDICARE Monitor by Bill Rosenblatt (2004). Philipp Bohn analyses again different business models and evaluates what's in them for consumers and businesses. Both articles also add to the findings of the first INDICARE survey (cf. the article by Nicole Dufft in the last INDICARE Monitor). While the survey gathered reliable data on the demand side, i.e. on the preferences and behaviour of European consumers, the present articles add information not readily available about the supply side (in particular P2P- and subscription based services).

Technical matters

The last two contributions deal upfront with technical matters, however they also touch upon the future of DRM-standardisation and new application fields. *Ernő Jeges* from SEARCH, our Hungarian partner, first describes the Digital Media Project (DMP) giving a brief overview of DMP and its approach. Although we already published an interview with Leonardo Chiariglione last year (Chiariglione 2004), we have decided to deal again with this project, because DRM-standardisation is one of the crucial issues, and DMP offers one bottom-up approach to DRM-standardisation worth following, analysing and assessing. What we publish in this issue is just the first part. The second part will go a step further, attempting to assess the DMP approach in order to stimulate debate about its merits and possible shortcomings, and more generally about practices of DRM-standardisation.

Finally *Ernő Jeges* reports about a three day course on "Digital Rights Management – from theory to implementations" organized by the Université catholique de Louvain (Belgium). In fact it was an expert meeting about different technical aspects of DRM. The report however is not only interesting for engineers. The course also produced insights into future application fields of DRM like 3D object representations, 3D-television, 3D-Google or digital cinema, all of which seem to deserve technical protection measures not yet developed.

Bottom line

This present issue is particularly full of thorough analysis and provocation. Why not use the comment function of the articles on our web-site?

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Copyright - complexity - confusion
"The basic approach to copyright needs rethinking"

By: Till Kreutzer, iRights.info, Berlin, Germany

INDICARE-Interview by Nicole Dufft, Berlecon Research, Berlin. Copyright has become increasingly complex and difficult to understand. Consumers of digital content as well as content creators are confused about their rights and obligations arising from copyright law. Better information of users of digital content is necessary, but at the end of the day the basic approach of copyright needs rethinking.

Keywords: interview – anti-circumvention, consumer behaviour, copyright law, creators, filesharing, private copy, transparency - Germany

About iRights.info and Till Kreutzer

Is private copying a crime? Is it illegal to copy a CD or DVD? Or to save a movie to my computer's hard-drive? To answer these questions is more difficult than ever, as changes in copyright law result in a complexity that is hard to oversee even for lawyers – let alone for common users. iRights.info, a new German information portal for copyright law in the digital world, wants to give users orientation.

Till Kreutzer is editor of iRights.info. He is a lawyer and partner in the "Office for Information Law Expertise" in Hamburg. He is heading the copyright division of the "Institute for Legal Issues on Free and Open Source Software" (ifrOSS) and was a member of the working group of the German government for the reformation of the German copyright law (the so-called "second basket").

INDICARE: Mr. Kreutzer, why is copyright becoming increasingly complex and difficult to understand in the digital world?

T. Kreutzer: The reasons are manifold. In my opinion there are two main causes for the increasing complexity of copyright law for the consumer. First, copyright causes new problems for the consumers simply because it concerns them increasingly. In the "analogue age" copyright was of minor importance in private life. Reading a book or listening to a record does not pertain copyright so there was no need for the user to care about legal issues when using intellectual goods in the usual way. This even applied to private copying. The few (technical) possibilities to make private copies like photocopying an article in a library or recording a broadcast with a video recorder were indisputably permitted by (German) law.

The coming of digital technologies introduced essential changes in the possibilities for the user to handle copyrighted goods and in consumer habits. All of a sudden everybody was able to become a distributor and creator of copyrighted works with his home equipment – a normal personal computer was enough. It seems that still even today most users don't accept or don't understand that when using the Internet one has to be more aware of copyright issues. There are significantly stricter rules when publishing on the net than for any use in the private environment. For example most users don't seem to understand that they need permission when publishing other peoples' works on the Internet even if they don't pursue any commercial interests. Apparently users think putting pictures or texts on the Internet is comparable to sharing CDs or videos with friends. It is apparently hard to understand for the users that in terms of copyright law the salient point is not the lack of commercial purpose but the making available to the public.

The second reason for the increasing complexity of copyright law for the consumer is a result of copyright law itself. The modification of existing copyright exceptions, the complexity of the new exceptions and the legal protection of technical measures like copy protection and what that means for private copying have led to profound problems of understanding. This happened because the legislator had to make significant compromises in the face of the massive lobbying of the various stakeholders. To give an example: In 2003 the German legislator introduced a new copyright exception that allows the online use of copyrighted works for educational and scientific purposes. Due to substantial lobbying of the film industry, among others, this exception was restricted in regard to motion pictures. This means that movies are not allowed to be used in schools or universities unless two years have passed since their first performance in the cinemas. What the legislator did not consider was that many films, especially those that are of peculiar interest to education and science, are never shown in cinemas, for example documentaries and educational films. The legal position regarding these films, which are indisputably numerous and significant, is completely vague. Teachers would have to be copyright experts in order to be able to decide if the 2-year rule can be applied to these kinds of films as well.

INDICARE: What are, in your experience, the major problems that consumers of digital content are facing today? What are the most common topics discussed in your forum? Where are information gaps most severe?

T. Kreutzer: In my experience, the biggest uncertainties exist in relation to the private copy exception (which is mandatory under German law) and the protection of technical measures (technical copy protection). Both the reasoning behind the legal solution and the legal provisions in detail leave open a large number of questions.

For example it is difficult to explain why the lawmaker decided that digital private copying is still legal but, at the same time, it is illegal to circumvent technical provisions to make the copy. The users - who are generally not familiar with legal issues - seem to think this is a semantic error.

However, there is even more to it: most users are highly alienated by the anti-circumvention rules in general. In my opinion the reasons are obvious. The term "circumvention" for example is so vague that even experts don't know what it exactly entails. The possible cases are so various and widespread that many questions remain open – even if one does have an idea about the legal issues. Is it illegal to copy a CD that is labelled "copy protected" by using an ordinary CD recorder and ordinary copying software? Am I allowed to make a record of a protected music file by analogue copying? Is it allowed to circumvent CSS when otherwise I would not be able to watch my DVD on my Linux laptop? These are all frequently asked questions. On the one hand it is understandable that the legislator utilized so many vague terms in order to make sure that the law will not be obsolete by the time it is enacted. On the other hand it leads to insurmountable difficulties when attempting to apply this law, specifically for the normal user.

Another point of insecurity for users pertains to questions of filesharing. We have observed that most users assume that "filesharing is illegal". I emphasise this exaggerated, undifferentiated statement intentionally because it reflects the misconceptions regarding copyright very well. Even fairly "informed" users are not aware of the difference between file-downloads, that are in most cases permitted according to the private copying exception, and the provision of files on their harddrive for others. For users both acts are directly related. This perception can be traced back to the technical environment. In general the default settings of the filesharing client software are set up in a way that every downloaded file will be saved in the "shared folder" which means that it is automatically made available for other users to download. I suppose that most users don't even know that the default settings of their filesharing software can be changed in order to prevent the distribution of their files if they made up their mind to do so.

The uncertainty about private copying was increased by the amendment to the German copyright act in 2003. In the course of this reform the German legislator adopted a restriction that prohibits even the download (or any other form of private copying) from another filesharing user if the source file (i.e. the file on the other user's computer) was "obviously illegally created". The legislators' intention was to prevent illegal copies of protected works from lawful circulation. The new rule is directly aimed to stop downloading in filesharing systems. But the bottom line is that the restriction is useless because in the vast majority of cases the downloader has no possibility of knowing under which legal circumstances the source copy was made. After all, the source might be a (legal) private copy, an original or even produced in a copyright haven, i.e. a country where no copyright is granted. Against this background there is a serious disparity between the uselessness of this rule for the rightsholder to prevent illegal copying and the debilitating uncertainty it raises for the users.

Let me add one point: These observations take into account that our (iRights') users are quite likely already somewhat informed and already have a clue about copyright issues. The level of awareness of other consumers is pure speculation.

INDICARE: Your portal also addresses creators of content, such as artists, musicians, journalists and producers of amateur content. What are the major challenges they are facing with respect to copyright issues? What are the opportunities for creators?

T. Kreutzer: In our experience, many content creators are confused about their rights and obligations arising from copyright law. Information technology and digital formats make it possible to extract parts of existing works and to rearrange, recombine and readapt them in order to create new work. This technical environment produced new art forms, which came up primarily in the realm of music, for example Hip Hop, electronic music and club music. But film making changed also with the new digital tools. Problems arise when the authors of these works are not familiar with procedures of licensing, with copyright exceptions (like the quotation right) or collecting societies. Conforming to copyright regulations often implies irresolvable problems for the authors of new art forms. The majority of uses do not fall under the known copyright exceptions so that normally every little sample or snippet has to be licensed and paid for. Needless to mention, most amateur creators (who normally don't earn any money with their work) are simply not able to comply with these requirements. This inadequate balance between copyright protection and the freedom of arts is in my opinion another fundamental shortcoming of today's copyright regulations.

When we talk about authors and creators the multitudes of private home pages by individuals should be mentioned. Especially the enormous group of amateur website authors is widely confused about their obligations arising out of copyright law. What content is protected? What about using pieces of films or music on my website or in user communities? What rules apply to fan art (for example publishing fan sites that include screenshots of shows or movies or pictures of actors)? These are questions which come up often.

INDICARE: In your view, is today's copyright still well suited for the digital world? Do we need new legislation to cope with the aspects of digital distribution? Or do we simply need better information of consumers and creators of digital content?

T. Kreutzer: As I already mentioned, in my view the relation between copyright protection and copyright exceptions is out of balance today. Copyright regulations neglect the peoples' desire for knowledge, which requires access to copyrighted goods. The fulfilment of this public concern is one of the most imperative tasks in the information society. Looking at the present situation and at the current legislative procedures to me it seems highly doubtful that the national and international lawmakers are serious about proposed objectives like the free flow of information or the universal access to cultural goods and information. There are many indicators for this assessment. To give one example: It is evident that copyright exceptions become more and more restricted while the requirements for the protection are decreased and the rights are expanded. I hardly believe this development is adequate to promote the information society.

In fact I think that the basic approach of copyright needs rethinking. New aspects have to be addressed. In an information society it's not enough to ask how intellectual property can be protected more efficiently. Instead it is imperative to find a way how copyright law can balance all the different interests it affects. In my opinion the attempt to transfer the traditional understanding of copyright to the information society without reconsidering the fundamental ideas has failed. What we need is a new approach that keeps in mind that participation in the information society requires an acknowledgement of strong and coequal users' rights.

More information for consumers and authors is no cure for this unfortunate state of affairs. Providing information and transparency is important in order to increase awareness of the rights and obligations according to applicable law. In other words: to help the affected groups to make the most out of the given situation. But providing information won't help to solve the underlying problems.

INDICARE: Why are independent information portals, like iRights.info, so important?

T. Kreutzer: The particular benefit of iRights.info is that we provide neutral and factual information written in plain and generally understandable language. Most of the information about copyright issues publicly available is either written for experts, based on an uninformed understanding or with a tendentious slant. Especially the campaigns of the entertainment industry seem to operate with selective (often incomplete and sometimes even incorrect) information. I assume that they aim to promote the uncertainty of users and to convey the idea that even the legally permitted forms of usage are prohibited and threatened with severe penalties. To counter such misinformation campaigns is an important task for independent services.

The problem is that establishing such services is quite a time-consuming and expensive affair. Therefore we are very grateful that the German government (the Ministry of Consumer Protection) is financing the iRights project for 18 months.

INDICARE: Mr. Kreutzer, thank you very much for this interview!

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Creative humbug
Personal feelings about the Creative Commons licenses

By: Péter Benjamin Tóth, ARTISJUS, Budapest, Hungary

Abstract: For me, there is something fishy about the idea of Creative Commons (CC). The hawkers of this "solution" present the very nature of classical copyright as an *alternative solution*. And they forget to inform the creators about the side effects.

Keywords: opinion – Creative Commons, copyright law

Introduction

The "Creative Commons licenses", a set of standardized general contract terms and conditions, have conquered the world in a short time. We could even say, that "A spectre is haunting the World – the spectre of Commonism". Why could it spread so quickly? What did it offer in comparison with the other similar model licences?

Suggestions – demystified

It mainly offers *suggestions*, in my opinion. The CC organization is really cautious, so the main characteristic of their communications strategy is not written down. The official explanations can be found at the CC website (cf. sources) – but the real image of CC is built up by untold *suggestions.* I would like to present you some of these implied suggestions – demystified.

You could say that it is easy for me to accuse CC on the basis of suggestions. I would rather say: it is very hard to debate with intimations, with a "whispering campaign"; the real intention of CC remains unclear.

1.) "Classical Copyright" vs. "Creative Commons"

CC licences suggest, that the main feature of classical copyright is "*All rights reserved.*", whilst the approach of CC licenses is "*Some rights reserved.*"

This juxtaposition is simply false. Copyright provides a list of exclusive rights to the rightholder, from which he decides which ones he wishes to "sell" or grant and which to retain. The "Some rights reserved" concept is therefore not an alternative to, but rather the very nature of classical copyright.

Although in the deeper pages of their website CC acknowledges that their licensing system is based on copyright itself, you just need to write the following words: "*Creative Commons"* and "*alternative"* into Google to find out how many people do not recognize this legally evident acknowledgment, and how many people are rather impressed by their *suggestion*.

2.) "Select a jurisdiction"

The CC likes to stress that their licenses are adapted to many jurisdictions. Let us look at a short quotation from The Register (2004): "*Such legal adaptation work is going on now in around 60 countries"*. Sometimes misunderstandings arise in this context. Let there be no mistake: the CC licenses may be adapted *to* many jurisdictions, but they are not adopted *in* any jurisdictions.

The CC licenses are freely available model contract forms, tailored to the requirements of several jurisdictions. The state is not in a position to adapt or enforce the use of these uniform licences.

3.) "Copyright prevents the free flow of information"

"CC licences are about removing the barriers to sharing information" (Guy and Kelly 2005). This sentence and the whole notion of CC is based on the misbelief that copyright prevents the free flow of information.

This again is a false interpretation of copyright, which will never protect mere facts or information. According to the Berne Convention, Art. 2 (8): "*The protection of this Convention shall not apply to news of the day or to miscellaneous facts having the character of mere items of press information."* The 1967 international diplomatic conference in

Stockholm gave an authentic interpretation of this rule. As we can read in the report of Main Committee I: *"The Convention does not protect (...) miscellaneous facts, because such material does not possess the attributes needed to constitute a work"* (see e.g. Ricketson 2003).

It means that anyone can base his work on the conclusions and facts and all available data of scientific works by other authors. It is only the norms of professional ethics that prescribes that credit should be given to the original researcher. To bring another example: new and exciting musical chords or performing styles can freely be used by other musicians – not because the original artists are generous, just because the scope of copyright does not extend to these elements.

4.) "On the internet you do not need a publisher to reach the public."
Technically this is true. But let us not forget that in the last decades it has always been true regarding the offline world as well. The musicians have had the possibility to prepare their own sound recordings and sell them and to organize their own concerts. The authors have been able to publish their own works. The technical and legal possibility however does not mean that financially these "self-uses" are profitable.

It is not the *"scantiness of goods"* in the offline world that justifies the existence of publishers (professional actors in the selling of content to consumers), rather the *"plenitude of supply"* on the market of contents. If you are not well-known in the public, who will listen to your music or buy your book from a list consisting of 5,000,000 elements in alphabetic order?

5.) "There is no need for this wide copyright protection."
Another implied suggestion of the CC-ideology is that if many authors decide to narrow the exercise of their copyrights, it can be a reason to reduce the strictness of statutory copyright protection. This theoretical conclusion would be totally mistaken.

Even CC-authors need to eat. They need money for existence and creation. When they decide not to exercise some of their copyrights, they do not give up their living for the noble idea of free flow of information – they have some other intent to do so (for example they "advertise" themselves to earn money from personal presentations, or they already have another constant source of income). Therefore their decision should not affect the possibilities of those authors, who need to secure their living from their works.

Hidden facts – unveiled

The other reason for the quick spread of CC licences is that some of their characteristics are concealed, hidden from the public and hidden from the right holders using them. Now I would like to present you two of these circumstances – unveiled.

1.) Commons Deed vs. Legal Code
One of the sources of misunderstanding regarding the nature of CC licenses between the right holders is that there are three forms of a license:

- one that can only be read by a computer (Digital Code)
- one that can "only be read" by a lawyer (Legal Code)
- one that the other part of the world can read (Commons Deed).

The basic version is of course the Legal Code, and this version is "translated" into the other two forms. The problem is that the authors wishing to use the CC license will generally read only the "Commons Deed" version. They will not have the money or possibility to take advice from a lawyer specialized in copyright, and therefore most of them will necessarily lack important information regarding the licence.

The CC webpage suggests, that Commons Deed is nothing else than "*a human-readable summary of the Legal Code (the full license)"*. Unfortunately this is not true; there is lots of information missing in the Commons Deed form. Every such difference implies the danger of misleading the author.

You can read the Commons Deed form, the "Frequently Asked Questions" or "Licenses explained" pages of the CC website (cf sources), you will not find some of the most important elements of CC licences. You can

only find this information on the bottom of a deep page:

"Every license
– applies worldwide
– lasts for the duration of the work's copyright
– is not revocable"

Has any of you ever noticed it? Is every author using this licence aware of these conditions?

The CC licences last for the whole term of copyright, and binding to the heirs of the authors as well. They are effective worldwide, and you can never change your mind, which is anyway clearly forbidden by a number of copyright acts. It means that a CC license is even more extortionary than an exclusive "buy-out" contract from a global media company, where the author at least gets some money, and according to the legal regulations can revoke the license in some circumstances. To bring another example, a collecting society is obliged to give the possibility to its authors to "take back" their rights if they are not content with the working of the society, and they also have the right to limit the territorial scope of the management of their rights.

In the CC licences the author does not have the right to test, to try out this solution. If he decides – inspired by the insufficient information of the over-simplified descriptions – to use the CC licences, he and his heirs will never be able to change their mind, even if they found out that their decision did not meet their expectations.

Therefore I think that we have to handle with care the statements of CC that their licences do not mean the giving away of copyright. At least it *empties* the essence of copyright.

2.) Unenforceable rights
An edifying excerpt from the Frequently Asked Questions of the CC webpage:

"Will Creative Commons help me enforce my license?

No, we will only provide the license, plus a plain-language summary and machine-readable translation of it. We're not a law firm. We're much like a legal self-help press that offers form documentation – at no cost – for you to use however you see fit. We cannot afford to provide any ancillary services particular to your situation and, in any case, our mission does not include providing such services."

Let me translate it this way: CC provides you legal tools to retain some of your copyrights. But when it comes to the enforcement of these rights, they simply shrug their shoulders. But is it really about not having enough sources to "include providing such services"? Is it not about the fact, that the rights that an author retains when using CC licences are not enforceable in practice?

Let us try to summarize the enforcement problems stemming from the use of CC licences:

a.) *"Non commercial. You let others copy, distribute, display, and perform your work – and derivative works based upon it – but for non commercial purposes only."*

- although the CC website talks about the possibility that a work under the "non commercial licence option" can still earn money from those who are using it for financial gain, in practice this possibility is minimal, almost non-existent. Why should anyone invest in works that are already widely available for free?
- on the other hand: how could an individual author control the uses of his works? In many cases the users are able to hide their financial income, even professional enforcement bodies are facing difficulties in finding them. In case someone uses these works for profit, the authors will not be able to find the users or to achieve a fair royalty rate (because they will not be able to monitor the uses and the incomes of the user). And they will also not be able to trust someone to enforce their rights on a business basis – because there is no business in monitoring usually-free uses.

Although it sounds good for several authors that only non-commercial uses can be carried out freely, in practice the author will not be able to distinguish between commercial and non-commercial uses. Therefore in many

cases the "non commercial licence" practically means that the author puts his works into the public domain.

b.) *Micromanagement*. If we see the most developed part of collective management of copyright (the licensing of musical works), we can see that there is a hundred-year-old equilibrium between the free choice of authors on one hand, and the effective rights management on the other. Although the author has the theoretical right to licence every blond-haired singer to sing one of his songs every second Saturday afternoon for free, this right would not be enforceable.

Therefore the collecting societies created a solution in their field (that is – since the beginning of the 70's – also accepted by the European Court of Justice), in which the decisions of the authors regarding the management of their rights e.g. (i) always refer to a certain period (1 year); (ii) always concern all their works; (iii) are always effective for all uses in a certain mode of use. Of course there may be differences between the societies in the flexibility regarding the choices of the authors, but one thing is common: they do not want unenforceable rights. And although this may seem for the outsiders as a limitation to the free choice of the author, *in reality the value of a less-flexible right may be higher than the unenforceable "nimbleness"*. This statement should also be true for the CC licences.

c.) *Collision of national contract laws*. The contract laws (and in particular copyright contract laws) of national jurisdictions vary across a wide range. The CC licences have their roots in the US law (the "model" is the American one, and every national adaptation has to have the approval of the CC-centre), which differs significantly from continental law systems.

- One of these problems is that a CC licence is not a contract in itself, it is a unilateral statement (contract proposal) by the author. In this case the irrevocability of a statement that licences anyone-anytime-anywhere to use the work free of charge, could mean a renunciation of rights, which is not possible in several jurisdictions.
- In some jurisdictions the CC licence will not meet the requirements of formal validity of contracts.

The licenses with different scope lead to licensing chaos and indemnity confusions.

Bottom line

Creative Commons is a system that alleges that it is more flexible than the classical copyright licensing models. In reality however, where this system is flexible, it creates unenforceable rights. And when it comes to terms of validity or irrevocability of the licence – it turns out to be inflexible.

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Licences for open access to scientific publications: A German perspective

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Abstract: Scientific research depends on easy and timely access to and use of existing scientific and scholarly research results, which in our times are mostly in digital form. Open Access promises to be a solution to this problem. To realise Open Access it is not enough to archive publications on a server. Rights have to be granted to the general public by applying licenses. The state and role of CCPL, DPPL, SCPL is discussed with respect to scientific publishing and research. What is also required to make Open Access successful is awareness of authors to which this article wants to contribute.

Keywords: Creative Commons, Open Access, Science Commons, scientific publishing – Germany

Introduction

The scholarly and scientific communication system is a crucial aspect of social benefit as it stands for scientific progress and information. However this system is in a state of severe crisis (cf. Boyd and Herkovic 1999, Parrot 2004, Kuhlen 2004). This information crisis has two contradictory aspects: on the one hand the "information overload" and on the other hand the "information enclosure". Even though the sum of the publications is ever growing due to the ease of producing, publishing and withdrawing information in the digital age, the access to and the use of digital publications is being more and more restricted by the privatization of scholarly and scientific information through copyright and patent law legislation. In Germany for instance the § 53 a UrhG will be cancelled to the end of 2006 (§ 137 k UrhG). Formerly intellectual property rights where the exception, now they are the rule.

Scientific research depends on easy and timely access to and use of existing scientific and scholarly research results that are mostly digital in our age. Open Access promises to be a solution to this problem by using the possibilities of improving the scientific and scholarly communication chain provided by electronic delivery methods. The *science commons* offers a solution for how open access to scientific publications can be gained. But first of all, what does open access mean to scientific publications and what is the role of the *science commons license*?

Open Access

The definition of "open access" is contained in the Budapest, Bethesda, and Berlin public statements. Even though they differ from one another in small ways, they agree on the essentials. The common ground is called the Budapest-Bethesda-Berlin or BBB definition of open access (cf. Suber 2004). Open access to scientific publications means the worldwide, cost free, immediate access to the full text of the publication and the possibility to distribute and use it, and the deposition in at least one online repository using suitable technical standards.

Two models of how Open Access can be realised are proposed by the open access movement (cf. also Poynder 2005 with respect to the golden and the green road):

1. freely available electronic journals, and
2. author self-archiving of research papers on institutional or subject-based repositories

To realise Open Access means, to archive the publication and to grant rights to the general public. But how is it possible to grant the rights mentioned above?

Licenses

There exists a huge variety of open content licenses (cf. ifrOSS). To simplify open access by "standardisation" it would be helpful if the scientific community could agree on the use of a single License. But which one?

Some of them are described briefly in the following.

1. Creative Commons Public License

Without doubt the most popular one is the Creative Commons Public License (cf. Creative Commons 2005a). Creative Commons was founded in 2001 at Stanford University (cf. Creative Commons 2005b). The aim of the released licenses is to build a layer of reasonable, flexible copyright into the increasingly restrictive default rules. The licenses are a tool to reduce barriers to creativity. Initially Creative Commons addressed "Cultural Creatives" (musicians, film-, photo- and image-makers) but not the artists of words. In other words the Creative Commons Public License was created for artists and not authors. But with its different modules authors can also express which rights they want to retain and so the licenses are also used for publications. In this context the specification "Attribution-no Commercial-no Derivatives" (cf. Creative Commons 2005c) is used most often. This confirms the results of the RoMEO study (cf. RoMEO Project) "How academics wish to protect their OA-research papers". The license was adopted in many countries; in Germany it has been available since June 2004 (cf. Dreier 2004).

2. Digital Peer Publishing License

In October 2003 the German Ministry of Science and Research of North-Rhine-Westphalia acted as initiator for the Open Access Initiative "Digital Peer Publishing NRW" which created the Digital Peer Publishing License (cf. DiPP), which was intended to encourage the foundation and expansion of scientific eJournals when the Creative Public License was not yet available. Up to now there exist 10 e-journals using the license. The DPPL was initially created for the authors of scientific publications with the goal of increasing the number of high-quality scientific publications as well as developing and establishing new methods of network-based cooperative information management, which will in turn enable high-speed, open, and transparent digital peer publishing in an appealing environment. In practice it doesn't differ very much from the CCPL. The only significant differences are in the specifications of retained rights but not in the application fields.

Table 1: Comparison of CCPL and DPPL

	CCPL	**DPPL**
Differences	- designed for creative content; - 3 layer system; - modular building block system; - does not distinguish by carrier medium	- designed for scientific content; - three different licences; - distinguishes between electronic and analogue carriers
Obligations	- reference to license; - no digital rights management (DRM) - no copyleft; - credit to the author	- reference to license; - retention of open access and credit to the author; - history
Advantages	- internationally networked; - building block system; - machine-readable metadata	- proximity to science; - regional partners; - changes can be restricted in scientifically specific manner
Disadvantages	- completely or not at all alterable; - use cannot be restricted	- low degree of international linkage

Science Commons

Its specific application to the needs of the scientific communication distinguishes the Science Commons Project from the Creative Commons Project. Science Commons (cf. Science Commons 2005a) is an exploratory project to apply the philosophies and activities of Creative Commons in the realm of science. As an accomplishment of the Creative Commons Project it looks at the legal frictions that hinder reuse of scientific discoveries and might lead to discouraging innovation. The project focuses on patent rights and solutions to the increasing enclosure of in former times non protectable "raw facts" (for more information see Science Commons 2005b). The goal is to achieve the creation of a larger "Science Commons" built from private agreements, and technical standardization. The "some rights reserved" approach is adopted from Creative Commons, the parent organization. It is intended to support open access to scholarly research in a wide range of disciplines. Science Commons works in three project areas: Publishing, licensing, and data. This article focuses on publishing.

The process of scientific publication includes other applications of licences such as:

- Licenses to other publishers or journals;
- Licenses on Pre/postprints;
- Licenses for author self-archiving;
- Mechanisms for author self-archiving;
- Legal implications of Open Access business models;
- Application of machine-readable licenses to documents.

Here in addition to the Creative Commons licenses, the SCPL is generated. But as mentioned above, the Project started in early 2005 and is still at the beginning. Up to now drafts for licences don't exist and groups therefore are being encouraged to use the Creative Commons standard licenses for the time being. The initial focus is more on technical approaches which make self-archiving easier, and on an education and outreach campaign so that both institutions and authors understand the importance of the issue. So far it is unclear at what date the SCPL will be available in the US, or when or if it will be adopted (like the CCPL) in European countries.

A brand new part of the Science Commons publishing project is the Open Access Law Program, that supports "Open Access" to legal scholarship (for details see: http://sciencecommons.org/literature/oalaw). The Open Access Law Program (OAL Program) consists of a set of resources to promote open access in legal publishing. These resources include:

- Open Access Law Journal Principles;
- Open Access Law Author Pledge;
- Open Access Model Publishing Agreement.

Unless the SCPL is available in Germany authors can (and should) use the Creative Commons Public License as well as the Digital Peer Publishing License (or both as they do not exclude each other) to grant rights and enable Open Access.

1. Practise of granting rights

The practice of granting rights with a Creative Commons License is very easy. To generate the License only two questions have to be answered (Allow commercial use? Allow Alteration?). The license gets generated in a HTML-Code, which can be simply inserted by copy and paste. The website of Creative Commons also provides a software application, the so called "CC Publisher" (cf. Creative Commons 2005c). It provides free hosting as well through the Internet Archive. The Science Commons Project is going to extend this tool to have it more scientifically driven, as the current interface was designed for cultural creators. Such a software doesn`t exist for the Corresponding DPPL. The license has to be inserted manual, which may hinder the broad use.

2. Author`s Addendum

But the technical problems are only one thing that has to be solved. Currently another big problem is the legal impossibility of granting rights imposed by the contract with the publisher. While some journal publishers already utilize author-friendly agreements, others do not. They still insist on transfer of all exclusive rights from the author, the so called

"buy-out contracts", no matter whether there really is an intention of actually using these rights later on. Fortunately, many publishers will agree to changes in their standard agreement. The uncertainty of what and how to change such author agreements and mark up the publisher's standard agreements could be solved by the "Author's addendum" proposed by SPARC (SPARC 2005). It is a simple form that amends the "Publisher Agreement" and is attached to it. By using the SPARC Author's Addendum the author retains his right to make his article available in a non-commercial open digital archive on the Web. Up to now there exists only an English draft of this form, but SPARC Europe is about to publish the German version (ask bargheer@mail.sub.uni-goettingen.de for detailed information).

Bottom line

Currently Open Access to scientific publications is achieved by archiving the publication and granting rights. To grant rights means to license the publication with an Open Content License. In most cases the Creative Commons Public License is used as it provides a good fit for academic research papers. In addition in Germany the Digital Peer Publishing License is used. The Science Commons License is not going to be an amendment of the Creative Commons License for scientific publications, but focuses on other areas of licenses. Up to now it is yet unclear, when the licence is going to be available in the USA, or when or if it will be adopted in Germany. In the meantime the existing licenses should be (and are) used also for scientific publications. To enable the use of open content licenses by authors, the publisher agreements have to be amended. This can be realised by a standardised addendum as proposed by SPARC. But as it is within the capacity of the individual author to make his or her work openly accessible, the most important thing remains to inform the author. It is speculated that most of the authors do not make their work openly accessible because they are not informed. We need more education and outreach campaigns, so that both institutions and authors understand the importance of the issue.

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Norwegian implementation of the EUCD Article 6

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Abstract: On 11 February this year the Norwegian Ministry of Culture and Church Affairs submitted its long awaited White Paper (2005) on amendments to the Norwegian Copyright Act (1962). The purpose of the proposed amendments is to bring Norwegian copyright law into consistence with the European Copyright Directive (EUCD 2001). The approach chosen as to the implementation of EUCD Article 6 contains some rather innovative elements and goes far in protecting consumers' interests – perhaps too far compared to the EUCD.

Keywords: legal analysis – copyright law, EUCD, technical protection measures, anti-circumvention – Norway

The protection scheme

As required by EUCD Article 6, the White Paper proposes a twofold protection scheme for technological protection measures used by right holders to protect their works (and other subject matter): partly, it prohibits (the act of) circumvention of such measures; partly, it bans certain preparatory acts of trafficking in circumvention devices. (Additionally, the proposal contains a provision protecting rights management information, cf. EUCD Article 7, but this provision will not be treated here).

Protected measures

The proposal does not include any statutory definition of "technological measures". However, it is made clear that anti-circumvention protection only applies to measures that are used in order to control either the *making of copies* or the *making available to the public* of a protected work. This delimitation of protected measures is not coincidental: The said acts coincide with those defining the copyright holder's exclusive rights under Norwegian copyright law; hence they are referred to in the preparatory report as "copyright relevant acts". The delimitation of the anti-circumvention protection to measures that control "copyright relevant acts" reflects one of the Ministry's overall intentions, namely to tie the protection as close as possible to the contours of the copyright monopoly, without disrespecting the EUCD-requirements.

EUCD Article 6.3 defines "technological measures" as measures that in the normal course of their operation, are designed to prevent or restrict acts "not authorized by the rightsholder". From this express reference to an authorization, the Norwegian Ministry deducts that Article 6.3 only encompasses measures controlling acts covered by the *copyright* monopoly (!). Arguably, this is not a "waterproof" deduction, but the reasoning (of the Ministry) is as follows: For the right holder to be in a position to *authorize* certain uses, such uses must somehow have been made subject to her supremacy. Relevant in this relation is (in the Ministry's view) only the monopoly granted to her *qua copyright holder*. Thus, (again in the view of the Ministry) protection is required by the EUCD only where measures are used to regulate conduct that falls *within the ambits of the statutory monopolized acts*.

This means that a measure that regulates conduct outside the ambits of the statutory monopolized acts (e.g. performance of a work within the private sphere), cannot *itself* constitute the basis for anti-circumvention

protection. It also means that "copyright relevance", in the sense just described, cannot be gained through monopolizing an act by contract.

It should be pointed out that, whereas the said definition of "copyright relevant acts" implies a demarcation towards acts that neither can be classified as *copy making* nor *making available to the public*, it does *not* exclude acts that fit such a classification, but nevertheless positively have been *lifted out of* the copyright monopoly (through copyright exceptions). If, for instance, a measure merely controls private copying – a conduct exempted from the Norwegian copyright monopoly through a statutory exception – it will still fall within the sphere of protected measures, since the conduct as such (copy making) falls within the ambit of one of the monopolized acts (copy making). This is slightly different when it comes to the exclusive right to make available to the public, since there, the monopolized act *itself* is delimited to the public sphere.

One very important modification has to be made to the just described point of departure: Technological measures applied in order to protect "copyright relevant acts", but which *also* control conduct outside the statutory monopolized acts (e.g. private performance), shall still be protected. In other words, the *additional* feature of usage rules controlling non-"copyright relevant" acts shall not disqualify the measure as such from protection (as long as it *also* is aimed at controlling a "copyright relevant" act). If, for instance, a copy control mechanism at the same time blocks playback of a work within the private sphere, it will still – in principle – be within the sphere of protected measures. However, as we shall see just below, a special exemption is introduced as to enable private enjoyment.

Right to circumvent to enjoy within private sphere on "relevant playback equipment"

Even though such "combined" measures fall within the sphere of protected measures, one important – and, compared to the text of the EUCD, rather innovative – modification is made as to the *scope of protection* in this regard: If a "combined" measure hinders what is called "enjoyment within the private sphere" of a copy of a work, the consumer may circumvent the measure in order to "enjoy" the work on what is called "relevant playback equipment". The preparatory report accentuates, that this is not a delimitation of the sphere of protected measures, but rather a limited exception *to the ban* of circumvention: Even though the measure as such is protected, the consumer may lawfully circumvent in order to pursuit this specific purpose.

Of course, the provision raises the question of which equipment shall be deemed as "relevant". According to the initial preparatory report, the relevance is relative to the format in which the work has been lawfully acquired. In the end, according to the initial preparatory report, one must ask which expectations as to playback equipment the consumer reasonably may have with respect to a given type of product. Using a musical work as example, the initial preparatory report stated that circumvention of a technological measure applied on a musical CD would be lawful if needed in order to play the CD on a CD player, but *not* if the purpose was a conversion into MP3. In other words MP3 players were not to be considered "relevant playback equipment" as to the musical files on a CD. As a curiosity; this last exemplification in the initial preparatory report (of an exception to an exception) has resulted in the proposal being named "the MP3 Act" in the Norwegian public debate.

While writing this article, the first division hearing in the Parliament has passed with a majority voting against the Ministry's proposal to exclude MP3-players as relevant playback equipment for music files on a CD. Thus, as it looks at the moment, circumvention will be lawful if necessary in order to convert the music files on a CD into MP3 (or similar formats).

The scope of the said "right to circumvent" is narrowed down considerably by an additional clarification made in the preparatory report: If a digital file is made available *on-demand through a digital network* and the parties in this connection agree as to which

media-player can be used to experience the file, that contractual regulation shall determine what shall be deemed "relevant playback equipment". In other words, when it comes to such services, the "relevance" of playback equipment shall be subject to contractual *freedom*. After this, the said "right to circumvent" is, in practice, reduced to situations where the copy of the work is distributed on a physical carrier (e.g. a CD or DVD) or online-but-not-on-demand. Statements during the Parliament hearing indicate that the scope of the exception might be further narrowed down to comprise conversion from CD to MP3 *only*.

The said "right to circumvent" in order to enable private playback within the private sphere must also be seen in relation to another amendment proposed in the White Paper: The existing freedom of users, under Norwegian law, to make copies of works for private use purposes, is upheld. However, it is made subject to one additional qualification: Private-use-copying shall be allowed only where based on a so-called "lawful source of copying". This means that the copy or transmission, upon which the reproduction is based, must be lawful; it must have been produced or made available in accordance with a permission by law or by the right holder(s) concerned. In the absence of such authorisation, for instance if a work has been illegally uploaded to the Internet or made available through a p2p-network, the source will not be lawful and may hence not serve as the basis for (lawful) private-use-copying. It is made clear in the White Paper, that if any copies should be made in connection with, or as a result of, the performance of the said "right to circumvent", such copies shall *not* be regarded a "lawful source of copying". Thus no further copies may (lawfully) be made on such a basis.

"Interface" towards copyright exceptions

As required by EUCD Article 6.4, the White Paper also contains an express "interface" towards certain copyright exceptions. The copyright exceptions covered regard certain uses related to teaching, recording for use by health institutions, retirement homes, prisons etc., libraries, museums and archives, disabled persons, ephemeral recordings and public negotiations, document inspection, interrogation and evidence. The option of creating an "interface" for the private copying exception has so far not been used. In accordance with Article 6.4 fourth paragraph, the "interface" shall not apply where a protected work is being made available to the public on agreed contractual terms in such a way that members of the public may access them from a place and at a time individually chosen by them (the so-called on demand services).

The proposed "interface" places an *obligation* upon right holders to respect the concerned copyright exceptions while designing their technological measures. However, the question of *how* right holders shall enable required uses can be regulated through contracts between the parties. If the right holder does not voluntarily enable the use required by the relevant exceptions, Sect. 53b second paragraph provides the following failsafe mechanism, which can be triggered by the beneficiary (unofficial translation):

> "If the right holder, after a request from a beneficiary under the above-mentioned provisions, does not grant such access as mentioned in the first paragraph, he may, upon the beneficiary's request, be ordered to provide the information or other assistance needed to obtain utilization of the work in accordance with the purpose. Requests shall be presented to a committee appointed by the Ministry according to procedures established by the Government. The committee may, in addition to such order as mentioned, decide that a beneficiary under the mentioned provisions unhindered of Sec. 53a [the proposed ban of circumvention] shall be allowed to circumvent applied technological measures if the right holder fails to comply with the order within the time limit decided by the committee."

Indeed, this provision empowers the beneficiary with an effective means to enforce her copyright exception privileges – even against the will of the right holder. The beneficiary

may well negotiate with the right holder about these matters, but she can always fall back on claiming the copyright law solution to be enforced. Upon her request, such enforcement will be carried out. This is done primarily by obliging the right holder to provide, within a defined time limit, the information or other means needed in order to use the work as defined in the relevant copyright exception. Subsidiary, this is done by permitting the consumer to circumvent the measure if the right holder fails to do so. Thus, ultimately, the Norwegian "interface" grants a right to circumvent. And – perhaps even more importantly – it lies with the consumer to trigger this right.

Bottom line

The proposed Norwegian implementation of EUCD Article 6 links the definition of protected measures directly to the acts monopolised by copyright law: as the point of departure, only measures that are used for the purpose of controlling so-called "copyright relevant acts" are protected. Further, the ban shall not apply to acts of circumvention that are needed in order to enjoy the work within the private sphere on so-called "relevant playback equipment". The proposed "interface" obliges right holders to respect the relevant copyright exceptions while shaping their technological measures. If they do not do so, the beneficiary can file a complaint to a specialist tribunal empowered with the authority to – ultimately – grant a permission to circumvent.

Arguably, the Norwegian Ministry has all in all adopted a balanced – though perhaps controversial – interpretation of Article 6. Whereas the EUCD itself, by some, would be described as rather "toothless" when it comes to offering *real* protection to the consumer-side, the Norwegian proposal certainly puts power behind the good intentions in this regard.

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Contractual balance in digital content services

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Abstract: Alongside copyright balance, the question of contractual balance will gain in relevance as consumption and contract practices change with the evolution of new services. Using the analytical distinction of "consumption use" and "copyright use" the paradigm shift is demonstrated between the "legacy model" of book/CD purchase and new services like iTunes music store and 48-hour online "video rental" services. Admittedly the new focus on contracts goes together with new challenges.

Keywords: business models, consumer expectations, contracts, copyright law, foresight

Introduction

Digital content services delivered over electronic networks are changing contract practices in how works are offered to consumers. Not everyone agrees with me when I claim that we have seen only early experiments for digital content services and that many other and substantially different bargains will be offered to consumers. But for the sake of argument, let's assume that this is so and consider where this view forward takes us.

The detailed characteristics of new services are enabled by technical protection measures such as Digital Rights Management (DRM). My aim in this article is to illustrate that technical protection measures serve a dual purpose – they are not only used to structure copyright-related aspects of what is offered to the consumer. They are also to a significant extent used to structure the commercial offering, what is the bargain offered to the consumer. My suggestion is that this duality of purpose is relevant for analysis of "fairness" and "balance" of a given offering and that the perspective of contractual balance is an important factor in that analysis.

As this article focuses on the contract aspects, I largely omit discussion of balance under copyright law. Copyright balance involves the system of "copyright rights" and the exceptions and limitations to those rights defining the respective legal positions of the rightsholder and the consumer/user. Important public policy objectives are also served by the existing copyright balance system. These considerations continue to be important, but alongside copyright balance, the question of contractual balance will gain in relevance as consumption and contract practices change with the evolution of new services.

Consumption use and copyright use: technical, legal and commercial duality

When the content of a copyrighted work is accessed in a digital device (computer, TV set top box, game console, mobile phone), and if technical protection measures are not imposed, it is technically easy and convenient to carry out both

- "**consumption uses**": rendering and playback acts of accessing the work such as listening, viewing and reading; and
- "**copyright uses**": exploitation acts such as generation of further instances of the work (copies) and distribution, display, performance or the making available of the work to others.

I have here adopted the term "consumption uses" to distinguish consumption opportunities from the special meaning that the noun "use" has in copyright law. Vastly simplified, "copyright uses" are acts within the "copyright rights" of the rightsholder. They do not include what most people associate with consumption, the enjoyment of a work by a consumer.

Technical protection measures are the technical way of addressing risks and opportunities inherent in the multiplicity of uses enabled by the unprotected digital format. Yet it is more or less impossible to "cleanly" address only one of these two sets of uses and not the other. This is due to an overlap of the legal and technical ramifications of the

choices in what is enabled in a service: The more the consumer's "copyright uses" are restricted to preserve the rightsholder interests, the more is the consumption opportunity also affected. The broader the enabled consumption opportunities are, the greater is the risk of unauthorized "copyright uses". But the overlap is not limited to this technical/legal dichotomy. Whether a broader or narrower scope of consumption is offered also is a matter of commercial choice for the distributor and a matter of alternative offerings for the user. From the consumer's perspective, a narrower consumption scope can be quite attractive if it is associated with a substantially different price point. In this manner, use of technical protection measures has technical, legal and commercial dimensions. They enable and are being used for both:

- the structuring of "copyright uses" afforded to the user in a manner that may not conform to the established contours of the balance under existing copyright law; and
- the structuring of "consumption uses" afforded to the user in a variety of ways that may significantly alter the contractual essence of what the user is provided.

Despite some limitations in their design (e.g. creation of derivative works often cannot be supported), DRM solutions – and the "rights expression languages" underlying those solutions – are capable of a very granular articulation of what "consumption use" and what "copyright use" is afforded to a user. From a contract lawyer's perspective, such use of DRM is very likely to alter the contract, the bargain in comparison to traditional models, at least when requirements related to contract formation are met, such as description/disclosure, transparency of terms, reasonable expectations etc. Structuring of digital content services in this manner challenges traditional notions of balance under copyright law – and previous contractual models.

The paradigm shift: old paradigm described

We all are inherently familiar with the printed book and the CD recording. I consider these to represent the "legacy paradigm" of the offline/analog era. I include the (admittedly digital) unprotected CD format here as it is offered to users in exactly the same manner as the analog book. At least the following contractual characteristics typically are present:

- User purchases a permanent copy of the work; no contractual restriction is imposed on the time during which it may be consumed;
- Purchaser acquires legal title, ownership of the physical object – with the property rights in the physical copy (right to undisturbed possession, right to dispose by resale, gift, inheritance etc.);
- No restriction is imposed on the user regarding the number of times the content is accessed, by whom or where this occurs;
- No restriction is imposed regarding type or number of devices for playback/rendering;
- The contract includes neither a license to the user under "copyright rights" nor any curtailment of activities permitted under "copyright exceptions".

Outside the contract, the user is authorized to carry out certain copyright-relevant acts – e.g. legal ability to create copies for non-commercial use or to privately display and perform the work. These authorizations flow from copyright law, under exceptions and limitations to copyright "rights". They have contractual relevance – one hardly can claim they are entirely ignored by the contracting parties. But they are usually not a core part of the contract. The seller does not, as a rule, even have legal license to grant (sub)licenses to consumers and subsequent users under the rightsholder's copyright rights. The traditional book/CD paradigm contractually is a sale of movable property with no express elements of a copyright license. Copyright law fills in the "copyright uses" aspects.

Consumer-oriented discussion about digital works with technical protection measures often compares new services with this "legacy model" of book/CD purchase – mostly unfavourably. To push the point, when one

takes the unprotected CD as a benchmark, practically all restrictions present in the protected digital version tend to be a step backward from the consumer's point of view. Close review of the consumption scope granted, copyright uses enabled and the price point associated with the modified digital service offering may however suggest that a direct comparison to the book/CD paradigm is flawed.

Further, traditional consumption model examples structured as a service – rather than a sale of physical goods – suggest that it is not always offensive to structure both "copyright uses" and "consumption uses" by contract in a manner departing from the book/CD paradigm. Many services impose contractual restrictions that arguably extend to acts the user could engage in without violating copyright. Live performances, movies, museums, galleries etc. prohibit audio taping, videotaping, still photography, creation of painted replicas etc. (In what I regard to potentially mark an act of legislative overkill, videotaping of movie performances was recently (2005) made expressly illegal in the United States under the Family Entertainment and Copyright Act, Public Law no. 109-9).

The iTunes offering

Apple's iTunes service is the technically protected digital content service that at the time of writing this article (June 2005) is receiving the most attention worldwide. The iTunes music store provides protected audio content for use on computers and Apple's portable iPod devices. Based on a review of promotional language at the iTunes website and the U.S. version of the iTunes Music Store Terms of Service (found at http://www.apple.com/support/itunes/legal/terms.html), the commercial proposition on offer can be identified, albeit with some difficulty – even the generally user-friendly Apple site leaves much to be desired in this regard. The following is a decidedly incomplete list of important contractual characteristics, resting on heavy interpretation of Apple's license terms and promotional language:

- User purchases a "permanent" music item (and associated artwork) called a "Product";
- The Product may be stored and used on up to 5 computers and portable devices at any one time, and only on Apple-authorized devices such as Apple's own iPods;
- One iPod can accept and use Products from a maximum of 5 iTunes accounts at a time;
- There is an express limitation of the permitted "use" for personal and non-commercial purposes but the legal nature of possible "uses" does not appear to be defined
- There is no express copyright license to do so – and an express disclaimer of any license granted under copyright – but the user is provided a fairly liberal ability to convert ("export" or "burn") Products into other formats. Of particular relevance is the ability to burn music onto CD disks with relatively few limitations.

The bargain is in some respects materially different from the book/CD paradigm. For instance, the limitation on "use" on Apple-authorized devices only is a significant departure from the book/CD paradigm. But so is the express authority to use the Product on up to 5 devices at the same time – and the possibility to use Products from 5 different accounts (e.g. within a circle of friends or a family) on any one device. While there is no crystal clear copyright license language granting the right to create up to 5 reproductions of each Product to accomplish this, the disclaimer of most other copyright licenses clearly does not extend to this ability to put the music on up to 5 devices. At least to this writer, it seems that there, then, is a contract expressly permitting 5 copies and not objecting to practically unlimited, but unlicensed, burns to CDs (as an aside, I note here that this express authority appears to have relevance to the issue of copyright levies on devices, as the up to 5 reproductions in this example appear to be affirmatively licensed and do not rely on copyright exceptions). Clearly, the bargain is different from the CD bargain for the same content.

The relative success of iTunes at this time is the result of multiple factors – not the least of which is the exterior design and ease of use of the iPod device. There reportedly also are complaints from disappointed users. Nonetheless, the sustained growth and rave reviews of the iTunes/iPod experience seem to suggest that there also are users who, at least so far, are satisfied with what they have received in terms of the "consumption uses" and "copyright uses" enabled by the technical protection measures in the iTunes Products delivered to them.

Network based rental or library loan

A second service example – hypothetical for the purposes of this article, as I have not researched whether such a service already exists – would be a 48-hour online "video rental" service, which could be technically enabled to include:

- Download of a copy of a movie;
- Unlimited number of playbacks within a 48-hour time window;
- Possibly restricted to one device at a time, or to a technically defined location;
- Without technical ability to create permanent copies for future playback.

My reason for raising the rental example here is that, due to its similarity with DVD rentals, it is likely to be recognized by most consumers. If priced at a sufficient differential to the "permanently owned" copy of a work (like DVDs are priced at € 1 or € 2 per rental, in contrast to € 15 for an "owned" copy), it is possible to argue that the bargain, also for the consumer, can contractually be an adequately balanced one – even when ability to create a personal permanently usable copy is excluded. Another service example with significant restrictions closely resembling restrictive terms of analog services is a DRM-enabled eBook library loan – see e.g. at http://ebooks.nypl.org.a description of the New York City public library's eBook service

New focus on contracts – and new challenges

Technical protection measures enable an unprecedented flexibility for distributors of digital protected works to adhere to or depart from existing consumption and contractual paradigm(s) regarding both "copyright uses" and "consumption uses". The restrictions on either use, imposed by technical protection, are not necessarily offensive. What matters is: what is "the deal" and how it is understood. One trend of the shift taking place is a movement away from a product/sale paradigm towards a service paradigm that can be flexibly structured.

This new flexibility is not unproblematic – my objective is not to offer an apology for overly restrictive services. It is easy to get a service offering "wrong": With novel use of technical protection measures, especially with poor disclosure and poor marketing, user disappointment and rejection is often the result. Second, unlimited versatility means that it is difficult and frustrating for users to identify what consumption (and copyright) uses exactly they are getting when they obtain content from multiple services, all having different detailed structures for broadly similar offerings. In this issue of the INDICARE Monitor Philipp Bohn (2005) ably describes typical varieties of subscription services. While variety is welcome in early experimentation, it is not conducive to achievement of more mature success in a mass market. Mass market cannot happen without broad consumer acceptance.

Many consumer, business and public policy challenges need to be addressed. To illustrate the tip of the iceberg in this regard, I here suggest some obvious areas for development:

- How to harmonize multiple offerings serving more or less similar consumer needs, to reduce confusion and match expectation with experience?
- How to improve transparency of terms and remove ambiguity of what is on offer and at what price?
- Should there be some collaborative process to foster "best practices", even coupled with a trust mark to guide consumers?
- What is the role of standard contracts and how should they be generated?

- What effective and proportionate consumer protection tools can be used to address abuses?
- What kinds of support services are needed to address ancillary consumer needs such as restoration of content on broken (or stolen) devices, availability of extensions to time limited works, migration of paid for content between service providers?
- How to best preserve public policy objectives that may be affected by new contract models utilizing technical protection – such as information access and library service – as well as how to ensure access for civil, administrative and judicial purposes (heirs, regulatory, tax, law enforcement, courts etc.) to information within technically protected works?

Bottom line

These are major challenges. Yet I believe the new services can and eventually will provide significant value to consumers, once the experimentation dust settles. New opportunities – lending, rental, even "disposable" consumption of works that one may be quite willing to purchase several times, if priced accordingly – are still largely unexploited.

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Rent-A-Star: Do you subscribe to digital music?

By Philipp Bohn, Berlecon Research, Berlin, Germany

Abstract: Apple's iTunes Music Store (iTMS) has long been regarded as the undefeated champion of legal music downloads. Recently, companies like Yahoo!, RealNetworks or Napster have peppered the competition offering music on a subscription basis. This article wants to give you the basic facts this business is built on. It takes a look at the different business models and the Digital Rights Management systems involved. The advantages and inconveniences are weighed from the consumers', online retailers' and the music industry's perspective.

Keywords: market analysis – business models, consumer expectations, digital music, stakeholders, subscription services,

Placing the bets

Basically, there are two business models when it comes to selling music online: pay-per-download (à la carte) or subscriptions. Consumers are used to owning a CD and disposing of its content in any way. They "have been buying music for 50 years. They want to replicate that experience online", says Eddy Cue, Apple's vice president of applications and Internet services, overseeing its benchmark iTMS (Hansell 2004). But some people think different: "We see sub-

scription becoming the predominant contribution to our business very soon", Chris Gorog, Napster's CEO (Banerjee and Garrity 2004).

iTMS and most other online music stores today bill customers by the track or album they choose to download. In contrast, companies like Napster, Yahoo! and RealNetworks offer a monthly flat fee in exchange for unlimited downloads.

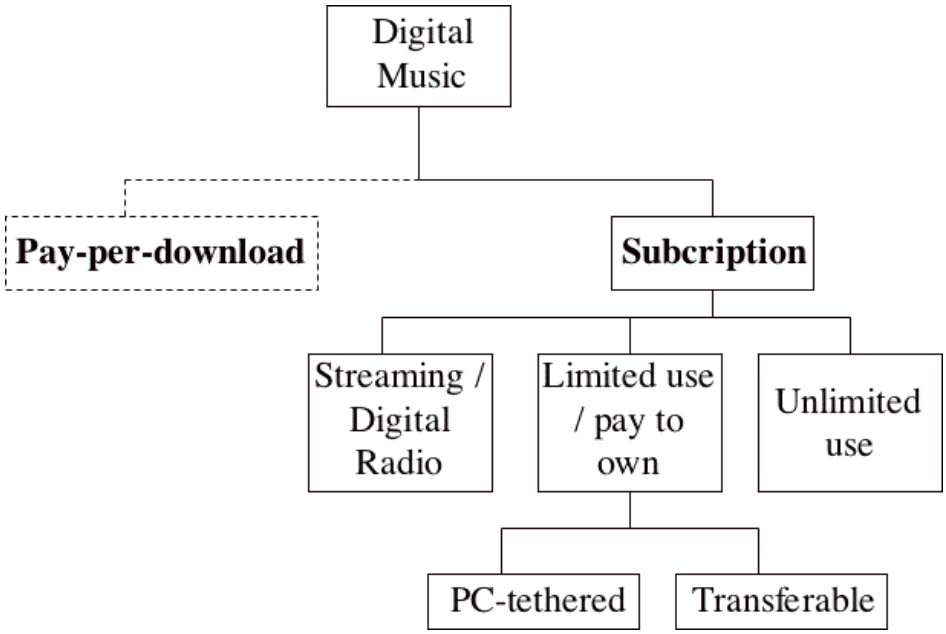

Figure 1: Online music business models

Figure 1 summarizes the various concepts of music subscription services ("Pay-per-download" is mentioned for the sake of completeness and contrast. The figure is not supposed to suggest homogeneity within that field). Streaming subscriptions or digital radio have already been introduced to the market for some time. This article focuses on the second environment: subscription. In that environment, you can listen to and download as much as you want as long as you pay the fee. Some services allow consumers to listen to the music on their PCs only (PC-tethered), while others make files transferable to portable devices. The third scenario is covered by smaller companies like Wippit from the UK, which will not be covered by this article.

Basics of usage rights management in subscription services

While subscription models provide unlimited access to music, the DRM regime is much stricter. The main difference between actually buying songs and merely renting them is the expiry of files upon cancellation of the subscription. Once you stop paying the monthly or annual fee, the files that you have downloaded cannot be played anymore. If you want to listen to them again, you must prolong the contract and the files are unlocked. In case files are made transferable to portable devices such as an MP3 player, licenses are programmed to expire on a set date. Subscribers need to connect their mobile devices to their PC platform in order to update usage rights on a regular basis.

The prerequisite for transferring protected music to portable devices to-date is Microsoft's Windows Media Digital Rights Management for Portable Devices (WMDRM-PD, "Janus"). Its real-time clock checks if a subscription license is still valid. If so, the file can be played-back until the end-date of the license. A license contains terms and conditions, or usage rights, by which content usage is regulated (Guth 2003).

In case the consumer has decided to own a track that does not expire, subscription providers offer him or her to buy it for a fee on top of the subscription price. The track can then be played as long as the consumer wishes and be burned to a CD a definite number of times.

The business models

This article takes a look at business models that are trying to challenge iTunes' business model, namely RealNetworks' Rhapsody, Napster's To Go service and the recently launched Yahoo! Music Unlimited.

RealNetwork's Rhapsody: Real offers four different retail schemes. The low-end offer allows consumers to listen to 25 songs per month for free and eventually buy one or more for the usual 99 cents. Upgrading to US $ 4.99 per month gives access to web radio with a limited option to personalize. Actual subscription starts at US $ 8.99, allowing listening to an unlimited number of tracks on your home computer. In case consumers want to transfer the tracks to a mobile device, the monthly fee is raised to US $ 14.99. These tracks cannot be kept and burned – owning costs 89 cents per song. Unlike other services, tracks are compatible with Apple's iPod, which is popular with allegedly 70 % of consumers (Seff 2005). This issue is highly debatable, as Real's policy is in disaccord with Apple. Availability to date: United States only.

Napster: As a basic service, the monthly subscription fee is US $ 9.95, while you have to pay 99 cents for a permanent copy. In case you subscribe to Napster To Go, this fee rises to US $ 14.95. In return, customers can transfer their files to a portable device. The company was the first to employ Microsoft's Janus DRM system that is necessary if files are to be transferred to external devices. Availability to date: United States, Canada, United Kingdom.

Yahoo! Music Unlimited: There has been quite a buzz about this service, mainly because of its pricing scheme: For $6,99 a month or, alternatively, US $ 59,98 a year, subscribers are allowed to access a library of more than a million tracks and a number of digital radio stations. In case they decide to own a particular track, they are billed a mere 79 cents per. Additionally, files are sharable via instant messenger with other members in the Yahoo! subscription community. Availability to date: United States only.

According to a study sponsored by the Online Publishers Association, more than 60 % of subscription consumers of digital entertainment content decide for a monthly contract (Online Publishers Association 2005). It remains to be seen whether or not Yahoo!'s low annual fee will change that behaviour.

Up- and downsides

The consumer: External devices are much cheaper to fill via a subscription than using individual downloads. Discovering new artists and styles is easy and painless, as you can listen to songs full-length without having to pay for each of them. Some think this is the next-generation radio (Leonhard and Kusek 2005; for a take on Yahoo!'s subscription service being in fact ad-sponsored web radio, see Malik 2005).

It can be argued that subscription services also fulfil people's need for belonging. Subscribing to a service, they become members of a club or community, not only customers of a shop. On the other hand, consumers may prefer single transactions with different shops and not binding themselves to one single online point-of-sale.

But there are disadvantages. Customers do not own the music they have paid for. If they cancel the subscription, the files become useless. This ultimately is a psychological problem, which is owed to the idea of "owning" music bought on physical media or from a download music store (Palmer 2005). Others say that owning music bought online is just a myth, as users are ultimately not in control of what they can do with the music they have purchased – e.g. burn as often as they want, share with friends and family, etc. (Leonhard and Kusek 2005).

Also, the collection of music can be less concise in case of subscription libraries. This is due to the fact that not the entire catalogue is available both for subscription and for purchase. For example, Rhapsody has 600,000

tracks available in the subscription section, while the music store offers only 500,000 (Garrity 2004). Thus, the customer cannot be sure in every case that the song he or she wants to buy really is available.

The consumers' sceptical attitude is reflected by results of an INDICARE-survey, in the course of which consumers state that they would rather pay 1 Euro for a song that they can listen to as long as they like vs. 20 cents for a song they can listen to for one month only (read: subscribe).

A survey conducted in the USA asked consumers whether they prefer to buy tracks for US $ 1 each or pay a US $ 10 monthly subscription fee: 40 % chose to pay per track vs. 8 % would rather subscribe (Parks Associates 2005)

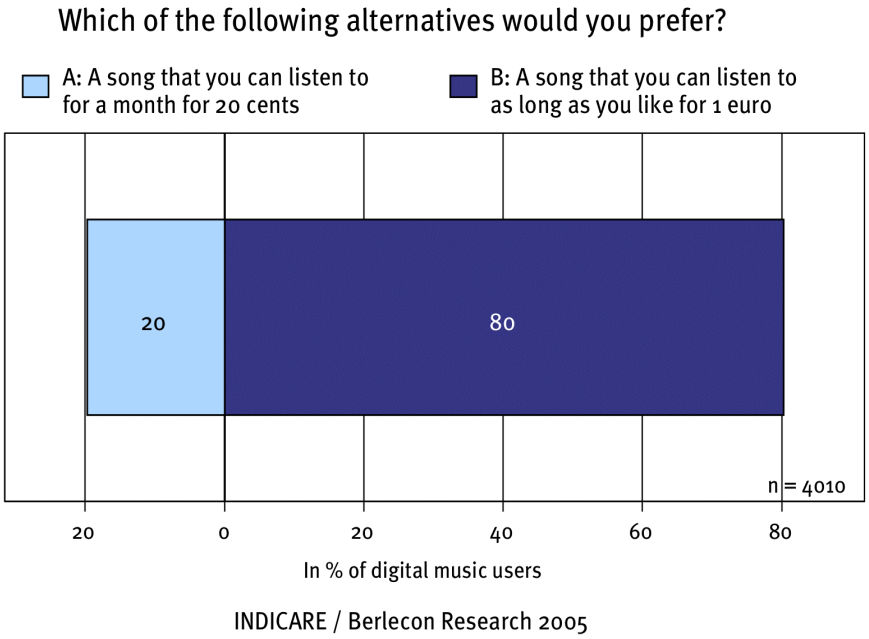

Figure 2: Willingness to pay for ownership (Europe)

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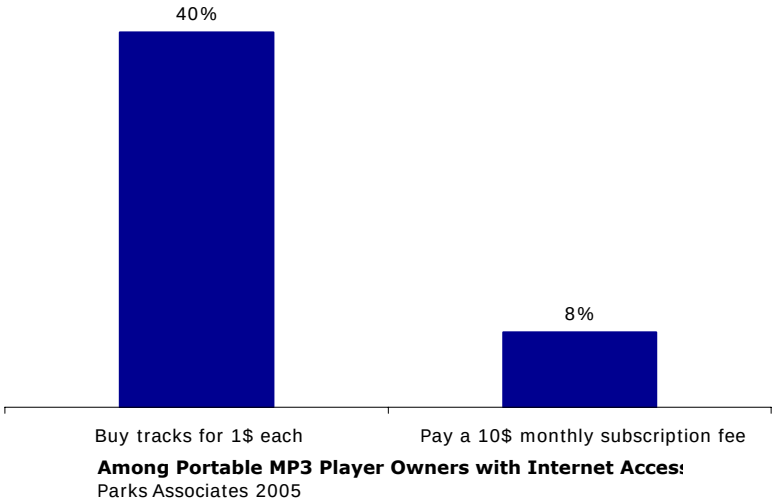

Figure 3: Willingness to pay for ownership (United States)

Subscribing to music is not yet a common idea with consumers. Especially the European market does not appear to be ready for that service. There is only Napster offering subscription in the United Kingdom and some smaller players like UK's Wippit.

Online Retailers: One of the greatest advantages is a constant revenue stream derived from subscription fees. This considerably reduces economic uncertainty and risk. Subscriptions are also more profitable for them, as revenues usually are split evenly between the record labels and retailers. In the pay-per-track world, about 65 to 70 cents for each 99 cents are transferred to the record companies (Hansell 2004).

Furthermore, subscription services can be cross-selling opportunities. If the subscriber feels positive about the service, he will probably be willing to buy special releases, previews, package deals, tickets, merchandise, videos, books, etc. (Leonhard and Kusek 2005).

But there seems to be quite a long way ahead, as retailers need to work on two major issues: DRM and interoperability. Limited usage rights being the prime obstacle, the educational challenge is higher. It can be doubted that customers want to be educated about anything they spend their money on.

Also, there seems to be a severe misconception when it comes to DRM-awareness: Consumers do not know about it and if they do, they do not care too much (Dufft 2005). Napster's CEO, Chris Gorog, possibly misinterprets reality when stating: "As we market to the consumer that has not yet discovered digital music, he'll be going out and purchasing his first MP3 player, and in all likelihood, he'll want to make darn sure it's Janus-compatible". He or she hardly knows about DRM, let alone Janus DRM.

Also, retailers should make sure not to end up with a "razor and blade" business model (think Gillette), forcing the consumer to stick with a single soft- or hardware if the tracks are supposed to remain playable. Some argue that ultimately online music stores sell hardware, rather than music (Leonhard and Kusek 2005). For example, you cannot play tracks purchased from Napster on an iPod due to different DRM regimes; or you must use Yahoo!'s software to access its store.

Music labels: Music subscriptions first of all are another distribution channel. For some, it is even the "single greatest defence against piracy, because it most replicates the illegal experience of unlimited access to music" (Chris Gorog).

Given the fact that customers do not have to pay for each track, subscription models are a great platform to promote and expose less known artists. This can significantly increase track plays, the most important measure of success in the industry.

If the record companies are aware of their customers' perception and need for convenience, subscription services are a great promotional and distributional tool. As holds true for the online retailers, subscription reduces risk and uncertainty by generating a constant stream of revenue.

Conclusion

Subscription services can deliver real value to all stakeholders. Consumers are given access to large libraries of their favourite music; they do not have to pay separately for songs they want to listen to only a limited number of times; it is convenient when it comes to billing and it is cheaper than à la carte.

Online retailers and labels must realize that the biggest challenge is to make consumers comfortable with renting, as opposed to owning, music. They must also be aware that consumers do not care about DRM, but simply want to listen to music. Rights protection being essential for the success of music subscription, success can only come with smart and convenient business models.

In the end, subscriptions as well as commercial downloads compete with DRM-free music files that are perfect goods: they are available anytime, anyplace and without limitations. Some authors say that any cuts from that should be compensated by reductions in price or value-added services (Knopf and Sorge 2003). Others think that every accommodation short of total DRM-

protection should be compensated by the consumer (Hansell 2004).

Bottom line

There will only be limited resistance on the side of consumers once prices drop, DRM-issues are resolved, and libraries are filled with millions of easily accessible tracks, which are interoperable with a multitude of inexpensive playback devices.

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P2P sharing: Commercialize it!

By Philipp Bohn, Berlecon Research, Berlin. Germany

Abstract: The eminent rise and popularity of P2P networks such as KaZaA show that there is massive demand for conveniently shareable content. This challenges the success and business models of major media companies. Recent research shows that consumers are in fact willing to pay for the right to share files. This article identifies and evaluates business models from the particular perspective if and how peers are allowed to legally share purchased digital music. Business models based on legal P2P and sharing can be to the benefit of both the industry and the customer.

Keywords: market analysis – business models, consumer behaviour, file sharing, P2P

What's the price for freedom?

Beyond doubt, some features of illegal P2P networks – such as taste-making and optimized delivery – are desirable for legal services (cf. Rosenblatt 2004). But considering the divergent interests of the entertainment industry, providers of P2P technologies and consumers, it seems hard to imagine how those features can be commercialized. In view of the copyrights concerned and the vastness of P2P networks, efficient tracking and billing of shared files is a complex issue. Yet, the idea that P2P sharing and commercial distribution of music continue to converge is supported by the results of the first INDICARE survey, which have recently been made available (Dufft et al. 2005). This article provides an overview of the ecosystem of legal P2P and sharing models. In the course of this article, a P2P-network is understood to be a decentralized network that does not rely on a server-client infrastructure, circumventing third parties such as online stores. Sharing is the activity of making digital content available to peers.

The business of sharing

This article looks at existing and potential business models for sharing from two major angles: online vs. offline connectivity and distributional concepts that allow for sharing content. Before venturing on the details of sharing, an important distinction should be made concerning two prominent features of digital distribution. Its purpose can be primarily the sharing of content or the recommendation of music. While the industry embraces the latter, it is reluctant to provide ways to legally share copyrighted material.

Digital channels

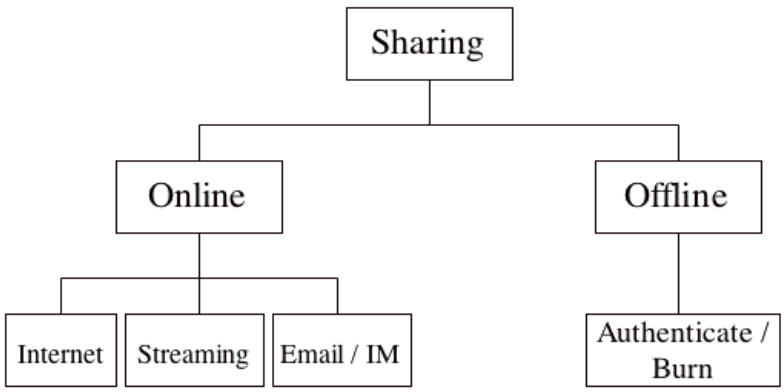

Figure 1: Online vs. offline sharing

The most prominent distinction is online vs. offline sharing (see Figure 1). If customers wish to exchange data online, they may chose – first of all – the Internet to up- and download content. In this case, sources comprise online stores, links on websites and blogs – both commercial and private – or file sharing networks. A second option is streaming. In this case there is no permanent download. Rather, content can only be consumed once. Applications such as Apple's iTunes make use of this technology. iTunes users located within a well-defined subnet (a division of a computer network) of up to five peers can browse and stream each other's musical libraries. A third channel in the online domain is email and instant messaging (IM). Peers send each other single files or playlists that the recipient is free to sample for a definite number of times. After that, he is invited to purchase the desired tracks for a fee.

Sharing is possible offline by means of simply burning a track to CD or DVD and physically handing it over to a friend. Most online distributors allow for burning songs a number of times. After that, DRM restricts further burning. There are also business models built on physical DRM-free distribution. In that case, consumers are encouraged to copy promotional CDs and share them with peers (Reynolds 2005).

Legal P2P business models

Business models can be divided into those that build on "bulk" or "individual" sharing. Generally, a P2P network is a decentralized network that does not rely on a server-client infrastructure. Bulk sharing models make use of the most prominent features of file sharing networks such as Ares, FastTrack, Overnet or Gnutella: consumers can browse enormous libraries of digital content and conveniently share it with peers. On the other hand, consumers may want to package and share their music on a more personal basis. This usually happens via streaming but also by downloading and forwarding files (Gasser, McGuire, et al. 2005). In the case of business models for sharing, legal means the exchange of digital content without the violation of copyrights.

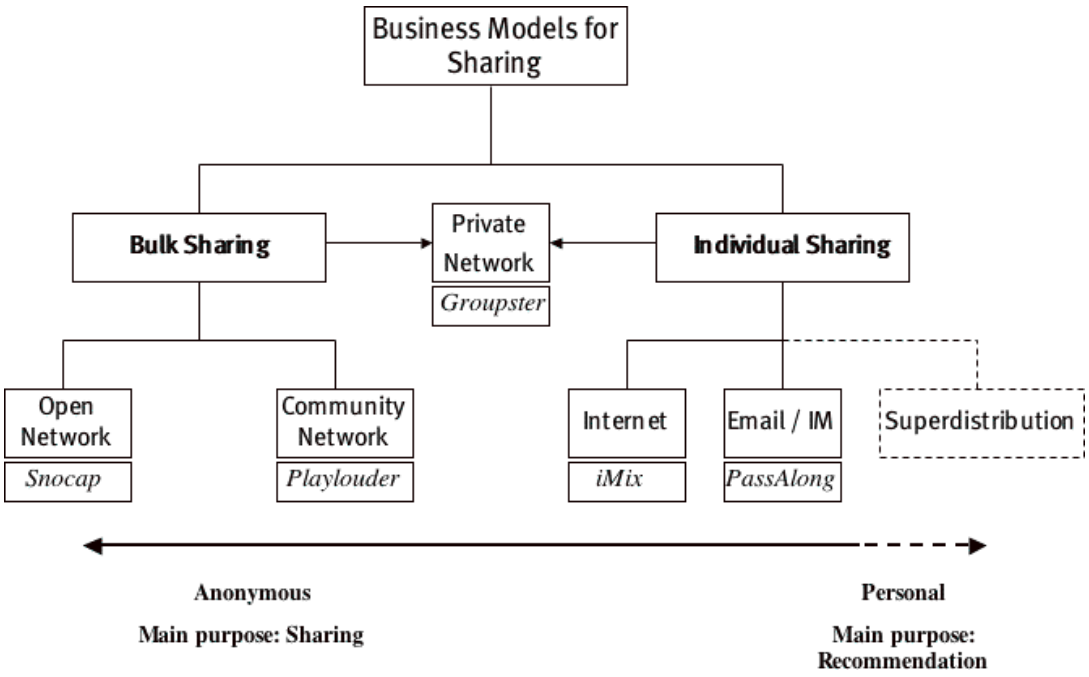

Figure 2: Business models from a sharing perspective

We can further differentiate bulk sharing between open networks and community networks, often referred to as "walled gardens" because of their exclusive nature. One of the most distinguished business models that make use of already existing open networks is Snocap. This back-end technology offers a licensing service that can be integrated into any P2P network service, e.g. KaZaA. Copyright owners can register their content in the company's database. They can then specify pricing and DRM (Jones 2004, Dean 2005). Former Grokster president Wayne Rosso's newly introduced Mashboxx service also uses Snocap to identify copyrighted tracks within networks like eDonkey and Gnutella (Adegoke 2004). Community networks such as UK's Playlouder MSP (MSP stands for Music Service Provider) offer the end user a bundle consisting of broadband Internet access and a library of musical content that can freely be shared among peers subscribing to that service. They cannot share with outside peers, though (hence, walled garden).

Individual sharing business models

On the other hand, consumers may want to package and share their music in a more personal fashion. In contrast to bulk sharing, individual sharing models focus more on recommendations. In the legal sharing environment, users are free to individually share single tracks or compilations of their favourite music. One example is iTunes' iMix feature. Anyone using iTunes can compile track-lists and share them via email or post them on the iTunes Music Store. Thus, friends and peers are invited to browse and sample previews of music recommended to them for free and eventually make a purchase. There are other schemes that make use of email and IM services to allow customers to share content. PassAlong Networks has partnered up with eBay and offers a library of about 200,000 songs available to forward via IM. Likewise, MSN Music Store allows using MSN Messenger to share music (Gasser, McGuire, et. al. 2005).

Yahoo!'s Music Unlimited service, that has just been launched in beta mode in the U.S., is also based on the legal sharing concept. In contrast to competing, more expensive offers, sharing with peers does not seem to be a mere accommodation. It rather stands at the core of the service. Sharing options are heavily integrated into Yahoo's own messenger and desktop application. Subscribers may freely access, browse and stream each other's library or send music files to other subscribers via the company's own messenger (it is possible for the customers to opt out of the sharing features). The company obviously came to realize that one of the most important factors of commercial success is community building (Dean 2005).

There are also superdistribution models or promotional networks like Altnet's PeerPoint Manager (PPM) that offer incentives to share specific content. These offers are primarily distributional or promotional tools. Participants collect points per file they share. They may then redeem those points for content or win prizes.

Finally, there is a grey area in between bulk and individual sharing. Applications such as Groupster allow peers to form individual sharing communities. Each member has to be authenticated within the network. Once done, members can freely share all the content they wish – including of course digital music. As individual communities are limited to 30 members and mp3 files can only be streamed, this is argued to fall under the fair use exemption (in the US copyright environment, that is). This clause allows copyrighted material to be shared with a private audience, such as close friends and family (Metz 2005).

What's the motivation to engage in P2P?

There are two major reasons for content providers to offer P2P features: reduction of distributional costs and recommendation of content. Distribution costs for musical content are only 20 cents for each dollar spent on traditional distribution, e.g. via CD (Palenchar 2005). Furthermore, for some companies P2P distribution might also be a way to cut down on costs for server and broadband capacity, as there is no need for a centralized infrastructure (heise online 2005). Opportunities to save on costs make P2P very attractive especially for independent labels that

command slimmer marketing budgets than the majors.

Traditionally prone to mass marketing, sharing and recommendation schemes give major music labels the chance to get down to the personal level. EMI UK's chairman and CEO Tony Wadsworth: "As a concept, any thinking person can see that customers turning other people on to music can be a good thing" (Anon. 2004). This holds true especially for legal sharing, which is less anonymous than P2P (please refer to Figure 2).

Another important advantage of P2P and sharing is long-tail distribution. This concept states that products that are in low demand can make a substantial market if only the distribution channel is large enough. Those items may eventually outsell current best-sellers and blockbusters. Given the global penetration of broadband networks, labels are now given the opportunity to sell content that would be too expensive to distribute using traditional channels and targeting smaller audiences (see Anderson 2004 for an introduction to that concept).

Conclusion

The commercialization of P2P sharing offers potential benefits for consumers and the industry alike. P2P sharing offers cheap distribution channels. There are innovative ways to distribute content that formerly was too expensive using traditional distribution. From the consumers´ perspective, P2P gives them the opportunity to conveniently share digital content at any time. Furthermore, it is a way to obtain recommendations from trusted personal sources as opposed to anonymous marketing messages. Finally, if the right-holders themselves seed their content into P2P networks, the number of intentionally corrupted files and spoofs will be reduced. This leads to an increase in content quality and attractiveness of commercial P2P sharing.

On the downside, consumers can only chose between various technologies, services, concepts and platforms that are mostly incompatible. Even if the consumer has worked through that thicket to decide on a service that suits his specific needs and consumption behaviours, he cannot get in touch with peers outside the particular network. Bundled offers or services tied to certain devices make sense only so far as they strengthen DRM but limit consumers' flexibility.

Bottom line

The fact that digital rights need to be protected and artists to be paid is essential and unquestionable. With a convenient and efficient DRM system handled by back-end technology and business models that centre around consumers' needs and preserving community spirit within the sharing network is a promising way to success.

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Digital Media Project – Part I
Towards an interoperable DRM platform

By: Ernő Jeges, SEARCH Laboratory, Budapest, Hungary

Abstract: The Digital Media Project, often referred to as DMP, is the fruit of a grass root movement that developed in 2003. Its main aim is to develop the fundamentals of standardized and interoperable Digital Rights Management for digital media. Although the project is making publicly available numerous documents on its website (DMP web site 2005), it is not easy to put the pieces together and to assess the project. Therefore INDICARE dedicates a two part article to DMP. The present first part aims to give a brief overview of DMP and its approach, while the second part – scheduled for the next issue of the INDICARE Monitor – will attempt a critical assessment.

Keywords: review – consumer rights, digital media, fair use, interoperability, stakeholders, standards

Introduction

Ever since content has existed, it had to be carried by some physical media, making possible the handling (viewing, listening, etc.) of the content by some appropriate physical device. In the age of the analogue media the connection between these two levels, the content and its handling technology was very tight, as the usage of the media always materially affected the content. This way the distinction between the medium and the content itself was blurred. This circumstance has strongly influenced the evolution of the media business, policies and legislation, and has shaped the form in which these issues exist today.

With the appearance of digital media, both the existing functionalities of the analogue media were extended and a wider set of functionalities was made possible. The Digital Media Manifesto (Manifesto 2003) calls this new experience, offered by the digital technology the Digital Media Experience. However, as the business and legislative models draw their origin from the analogue world, many practical solutions are lacking, and what is worse, some of new and innovative models appeared to be unprofitable or, sometimes even had to face legal prosecution.

This stalemate has both economic and social consequences. As digital media has the potential to become the major driver e.g. for the spreading of broadband access, or for the development of consumer electronics and the IT market, these industrial domains suffer vast economical damage from the stalemate

on digital media. From the social point of view, further development of digital media could enhance education, information interchange and the overall well-being of individuals.

The vision of DMP is to break the stalemate regarding digital media: *"The Digital Media Manifesto proposes to make an improved Digital Media Experience economically rewarding on a global scale, legitimate for the multiplicity of players on the value-chain and satisfactory for end-users, with the ultimate goal of realising a fuller Digital Media Experience"*.

The Digital Media Project members – at present DMP is an organisation with members from circa 20 companies from all around the world –, have realized that the key for achieving this goal is in standardising DRM technology. By having a widely accepted standard for the whole DRM value-chain, the services and the devices would exploit the possibilities of the digital media more efficiently, thus not only promoting the acceptance of these technologies among the end-users, but also motivating the content creators to use digital technologies as new, inspiring media to distribute their work, relying on a dependable remuneration system.

From decomposition to interoperability

In the terminology of DMP (Terminology, 2005), all actors in the value-chain, irrespective of being at the beginning, somewhere in the middle or at the end of the chain are called *users*. The consumers, as the actors at the end of the value-chain are called *end-users*. Users perform certain *functions* to do business between each other. Functions are implemented using *tools*, which represent the underlying technologies that handle the digital media. The following figure 1 shows the value chain as identified by the DMP (Architecture, 2005):

The technology, thus including the underlying tools, is changing very rapidly, so it cannot be guaranteed that a function that has been used recently, or is used today in the value-chain, will exist unchanged for a longer period of time.

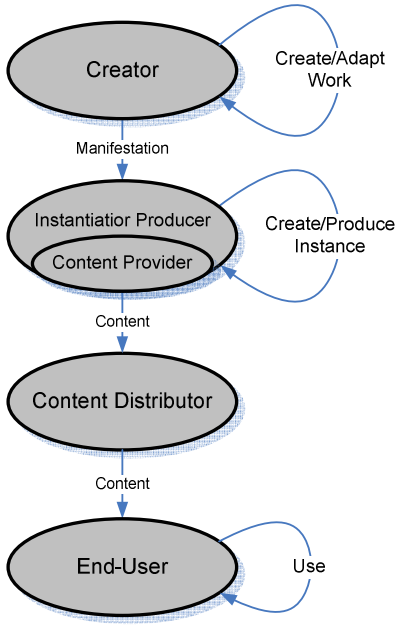

Figure 1: Digital media value-chain

For this reason, identified functions were decomposed into atomistic *primitive functions*, which, appeared to be quite stable from an examination of the development of both analogue and recent digital technologies. As they were constantly present in different functions throughout the continuously developing technologies, it was obvious that standardisation could be achieved by the standardisation of these primitive functions. In this way, any future function could be either composed using the already standardized primitive functions, or a new primitive function would have to be introduced, without modifying the original architecture of the standard. Primitive functions describe simple activities like for example "Identify data", "Authenticate user", or probably the most evident "Access content" (IDP Functions and Requirements, 2005).

The primitive functions are derived from the complex functions being used in today's tools, which are on the other hand identified by examining several media usage scenarios, called *use cases* (Use Cases, 2005). As the use cases are based on the digital technologies in the form they exist today, or are planned to exist in the future, their analysis could result in DRM solutions that would alter the evolved balance between different users in the value-chain and modify the way

they usually do or have done their mutual business. To prevent this effect, DMP has constructed an imposing list of 88 *Traditional Rights and Usages* (TRU-s). These rights and usages are used as guards to test whether standardised DRM technology would violate the scope of traditional expectations of different users in the value-chain, especially the end-users. As people's expectations about DRM solutions are based on their present and past experiences, this is an effective way to ensure that a proposed DRM solution would not force the users against their needs, thus keeping the proposed DMP standard future-proof.

After having the past, the present and the future planned tools decomposed to the level of primitive functions, DMP has a level playing field, in which new standard tools can be assembled. The set of standardised DRM tools based on the primitive functions is a toolkit called the *Interoperable DRM Platform (IDP)*, whose specification is the most important technical outcome planned by the Digital Media Project (Interoperable DRM Platform, 2005). This toolkit could provide both lightweight and heavyweight DRM solutions, depending of the specific needs (Chiariglione's Vision, 2004).

In the terms of the DMP, interoperability means the ability of the users in the value-chain to execute functions using standardised tools, which have open specifications and are independently implemented. The IDP not only provides potential to implement a great variety of value-chains using standard technologies, but these value-chains also remain compatible, as they are built up from interoperable tools. Furthermore, lower prices and higher level of services are expected for the benefit of the end-users, not only because of the reusability of the standard tools, but because of the higher level of competition between different device manufacturers and service providers, as both the tools and different services could be supplied by multiple, competing parties.

These properties envision, that IDP may release the tension between interoperability and information security described in (cf. van Daalen 2004). In the terms of the DMP every manufacturer is applying pieces from the same "democratic" standard, as there are no producers which can be called "third parties", who can be admitted to or barred from the market, and the regulation of DRM solutions is not enforced by governments, but the standard alone. Competing producers on the market can really concentrate on the services their devices offer, knowing, that the underlying interoperable DRM solution is secure enough to protect the contents.

The role Traditional Rights and Usages

There are several actors in the value-chain, having different interests. Diffusion of a standard technology is highly influenced by having the proper respect of the rights of every value-chain member. In fact it is an important aspect of standardization to decide which functions and rights should be mandatory in the standard, and which should be left open to negotiations between different value-chain users. However meeting the end-users' expectations has the most important role in fostering the acceptance of a DRM solution.

To achieve this goal, DMP has stated that both technological and legal aspects of DRM need the existing policies to be revised. From the legal point of view maybe the most important, but merely general stated goal is that basic user rights, as traditionally enjoyed by end-users should be ensured. The list of Traditional Rights and Usages is an irreplaceable tool in being attentive to this goal, as DMP not only improves the support of TRUs by describing scenarios of how these rights and usages could be supported, but is also deriving additional Tools and Use Cases from scenarios, to see, whether present demands can be fulfilled relying on the standard being developed. Being successful in this would mean that presumably any future demand would also be met.

On the other hand, from the purely technological point of view, several main features are defined, which a widely accepted DRM solution must provide. Beside the requirement that all users in the value chain must have technical ability to access the standardized DRM platform, and that this access should be done with a single device for similar services, it is also stated that the rights

and usages traditionally enjoyed by end-users should be technically supported.

As for "fair use", being an essential traditional use enjoyed by end-users, the DMP terminology does not talk about the right to copy content for one's own purposes, but it speaks generally about the "ability to make continued access", which is again more general, but also more abiding. This includes the "right to time shift" or the "right to space shift" content, which mean respectively to access "owned" content anytime and anywhere.

Based on their origin, Traditional Rights and Usages are classified into the following groups:

- Already-established legislative TRUs of content creators and end-users.
- Commercial and remuneration TRUs of direct economic significance.
- TRUs related to general social liberties.
- Fundamental TRUs from historical practice and interaction with analogue media.
- Consumer-choice TRUs relevant to the high-tech environment.

So, basically, TRUs are here as safeguards, to protect DMP from derailing; however, an identified, defined and described TRU does not necessary mean, that a user *should have* a right to use the digital media in the specified way, but it only indicates that different value-chain users, especially the end-users would probably be *interested* in using the digital media in the same way. TRUs simply express the users *expectations*, which may change very slowly compared to the technology, but respecting them has an ultimate role in the acceptance of a DRM standard.

Bottom line

At the present state of its work the DMP has released a Call for Contributions "Mapping of Traditional Rights and Usages to the Digital Space" (Call for Contributions, 2005). In this call the DMP is expecting contributors to define, in what form Traditional Rights and Usages could be supported by the Interoperable DRM Platform. Several most important rights and usages are chosen from the list of TRUs, and as a result of this process, Recommended Actions will be developed that are to be presented to governments and regulators. Having presented the basics in this article, in the next issue of the INDICARE Monitor we will try to figure out the pros and cons of the DMP approach

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DRM: from theory to implementations
Report from a course in Louvain-la-Neuve, 17-19 May 2005

By: Ernő Jeges, SEARCH Laboratory, Budapest, Hungary

Abstract: This is a report from the course "Digital Rights Management – from theory to implementations" organized by the Graduate School in Electronics and Communications at Université catholique de Louvain in Louvain-la-Neuve, Belgium. It was a three-day course from 17th to 19th May, 2005, focusing on different technical aspects of DRM, like watermarking and steganography as means of data hiding in digital contents, key management and traitor tracing in digital broadcasting systems and much more.

Keywords: conference report – broadcasting, cryptography, technical protection measures, watermarking

Introduction

The Graduate School in Electronics and Communications (GSEC) at the Université catholique de Louvain (UCL) is co-organized by three UCL laboratories from the Electrical Engineering Department (ELEC). The courses of the GSEC are provided both to gain background knowledge of different areas, and to gain an understanding of the latest research. The course "Digital Rights Management – from theory to implementations" had the technological aspects of DRM systems in its focus (AS13). The majority of attendees were from UCL and other Belgian universities, but as the course was open to the public, and the list of invited speakers offered a promising overview of the latest results in the area, a great number of people had registered to the course from all around Europe.

The three-day course started with a brief introduction to the cryptological basis of the technologies widely used in DRM systems, which was held by *Jean-Jacques Quisquater* and *François Koeune*, the hosts of the course. Their lectures included topics like symmetric and asymmetric cryptography, RSA encryption and digital signatures, key exchange protocols, data hashing and the set-up of public key infrastructures.

Introduction to watermarking

After the quick mathematical warm-up, we were thrown into the deep water of watermarking by *Ingemar Cox* from UCL (this time this abbreviation means the University College London). First of all, the definition of watermarking and several related terms were given (Cox).

Watermarking is the practice of unobtrusively modifying a work of art (image, song, software program, geometric model, etc.) to embed a message *about that work*. This is considered a general definition, and may differ from other definitions, which may include also imperceptibility, or can refer to any means of data hiding. Following this train of thought, we defined *data hiding* as a general technology for preventing adversaries from perceiving or finding some kind of data, and *steganography* as keeping the existence of messages secret by hiding them within objects, media, or other messages. So, to simplify, hiding data in (digital) content is the goal, and if the embedded information is about the carrier content itself, then it is watermarking, but if it is an arbitrary secret message then we call it steganography.

To detect the embedded watermark, we can either use some information about the original, unmodified content (*informed detection*),

or not (*blind* or *uninformed detection*). The error rates in watermark detection can be expressed using the *false positive rate*, as a frequency with which we can expect to find watermarks in content that is not watermarked; and the *false negative rate*, the frequency with which we can expect *not* to detect watermarks in watermarked works. The acceptable level of these error rates depends of the particular application.

The most important properties of watermarking systems are:

- *Fidelity* – the perceptual similarity between marked and unmarked works.
- *Payload* – the amount of information that a watermark can embed in a single work.
- *Robustness* – the watermark's ability to survive normal processing (e.g. compression).
- *Security* – the scheme's ability to resist hostile attacks, specifically designed to defeat the purpose of the watermark.

In DRM systems the most common goal of watermarking is to imperceptibly and irremovably include information about the content in the content itself for the purpose of broadcast monitoring, owner identification, proof of ownership, transaction tracking, content authentication or copy control.

Applications

The first speaker of the second day was *Adi Shamir*, who is presumably often introduced as "the S from RSA", just as happened this time. He presented a key management scheme in broadcasting systems, where we have to address a *privileged subset* of end-users by broadcasting encrypted content to them using multiple pre-distributed keys. The schemes introduced in the talk were based on a binary-tree with the end-users on the leaves; we can define inclusions and exclusion of sub-trees on the branching nodes, to choose the right keys to have the desired subset of end-users being able to access the content. The latest improvement in this technique is the LSD broadcast encryption scheme (Halevy and Shamir 2002).

After the later mentioned panel discussion we had a lecture by *Yvo Desmedt*, who was speaking about traitor tracing in broadcasting environments. The goal is to find the subscriber or maybe some conspiring subscribers, who extract their keys from their devices (e.g. a set-top-box) to sell them on the black market. Several schemes were introduced, discussing their strengths and weaknesses. The speaker concluded, that traitor tracing is a useful tool for DRM, especially in broadband broadcasting, and is becoming better and better, but there are some limitations: for example there is a proven theorem, that a *perfect* traitor tracing scheme (where an *innocent* party is *never accused*) is impossible (cf. Desmedt et a.l. 2002).

As nowadays more and more digital applications, like first-person-shooting games, medical images, different simulations and computer aided design (CAD) systems rely on inner 3D object representation, it has became essential for product or service providers to protect their intellectual property inherent in these models. In the first lecture of the closing day a watermarking scheme was introduced, using which a secret message can be embedded in a 3D model. With the future appearance of 3D-televisions, this issue can be essential for content providers, and furthermore, a brave vision of a 3D-Google was sketched.

In the rest of the closing day a basic model for access control to content was introduced, after which the last lecture of the course introduced the digital cinema and its most important technical issues, focusing on the requirements and challenges of choosing hardware components based on which a robust and secure digital cinema hardware can be built.

The panel discussion

The panel discussion started with a "warm-up" question directed at *Adi Shamir*, questioning what's new in cryptography and cryptoanalysis. Mr. Shamir's feeling was that the cryptoanalysis of hash functions is an area, in which not much has happened since 1990's, and that research has received a boost lately.

As the majority of lectures focused on watermarking, the discussion concentrated on

this issue. The greatest challenge in this area today is to develop *public-key watermarking* (PKWM), similarly to public-key cryptography, which would presumably mean that one can put watermarks on a piece of content using a private key, so that everybody would be able to check the existence of the watermark using a public key. As the word *presumably* in the last sentence indicates, the biggest problem is that we don't even have a precise definition or even a clear goal yet concerning the PKWM.

After a short debate it turned out, that our expectations in the area of classic watermarking are not clear as well. We are trying to trace the content by technical means, to find where it is leaking, but in the end in most cases it turns out that the leaking point is some old lady living in a small village, so the technical solution is barely handy. The speakers agreed that DRM is more about psychology, as a leak is not the cause of the problem, only the syndrome.

The problem in today's business models originates from the fact, that those who are putting protection on contents are not those who profit from really strong protection. A strong watermarking scheme, which is still a wish, could completely restructure currently failing business models, as in the future content providers will be able to put the needed protection in the content themselves. Still, the only thing that can be done by device manufacturers today is not to chose a standard now, but to build upgradeable devices, and to be prepared for constant improvement of the schemes, like it was in the case of smart cards used for phone-cards.

Before the end of the panel discussion, *consumer privacy* in broadcasting techniques was discussed. As broadcasting becomes more and more interactive, providers will be able to monitor consumers' activity. This backward information should also be covered in forthcoming DRM solutions, thus a strong demand for *two-way* DRM systems is arising, where not only the content providers' rights are ensured, but also the consumers' privacy is protected by technical means.

Conclusions

As a conclusion we can state that the main challenges to technical solutions of DRM are moving towards a risk management-based approach, admitting that piracy cannot be completely eliminated, but at least it must be controlled. Watermarking could be a useful tool in implementing these new protection schemes, which would need a change in the current business models. However watermarking is not strong enough yet to sustain possible attacks, and it is still questionable, whether it will ever reach the desired security and robustness level.

By the spreading of broadband access and digital broadcasting, the need for technical solutions to control both the broadcasted content and the backward information flow is growing. The panel discussion proved that in some areas research is demand-driven, but several areas are developing without clear definitions and a clear view of the possible usages, which is admittedly not necessarily a problem in the early phases of research.

Bottom line

As for the current state of DRM protection schemes, the summary of the panel discussion, addressing the attendees, can serve as the overall summary of the course: "Everything is broken, so we are waiting for your research". Not so promising, but at least optimistic.

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